## Final Environmental Impact Statement

### for the Ball Hill Wind Project Chautauqua County, New York Volume 2

November 2016



Prepared for:

Ball Hill Wind Energy, LLC 11101 W. 120th Ave., Suite 400 Broomfield, CO 80021

Prepared by:

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Global Environmental Specialists

## Final Environmental Impact Statement for the Ball Hill Wind Project Chautauqua County, New York

Volume 2

November 2016

Prepared for:
Ball Hill Wind Energy, LLC
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# H Bird and Bat Resources

### H-1 New York State Post Construction Bird and Bat Mortality Rate Tables

Bird Fatality Rates from Post-Construction Studies Conducted at New York State Wind Energy Facilities Table H-1

Otate	wind Energy Fa	ciities	Reported Mortality Rate (adjusted for searcher efficiency and			
			searcher en scavenger			
				Number of	_	
	Monitoring		Number of Bird	Bird		
Wind Project and	Start/End		Fatalities/	Fatalities/		
Location	Date	Year	Turbine/Period	MW/Period	Reference	
Maple Ridge, Lewis Co						
Daily surveys	6/17 – 11/15	2006	9.29	5.63	Jain et al. 2007	
3-day surveys	6/29 – 11/15	2006	4.47	2.71	Jain et al. 2007	
Weekly surveys	7/11 – 11/13	2006	3.13	1.90	Jain et al. 2007	
Weekly surveys	4/30 – 11/14	2007	3.87	2.34	Jain et al. 2009a	
Weekly surveys	4/15 – 11/9	2008	3.42	2.07	Jain et al. 2009b	
Weekly Surveys	7/12 – 10/15	2012				
Noble Bliss, Wyoming	County, New Yo	rk – Mixe	ed (agriculture and	forest)		
Daily surveys	4/21 – 11/14	2008	4.30	2.86	Jain et al. 2009e	
3-day surveys	5/9 – 11/14	2008	0.66	0.44	Jain et al. 2009e	
Weekly surveys	5/9 – 11/14	2008	0.74	0.50	Jain et al. 2009e	
Daily surveys	4/15 – 11/15	2009	4.45	2.97	Jain et al. 2009c	
Weekly surveys	4/15 – 11/15	2009	2.87	1.91	Jain et al. 2009c	
Noble Clinton, Clinton	County, New Yo	rk – Mixe	d (agriculture and	forest)		
Daily surveys	4/26 - 10/13	2008	1.43	0.96	Jain et al. 2009d	
3-day surveys	4/26 - 10/13	2008	3.26	2.17	Jain et al. 2009d	
Weekly surveys	5/8 - 10/13	2008	2.48	1.65	Jain et al. 2009d	
Daily surveys	4/15 – 11/15	2009	1.50	1.00	Jain et al. 2010b	
Weekly surveys	4/15 – 11/15	2009	1.76	1.17	Jain et al. 2010b	
Noble Ellenburg, Clint	on County, New	York – M	ixed (agriculture a	nd forest)		
Daily surveys	4/29 - 10/13	2008	2.09	1.40	Jain et al. 2009c	
3-day surveys	4/28 - 10/13	2008	1.37	0.91	Jain et al. 2009c	
Weekly surveys	4/28 - 10/13	2008	1.18	0.78	Jain et al. 2009c	
Daily surveys	4/15 – 11/15	2009	5.69	3.79	Jain et al. 2010a	
Weekly surveys	4/15 – 11/15	2009	2.29	1.53	Jain et al. 2010a	
Cohocton and Dutch I		nty, New	York - Mixed (agr	iculture and fore	st)	
Daily surveys			2.06		Stantec	
, ,					Consulting 2011	
Weekly surveys	7/15 – 9/17	2010	1.16	0.77	Stantec	
•					Consulting 2011	
Munnsville, Madison a	and Oneida Coun	ties, New	York – Mixed (agi	iculture and fore		
Dog searches	4/15 – 11/15	2008	1.71	1.14	Stantec	
(recurrence unknown)					Consulting 2009	
Weekly surveys	4/15 – 11/15	2008	2.22	1.48	Stantec	
					Consulting 2009	
Noble Wethersfield, W	yoming County,			ure and forest)		
Weekly surveys	4/26 - 10/15	2010	2.55	1.70	Jain et al. 2011a	

Table H-1 Bird Fatality Rates from Post-Construction Studies Conducted at New York State Wind Energy Facilities

State v	vind Energy Fa	cinues			
			Reported Mo (adjust searcher effi scavenger	_	
Wind Project and Location	Monitoring Start/End Date	Year	Number of Bird Fatalities/ Turbine/Period	Number of Bird Fatalities/ MW/Period	Reference
Noble Altona, Clinton (	County, New Yor	rk – Mixe	d (agriculture and t	forest)	
Daily surveys	4/26 - 10/15	2010	2.76	1.84	Jain et al. 2011b
Weekly surveys	4/26 - 10/15	2010	1.55	1.04	Jain et al. 2011b
Daily Surveys		2011			
Noble Chateaugay, Fra	nklin County, N	ew York -	- Mixed (agricultur	e and forest)	
Weekly surveys	4/26 - 10/15	2010	2.48	1.65	Jain et al. 2011c
High Sheldon, Wyomin	g County, New '	York – Mi	xed (agriculture ar	nd forest)	
Daily and weekly surveys	4/15 – 11/15	2010	2.64	1.76	Tidhar et al. 2011a
Daily and weekly surveys	5/15 – 11/15	2011	2.36	1.57	Tidhar et al. 2011b
Daily Surveys	4/15-10/7	2012	6.86	3.43	Ritzert et al. 2012
Howard, Steuben Cour	nty, New York				
Daily and Weekly surveys	4/13-11/16	2012	2.50	1.29	
Steel Winds I and II, Er	ie County, New	York – La	keshore (former in	dustrial use)	
Weekly and bi-weekly	3/10 - 5/31, $7/15 - 9/30$	2012	7.15 - 8.46 <sup>1</sup>	2.89-3.38	Stantec 2012
Weekly and bi-weekly	3/21 - 5/30, $7/15 - 9/30$	2013	6.92 - 15.50 <sup>2</sup>	2.77-6.2	Stantec 2014
Marble River, New York					
S		2014		1.67	Bay et al. 2015

Source:

Stantec. 2012. Steel Winds I and II Post-construction Monitoring Report, 2012. Prepared for First Wind Management, LLC. Stantec. 2014. Steel Winds I and II Year 2 Post-construction Wildlife Monitoring Report, 2013. Prepared for First Wind Management, LLC.

#### Notes:

When gulls are removed from the analysis the estimated rate is 6.29

Stantec applied two different estimators for comparison; both are included here

**Bat Fatality Rates from Post-Construction Studies Conducted at New York State Wind Energy Facilities** Table H-2

State V	vina Energy Fac	Jiiilies	Reported M	ortality Rate		
			(adjusted for sea			
			and scavenger removal)			
			Number of Bat	Number of Bat	_	
Wind Project and	Monitoring		Fatalities/	Fatalities/		
Location	Start/End Date	Year	Turbine	MW/Period	Reference	
Maple Ridge, Lewis (						
Daily surveys	6/17 – 11/15	2006	24.53	14.87	Jain et al. 2007	
3-day surveys	6/29 – 11/15	2006	22.34	13.54	Jain et al. 2007	
Weekly surveys	7/11 – 11/13	2006	15.2	9.21	Jain et al. 2007	
Weekly surveys	4/30 – 11/14	2007	15.24	9.42	Jain et al. 2009a	
Weekly surveys	4/15 – 11/9	2008	8.18	4.96	Jain et al. 2009b	
Weekly Surveys	7/12 – 10/15	2012	12.05	7.30	Jain et al. 2013	
Noble Bliss, Wyomin						
Daily surveys	4/21 – 11/14	2008	7.58	5.05	Jain et al. 2009e	
3-day surveys	5/9 – 11/14	2008	14.66	9.78	Jain et al. 2009e	
Weekly surveys	5/9 – 11/14	2008	13.01	8.67	Jain et al. 2009e	
Daily surveys	4/15 – 11/15	2009	8.24	5.5	Jain et al. 2009c	
Weekly surveys	4/15 – 11/15	2009	4.46	2.97	Jain et al. 2009c	
Noble Clinton, Clinto	1	ork – Mi	xed (agriculture a	nd forest)		
Daily surveys	4/26 - 10/13	2008	5.45	3.63	Jain et al. 2009d	
3-day surveys	4/26 - 10/13	2008	4.81	3.21	Jain et al. 2009d	
Weekly surveys	5/8 – 10/13	2008	3.76	2.5	Jain et al. 2009d	
Daily surveys	4/15 – 11/15	2009	9.72	6.48	Jain et al. 2010b	
Weekly surveys	4/15 – 11/15	2009	5.16	3.44	Jain et al. 2010b	
Noble Ellenburg, Clir			Mixed (agriculture	and forest)		
Daily surveys	4/29 - 10/13	2008	8.17	5.45	Jain et al. 2009c	
3-day surveys	4/28 - 10/13	2008	6.94	4.63	Jain et al. 2009c	
Weekly surveys	4/28 - 10/13	2008	4.19	2.79	Jain et al. 2009c	
Daily surveys	4/15 – 11/15	2009	8.01	5.34	Jain et al. 2010a	
Weekly surveys	4/15 – 11/15	2009	3.7	2.47	Jain et al. 2010a	
Cohocton and Dutch				griculture and fo		
Daily surveys	4/15 – 11/15	2009	40	16	Stantec	
					Consulting 2011	
Weekly surveys	4/15 – 11/15	2009	13.8	5.53	Stantec	
					Consulting 2011	
Munnsville, Madison						
Dog searches	4/15 – 11/15	2008	2.9	1.93	Stantec	
(recurrence					Consulting 2009	
unknown)	4/15 11/15	2000	0.7	0.46	G	
Weekly surveys	4/15 – 11/15	2008	0.7	0.46	Stantec	
Nichic March. C. 1.1.	M	. N Y	and Returned to		Consulting 2009	
Noble Wethersfield,		•				
Weekly surveys	4/26 – 10/15	2010	24.45	16.3	Jain et al. 2011a	
Noble Altona, Clinton				· · · · · · · · · · · · · · · · · · ·	Join et al. 2011b	
Daily surveys	4/26 – 10/15	2010	6.51	4.34	Jain et al. 2011b	
Weekly surveys  Noble Chateaugay, F	4/26 – 10/15	2010	3.87	2.58	Jain et al. 2011b	
	4/26 – 10/15	2010		2.44	Join et al. 2011a	
Weekly surveys	4/20 - 10/13	∠U1U	3.66	2.44	Jain et al. 2011c	

**Bat Fatality Rates from Post-Construction Studies Conducted at New York State Wind Energy Facilities** Table H-2

Wind Project and Location	Monitoring Start/End Date	Year	Fatalities/ Turbine	Fatalities/ MW/Period	Reference
High Sheldon, Wyor					11010101100
Daily and weekly surveys	4/15 – 11/15	2010	3.50	2.33	Tidhar et al. 2011a
Daily and weekly surveys	5/15 – 11/15	2011	2.67	1.78	Tidhar et al. 2011b
Steel Winds I and II,	<b>Erie County, New</b>	York – I	_akeshore (former	industrial use)	
Weekly and bi- weekly	3/10 - 5/31, 7/15 - 9/30	2012	6.88-13.01	2.75-2.54	Stantec 2012
Weekly and bi- weekly	3/21 - 5/30, $7/15 - 9/30$	2013	15.30	Not Reported	Stantec 2014
Howard, Steuben Co	ounty, NY				
Daily and Weekly surveys	4/13-11/6	2012	20.09	10.00	
Hardscrabble, Herkin	mer County, NY				
Daily Surveys	4/15 – 10/15	2012	21.34	10.67	Ritzert et al. 2012
Marble River, New Y	ork				
		2014		0.71	Bay et al. 2015

**Table H-3 Approximate Regional Number of Bird Fatalities** 

Project	Number of Turbines	Number of Megawatts (MW)	Approximate Minimum Bird Fatalities/ Turbine/ <sup>1</sup>	Approximate Minimum Bird Fatalities/ MW <sup>2</sup>	Approximate Maximum Bird Fatalities/ Turbine <sup>3</sup>	Approximate Maximum Bird Fatalities/ MW <sup>4</sup>
Ball Hill Wind	29	100	19	44	269	563
Arkwright Summit	36	79	24	35	334	445
Cassadaga Wind	58	126	38	55	539	709
Total	123	305	81	134	1,142	1,717

#### Notes:

<sup>0.66</sup> birds/turbine/survey period (Jain et al. 2009e). Survey Period Based on 2008 Noble Bliss three-day Survey Rate. 0.44 birds/MW/survey period (Jain et al. 2009e). Survey Period Based on 2008 Noble Bliss three-day Survey Rate. 9.29 birds/turbine/survey period (Jain et al. 2007). Survey Period Based on 2006 Maple Ridge Daily Survey Rate. 5.63 birds/MW/survey period (Jain et al. 2007). Survey Period based on 2006 Maple Ridge Daily Survey Rate.

**Table H-4 Approximate Regional Number of Bat Fatalities** 

Project	Number of Turbines	Number of Megawatts	Approximate Minimum Bat Fatalities/ Turbine/ <sup>1</sup>	Approximate Minimum Bat Fatalities/ MW/ <sup>2</sup>	Approximate Maximum Bat Fatalities/ Turbine/ <sup>3</sup>	Approximate Maximum Bat Fatalities/ MW/ <sup>4</sup>
Ball Hill Wind	29	100	20	46	1,160	1,630
Arkwright Summit	36	79	25	36	1,440	1,288
Cassadaga Wind	58	126	41	58	2,320	2,054
Total	123	305	86	140	4,920	4,972

#### Notes:

<sup>&</sup>lt;sup>1</sup> 0.7 bats/turbine/survey period (Stantec Consulting 2009). Survey Period Based on 2008 Munnsville Weekly Survey Rate.

<sup>&</sup>lt;sup>2</sup> 0.46 bats/MW/survey period (Stantec Consulting 2009). Survey Period Based on 2008 Munnsville Weekly Survey Rate.

<sup>&</sup>lt;sup>3</sup> 40 bats/turbine/survey period (Stantec Consulting 2011). Survey Period Based on 2009 Cohocton and Dutch Hill Daily Survey Rate. Note that this Project did not implement operational minimizations to reduce bat mortality that Ball Hill would employ.

<sup>&</sup>lt;sup>4</sup> 16.3 bats/MW/survey period (Jain et al. 2011a). Survey Period based on 2010 Noble Wethersfield Weekly Survey Rate. Note that this Project did not implement operational minimizations to reduce bat mortality that Ball Hill would employ.

### H-2 2012 Bat Acoustic Data Analysis

### 2012 Bat Acoustic Data Analysis

### Introduction

Ball Hill Wind Energy, LLC, a company owned by Renewable Energy Systems Americas, Inc., is continuing the development of the Ball Hill Wind Project (Project), which it proposes to construct and operate in the towns of Villenova and Hanover, Chautauqua County, located in western New York. The Project would include up to 29 wind turbines with a maximum capacity of approximately 100 megawatts. The Project is anticipated to include minor forest clearing activities during construction and other potential operational impacts to resident and migratory bat species. Consequently, pre-construction acoustic bat surveys were warranted.

In April 2012, two AnaBat SD1 bat detectors were deployed on a meteorological (met) tower within the Project Area at approximately 5 and 40 meters above ground level (hereafter referred to as the "low" and "high" detectors, respectively). The detectors recorded bat activity from 30 minutes before sunset to 30 minutes after sunrise from April 12 to October 25, 2012.

### **Call Analysis Methodology**

All recorded bat passes were analyzed using two automated species identification software packages currently approved by the USFWS for presence/probable absence surveys for the federally-listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*). These software programs, or automated classifiers, included Bat Call Identification Version 2.7c (henceforth "BCID"; Bat Call Identification, Inc., Kansas City, Missouri) and Kaleidoscope Pro Version 3.1.8 (henceforth "Kaleidoscope"; Wildlife Acoustics, Inc., Maynard, Massachusetts). The Bats of North America (Version 3.1.0) extension was used as the classifier for Kaleidoscope, and a sensitivity setting of -1 "More Sensitive (Liberal)" was used, as required by the USFWS (USFWS 2016). Default filter settings were used for both programs, with the exception of altering the number of minimum pulses for BCID identification from five pulses to two pulses. The species selected for possible identification were specified as big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), eastern small-footed bat (*Myotis leibii*), little brown bat (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*; NLEB), and tri-colored bat (*Perimyotis subflavus*).

To assess the likelihood of presence of NLEBs within the Project area, a multi-level analysis approach was used that incorporated results from the automated classifiers, maximum likelihood estimations, and independent reviews from three E & E bat specialists with expertise in acoustic identification. This multi-level approach was used in order to reduce potential false-positive identifications. The visual review included a comparison of the bat call in question to a library of known NLEB calls. If either of the automated classifiers identified call files as NLEBs, the panel of three E & E biologists independently reviewed these files. The total number of bat passes identified by BCID and Kaleidoscope, the p-values from the maximum likelihood estimation for presence calculated from each of the automated classifiers, and the consensus of visual confirmation from the E & E qualified bat biologists was then summarized to determine the potential presence of NLEBs within the Project (Table 1).

For each night in which a NLEB was identified by the automated classifiers BCID or Kaleidoscope, presence was determined as "not likely," "possible," or "probable" based on a combination of factors, as outlined below:

- *Not likely* no NLEB bat passes identified by either automated classifier; or NLEB bat passes identified by automated classifier programs were visually confirmed as another species by E & E biologists.
- **Possible** at least one automated classifier program identified the call as a NLEB and was visually confirmed by E & E biologists.
- *Probable* NLEB bat passes identified by both automated classifiers and confirmed visually by E & E biologists.

### Results

The automated classifiers suggested that NLEBs were present on 29 detector nights between April 12 and October 25, 2012. In total, 23 call files on 21 distinct nights were preliminarily identified as NLEB by BCID. Kaleidoscope identified 15 call files on 15 distinct nights as NLEBs (Table 1). Both software programs similarly identified seven calls as NLEBs on seven distinct nights. In total, 31 call files originating from low detectors were preliminarily identified as NLEBs by BCID and Kaleidoscope. Only two call files originated from high detectors were identified as NLEBs, both by BCID.

The panel of E & E biologists independently reviewed all files identified as NLEBs by either classifier program. A consensus on visual confirmation for NLEB was achieved on April 17, April 19, and September 2, 2012 (Table 1) and presence is "probable" for those three nights. Based on the previously defined presence determinations, presence of NLEB was also "possible" on three additional nights (June 11, August 7, and August 9, 2012; Table 1). In total, 24 call files identified as NLEBs by BCID or Kaleidoscope were determined by E & E biologists to be either vocalizations of another species (i.e., little brown bat call or eastern red bat feeding buzz) or of poor quality (i.e., too few pulses or fragmented) and incapable of being identified to a specific species.

### **Discussion**

The acoustic bat survey suggests that the NLEB is potentially present within the Project area during the spring, summer, and fall months. Multiple call files were identified as NLEB by the automated classifiers and visually confirmed by E & E biologists; therefore, the presence of this species cannot be ruled out.

Both automated classifiers used in this analysis, BCID and Kaleidoscope, were approved for use by the USFWS (USFWS 2016). These programs are not 100% accurate and there are inherent differences between the algorithms used to identify species by each automated classifier. Consequently, bat passes may be identified incorrectly by these programs and may differ among programs. Visual confirmation by an experienced bat biologist is the only means by which to confidently determine species presence.

Table 1 Identification Matrix and Presence Determination for the Northern Long-Eared Bat

Table 1 Ide		Cand Presence D		oscope	ong-Larca Bat	
	Files	p-value for	Files	p-value for	Visual	
Date	Identified	MLE*	Identified	MLE*	Confirmation	Presence
4/17/2012	1	< 0.001	1	0.267	Yes	Probable
4/19/2012	1	< 0.001	1	0.267	Yes	Probable
5/15/2012	1	< 0.001	0	-	No	Not Likely
5/22/2012	0	-	1	0.267	No	Not Likely
5/24/2012	0	-	1	0.267	No	Not Likely
6/10/2012	0	-	1	0.267	No	Not Likely
6/11/2012	2	< 0.001	0	-	Yes	Possible
6/12/2012	1	< 0.001	0	-	No	Not Likely
6/15/2012	1	< 0.001	0	-	No	Not Likely
6/21/2012	1	< 0.001	1	0.267	No	Not Likely
6/28/2012	1	< 0.001	0	-	No	Not Likely
7/14/2012	1	< 0.001	0	-	No	Not Likely
7/19/2012	1	< 0.001	0	-	No	Not Likely
7/24/2012	0	-	1	0.267	No	Not Likely
7/27/2012	0	-	1	0.267	No	Not Likely
7/28/2012	1	< 0.001	0	-	No	Not Likely
8/3/2012	1	< 0.001	1	0.267	No	Not Likely
8/4/2012	1	< 0.001	0	-	No	Not Likely
8/7/2012	0	-	1	0.267	Yes	Possible
8/9/2012	1	< 0.001	1	0.267	Yes	Possible
8/12/2012	1	< 0.001	1	0.267	No	Not Likely
8/25/2012	0	-	1	0.267	No	Not Likely
8/30/2012	1	< 0.001	0	-	No	Not Likely
9/2/2012	1	< 0.001	1	0.267	Yes	Probable
9/5/2012	0	-	1	0.267	No	Not Likely
9/6/2012	2	< 0.001	0	-	No	Not Likely
9/9/2012	1	< 0.001	0	-	No	Not Likely
9/14/2012	1	< 0.001	0	-	No	Not Likely
9/25/2012	1	< 0.001	0	-	No	Not Likely
Total	23	-	15	-	-	-

<sup>\*</sup> Maximum Likelihood Estimate (MLE) based on Britzke et al. (2002). A p-value less than 0.05 indicates statistical significance support for presence.

### H-3 2016 Breeding Bird Survey

## Results of 2016 Breeding Bird Surveys at the Ball Hill Wind Energy Project Area Towns of Villenova and Hanover, Chautauqua County, New York

### October 2016

### Prepared for:

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### ist of Abbreviations and Acronyms

Ball Hill Wind Energy, LLC.

DEIS Draft Environmental Impact Statement

E & E Ecology and Environment, Inc.

MW megawatt

Noble Environmental Power

NYSDEC New York State Department of Environmental Conservation

Project Ball Hill Wind Energy Project

SDEIS Supplemental Draft Environmental Impact Statement

USACE United States Army Corps of Engineers

USGS United States Geological Survey

1

### **Project Background**

Ball Hill Wind Energy, LLC (Ball Hill) is developing the Ball Hill Wind Energy Project (project) in the towns of Villenova and Hanover, Chautauqua County, New York. The project area encompasses 9,715 acres and comprises forest stands, pastures, hayfields, and agricultural fields. Construction of the Project would be expected to begin in 2017 and end in 2018.

In 2007, Noble Environmental Power (Noble) performed pre-construction development surveys for the Noble Ball Hill Wind Farm and submitted a Draft Environmental Impact Statement (DEIS) to the town of Villenova and a Joint Application for Permits to the New York State Department of Environmental Conservation (NYSDEC) and the United States Army Corps of Engineers (USACE). However, Noble suspended development of the project without finalizing these permitting tasks. In late 2010, DEGS Wind I, LLC (DEGS) purchased the project from Noble and submitted an amended application and a Supplemental DEIS (SDEIS) in 2012. In 2015, Ball Hill continued the permitting of the project that was initiated by DEGS and submitted another version of an SDEIS in January 2016, reflecting a revised project area. Ball Hill is currently proposing to construct the project with 29 3.45 megawatt (MW) turbines in a slightly revised formation than previously proposed by Noble and DEGS.

Ecology and Environment, Inc. (E & E) previously conducted breeding bird surveys for DEGS during June 2011 at the proposed project area as part of the preconstruction avian studies. E & E conducted another round of breeding bird surveys for Ball Hill in June 2016. This report summarizes the results of the 2016 breeding bird surveys and supplements the data and analyses provided by previous surveys in the project area (E & E September 2008; E & E August 2011).

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### Methodology

Because June is the primary breeding season for bird species in Western New York and it is the best time to detect local resident populations, supplemental breeding bird surveys were conducted by an E & E avian specialist in two sets of surveys, encompassing four days each, between June 6 and June 24, 2016. The two sets of four morning surveys were approximately two weeks apart, following methods in the NYSDEC Guidelines (NYSDEC 2016).

The breeding bird surveys were conducted on 19 transects within the proposed project area (see Figure 2-1). The objectives of the surveys were to document the occurrence and distribution of bird species in the project area as well as to identify critical habitat of listed species and areas of greater/lesser bird activity.

Nineteen survey transects were distributed throughout the range of habitats available within the project area. Survey transects were established at potential turbine or transmission line locations throughout the project area where Ball Hill has land access on leased parcels. Sixteen of the transects (70%) were placed with one end near potential turbine locations; these transects were also in the vicinity of planned access roads and collection lines. Two transects (10%) were placed along the proposed transmission line. The remaining four transects (20%) were considered "control" transects and were not associated with preliminary turbine locations (Figure 2-1). Each transect was 300 meters long and included six 50-meter survey blocks, based on recommendations outlined in NYSDEC's *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (Guidelines) (June 2016), which created a 300-meter by 100-meter rectangular survey plot that encompasses 30,000 square meters bisected by the transect line.

Land-use (cover type) was categorized as forest stands (beech/maple mesic, hem-lock – northern hardwoods, mixed deciduous/coniferous forest), pasture/hayfield, and cultivated agriculture habitats. Beech/maple mesic habitat was the dominant habitat type for proposed wind turbines and represented 42% of the survey effort (8 transects); the remaining 58% (11 transects) were pasture/hayfield habitats (6 transects), cultivated agriculture (2 transects), hemlock—northern hardwoods (2 transects), and mixed forest (1 transect) habitats. See Appendix A, Table A-1, for a list of all survey transects and associated habitat.

All birds seen or heard were identified, recorded, and parsed into two groups:

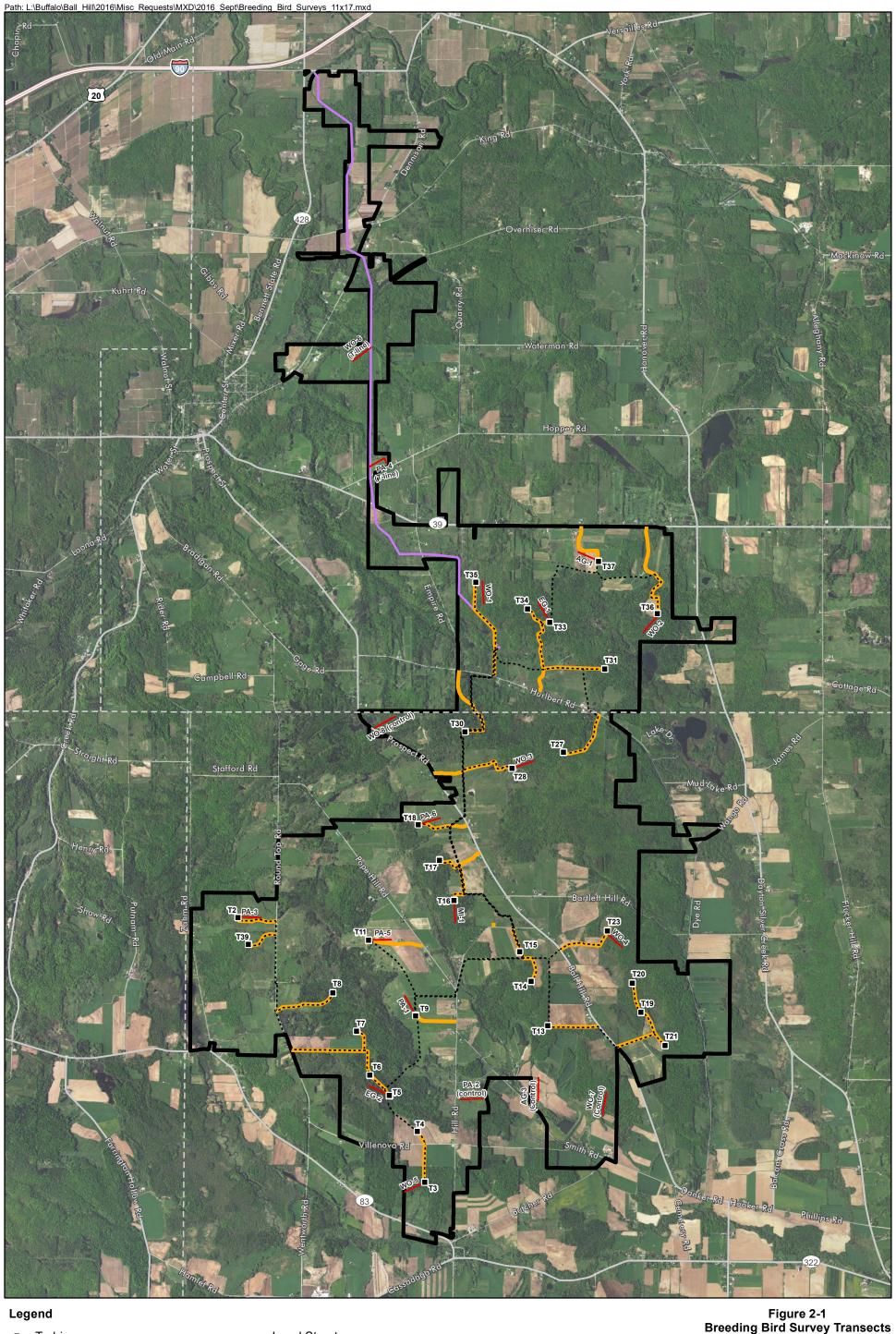


- those within 50 meters on either side of the transect; and
- those identified outside of 50 meters on either side of the transect.

The surveyor stopped every 50 meters (i.e., at the beginning and end of each block), for a total of seven stops per transect. At each stop, the surveyor stopped for a period of one to three minutes, based on the surveyor's discretion, to allow birds to acclimate to the surveyor's presence. The surveyor remained at the stop for five more minutes, recording species heard or seen and then continued to slowly walk along the transect. Birds detected between the 50-meter stops were also recorded. Surveys were conducted between a half-hour prior to sunrise (approximately 5:30 a.m.) to approximately 10:30 a.m. during favorable weather conditions. An exception occurred on June 9, 2016, in which thick vegetation along transect WO-1 delayed the survey end time to 10:51 a.m.; however, conditions were still conducive for surveys as birds were still active. To compensate for generally higher levels of bird activity in the early morning compared with late morning, surveys were conducted along transects at the different times in the morning as travel logistics permitted.

For each bird detection, the surveyor recorded species, number of birds per sighting, approximate distance from the observer, how the bird was detected (visual or auditory), whether the bird was within 50 meters from the observer, and any additional notes, including behavior. Care was taken to avoid double counting individuals, particularly when auditory identifications were made in forested habitats, which could potentially represent double counting of some individuals due to local movements. Bird behaviors, such as nesting behaviors, singing, foraging, or flying, were recorded. Standard weather data (e.g., temperature, cloud cover, wind speed and direction) were also recorded at the start and end of each 300-meter transect survey.

Although all birds were recorded regardless of distance from the transect, only birds located within approximately 50 meters of the transect were used to assess species diversity and habitat use. Additional bird data collected beyond 50 meters of the transects are presented in Appendix B, Table B-1.



TurbineLocal StreetBreeding Bird Survey Transect LinesProject Area

···· Collection Line

Access Road

Transmission Line

Figure 2-1
Breeding Bird Survey Transects
Ball Hill Wind Project
Chautauqua County, New York
Ball Hill Wind Energy, LLC



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### **Results**

The first set of breeding bird surveys was conducted on June 6, 7, 9, and 13, 2016. The second set was conducted on June 21, 22, 23, and 24, 2016. A total of 1,954 birds comprising 80 species were identified (see Appendix B, Table B-1). Of these, 67 species (962 individuals [49%]) were within 50 meters of the transects. Among those individuals within 50 meters of the transect, 151 (16%) were detections of birds flying over the transect rather than using the habitat. The total number of individuals located within 50 meters of each transect ranged from 22 to 99 (22 to 90 for non-flyover detections), with an average for all transects of 50.7 individuals per transect (average of 42.7 for non-flyover detections). Total species per transect within 50 meters (including fly-over detections) ranged from 8 to 26, with an average for all transects of 15.9 species per transect.

The most common species detected within 50 meters of the transects were bobolink (*Dolichonyx oryzivorus*) (113 birds), red-winged blackbird (*Agelaius phoeniceus*) (94), cedar waxwing (*Bombycilla cedrorum*) (51), red-eyed vireo (*Vireo olivaceus*) (51), and song sparrow (*Melospiza melodia*) (50). The most common flyover species included ring-billed gull (*Larus delawarensis*) (38), cedar waxwing (35 [69% of 51 detections]), American goldfinch (*Spinus tristis*) (18), and common grackle (*Quiscalus quiscula*) (17).

Bird diversity and abundance along survey transects was influenced partly by habitat type (Table 3-1). Based on the birds identified within 50 meters of the transect data, the greatest species diversity was observed in beech-maple mesic forest (44 species), followed by hemlock-northern hardwood forest (29 species) and pasture/hayfield habitat (29 species). The lowest species diversity was observed along the one mixed forest transect (15 species). A similar observation was made for the average number of species detected per transect by habitat type, where the greatest species diversity was observed within beech-maple mesic forest and hemlock-northern hardwood forest habitats (18 and 19.5 species per transect, respectively); however, pasture/hayfield habitat had lower average diversity (12.5 species per transect).



Table 3-1 June 2016 Surve	y Results by Habitat for	or Bird Detections within 50 I	<b>Meters of</b>
the Transect	-		

	Beech- Maple Mesic	Hemlock- N. Hardwoods	Mixed Forest	Pasture/ Hayfield	Agriculture
Number of	8	2	1	6	2
Transects					
Total Species	44	29	15	29	21
Average Number of	18	19.5	_*	12.5	14
Species per Transect					
Average Number of	42	46.5	_*	69	38
Birds per Transect					
Total Number of Birds	337	93	40	416	76

Note:

The total number of birds identified by habitat type ranged from 40 to 416 individuals. The average number of birds per transect within each habitat type was highest for pasture/hayfield (69 birds per transect) compared with the other habitat types. Agricultural habitat had the lowest average number of birds (38 birds per transect). All bird species and numbers identified during surveys were typical of the habitats examined.

The wooded survey transects EG-2, WO-1, WO-8, and WO-7 yielded the greatest number of species (26, 23, 22, and 22, respectively), while the greatest numbers of birds were detected at pasture/hayfield transects PA-1, PA-2, and PA-6 (99, 74, and 73, respectively). Transect PA-1 had the highest number of birds within 50 meters yet had the lowest species diversity (8 species). (Transect PA-1 had a large number of bobolinks present compared with other transects. However, the transect was set farther from trees and woods than the other transects, which may in part explain the low diversity observed.) Survey transect WO-6 had the lowest number of birds (22) and the second-lowest number of species (9 species).

During the surveys, some birds were observed in small family groups and were also observed on occasion carrying food or nest material, all signs of breeding behavior. Early to mid-June is peak breeding time for many bird species and, based on the observed behavior and time of year, it is highly likely that the vast majority of birds identified in the project area were local breeders.

No threatened or endangered species were observed during the surveys or time spent traveling throughout the project area (during non-survey time). One grass-hopper sparrow (*Ammodramus savannarum*) and one sharp-shinned hawk (*Accipiter striatus*) were identified, both of which are species of special concern in New York State. The grasshopper sparrow was heard singing several times near the mid-point of transect PA-3 on June 6, 2016. The sharp-shinned hawk was de-

<sup>\*</sup> Because there was only one mixed forest habitat among the transects, the "average number of species" and "average number of birds" per transect could not be computed.



tected as a flyover at transect PA-4 on June 24, 2016. Based on the time of year detected, the habitat, and their known breeding range, it is likely that these two birds were breeding individuals.

The time it took to complete each 50-meter survey block for each transect varied based on the level of bird activity at the time and the terrain traversed. The average completion time was 45.7 minutes per transect. Nearly all surveys were conducted under weather conditions that were not likely to impact detection rates of birds, e.g., precipitation or strong winds. Weather conditions on the mornings varied from clear to overcast, and temperatures ranged from 44°F to 73°F, with typically calm or light winds that at times increased to 6 to 9 miles per hour. The first two days of surveys were notably windier than the other six days. On June 6, wind gusts were as high as 16 miles per hour late in the morning, while winds infrequently reached 12 miles per hour on June 7, 2016. Strong winds have the potential to interfere with an observer's ability to detect birds singing and calling. In response to increasing winds on June 6, only four surveys were conducted instead of the usual five. Only one of these four surveys was completed in wooded habitat, where auditory detections are more frequent than visual detections.

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### **Discussion**

The results of the 2016 breeding bird surveys were consistent with bird species diversity and abundance expected for the baseline habitat types found in Western New York. The total number of species and numbers of individual birds detected during the survey was consistent with historic resident breeding bird data for this time of year.

Overall, transects in pasture/hayfield habitats had the highest number of birds, dominated by bobolinks and red-winged blackbirds and, to a lesser extent, savannah sparrows (*Passerculus sandwichensis*) and song sparrows. Several of the wooded habitats also had multiple individuals of several species such as red-eyed vireo, hooded warbler (*Setophaga citrina*), and other forest species occurring along a single transect. Forested habitats in general also had relatively high species diversity, reflecting habitat variations within certain transects, which likely provide different ecological niches for the bird community. Survey transect EG-2 is a notable example of heterogeneous habitat: this transect was characterized by hemlock groves interspersed with open areas, which are dominated by herbaceous or shrub plant species, providing a wider array of habitats within that transect. Transect EG-2 also had the greatest number of bird species detected, including a number of species that prefer shrub habitat and species associated with canopied forest, such as the northern cardinal (*Cardinalis cardinalis*), red-eyed vireo, and mourning warbler (*Geothlypis philadelphia*).

The two agricultural transects had the lowest bird species diversity and numbers of individuals. Both agricultural transects included a hedgerow, where most of the recorded birds were congregated. Although small in area, the hedgerow provided habitat suitable for a greater variety of birds than the cornfield habitat alone.

Breeding bird surveys at the site in 2007, 2008, and 2011 (E & E August 2011) used survey points placed at proposed wind turbine locations; these surveys were conducted using the recommended protocol as discussed with NYSDEC. The methods were modified from United States Geological Survey (USGS) Breeding Bird Survey methods (USGS 2007) and the NYSDEC guidelines for wind energy projects used at the time (NYSDEC 2009). The survey points used in 2007 were visited on two occasions and surveys were three minutes in length. The survey points used in 2008 and 2011 were visited on one occasion for five minutes. The results of the three surveys were consistent across years (see Table 4-1 for comparison of results).



Table 4-1 Breeding Bird Survey Results for 2007, 2008, and 2011 at Stationary Survey Points

	2007			
	6/11	6/26	2008	2011
Number of Survey Points	13	13	26	25
Number of Species Identified	56	60	72	66
Number of Birds	250	359	653	502
Average Species per Point	11.2	15.2	14.1	11
Average Birds per Point	19.2	27.6	25.1	20.8

Source: E & E August 2011

In the time between surveys conducted in 2011 and 2016, NYSDEC revised the guidance on survey methods for wind energy projects, including a change to transect-based breeding bird surveys. E & E coordinated with NYSDEC and complied with the new protocol for the 2016 breeding bird surveys. Consequently, the results of the 2016 breeding bird surveys are not directly comparable to the results from previous years due to the differences in survey methodologies. The total number of species detected was somewhat higher in 2016 (80 species) than previous years but is comparable when including only birds within 50 meters of the transect (67 species). The two most common species detected during the 2016 breeding bird surveys were bobolink and red-winged blackbird, which were the most abundant species detected in the 2011 surveys. The number of birds detected in 2016 surveys in total (1,954) and birds within 50 meters (962) were higher than previous years. This observation is most likely a result of longer total survey time in 2016 compared with previous years.

No federally or state-listed threatened or endangered species were identified during the 2007, 2008, 2011, and 2016 breeding bird surveys; however, one grass-hopper sparrow (New York State species of special concern) was detected during the 2008 surveys and again in 2011 at an agricultural location (the closest 2016 transect is AG-1) dominated by wheat and other tall grasses. One grasshopper sparrow was also detected in 2016 along transect PA-3, which is dominated by tall grasses and scattered shrubs.

Based on the 2016 breeding bird survey results, there are no deviations from the findings in the DEIS, Appendix J, Bird and Bat Risk Assessment (E & E September 2008) with respect to breeding birds and potential impacts on them from construction and operation of the project.

This is the fourth year of pre-construction breeding bird surveys. Collectively, the data from 2016 and previous years will provide baseline data from the pre-construction to post-construction phases of development of the proposed project.

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# A Breeding Bird Survey Transect Information

### A Breeding Bird Survey Transect Information

Table A-1 Ball Hill Breeding Bird Survey Transects (2016), with Nearest Road and Primary Habitat Description

	Near	itat Description	
Transect Name	Turbine or Control	Nearest Road	Primary Habitat Description
AG-1	Turbine	Route 39	Agriculture: Cornfield
AG-3	Control	Smith	Agriculture: Cornfield
EG-1	Turbine	Hulbert	Hemlock-Northern Hardwoods
EG-2	Turbine	Villenova	Hemlock-Northern Hardwoods
MI-1	Turbine	North Hill	Mixed Deciduous/Conifer Forest
PA-1	Turbine	North Hill	Hayfield
PA-2	Control	North Hill	Natural Pasture
PA-3	Turbine	Round Top	Natural Pasture
PA-4	T-line	Hopper	Natural Pasture
PA-5	Turbine	Pope Hill	Hayfield
PA-6	Turbine	Prospect	Hayfield
WO-1	Turbine	Empire	North Half Cottonwood and Shrubs; South Half
			Beech-Maple Mesic
WO-2	Turbine	Hanover	Beech-Maple Mesic
WO-3	Turbine	Prospect	Beech-Maple Mesic
WO-4	Turbine	Prospect	Beech-Maple Mesic, Selectively Harvested
WO-5	Turbine	Route 83	Beech-Maple Mesic
WO-6	T-line	Dennison	Beech-Maple Mesic
WO-7	Control	Smith	Beech-Maple Mesic
WO-8	Control	Prospect	Beech-Maple Mesic



## Breeding Bird Survey Data



Table B-1 Birds Identified During the 2016 Breeding Bird Survey

Table B-1 Birds Identified D	ouring the 2016	Breeding Bird Surve	у
	T. C. I. D. C. I.	Birds Identified at	Brata Harden and
Camara na Nama	Total Birds	Less than or	Birds Identified at
Common Name	Identified	· •	More than 50 Meters
Canada Goose	2 2	0	2
Mallard		0	2
Wild Turkey	1	0	1
Great Blue Heron	3	0	3
Turkey Vulture	15	4	11
Sharp-shinned Hawk	1	1	0
Red-tailed Hawk	6	1	5
American Kestrel	1	0	1
Killdeer	21	15	6
Ring-billed Gull	57	38	19
Mourning Dove	22	1	21
Yellow-billed Cuckoo	8	2	6
Ruby-throated Hummingbird	1	1	0
Red-bellied Woodpecker	4	0	4
Yellow-bellied Sapsucker	21	15	6
Downy Woodpecker	8	7	1
Hairy Woodpecker	6	1	5
Northern Flicker	12	1	11
Pileated Woodpecker	3	0	3
Eastern Wood-Pewee	25	7	18
Acadian Flycatcher	19	7	12
Alder Flycatcher	3	1	2
Willow Flycatcher	14	2	12
Eastern Phoebe	1	0	1
Great Crested Flycatcher	16	5	11
Eastern Kingbird	7	4	3
Warbling Vireo	4	2	2
Red-eyed Vireo	79	51	28
Blue Jay	40	10	30
American Crow	118	4	114
Tree Swallow	6	4	2
Barn Swallow	31	23	8
Black-capped Chickadee	36	27	9
Tufted Titmouse	1	0	1
Red-breasted Nuthatch	3	3	0
White-breasted Nuthatch	6	3	3
House Wren	16	4	12
Winter Wren	4	1	3
Golden-crowned Kinglet	4	0	4
Eastern Bluebird	1	0	1
Veery	31	19	12
Hermit Thrush	5	2	3



Table B-1 Birds Identified During the 2016 Breeding Bird Survey

Table B-1 Birds Identified D	uring the 2016	Breeding Bird Surve	у
		Birds Identified at	
Common Nama	Total Birds	Less than or	Birds Identified at
Common Name Wood Thrush	Identified 57		
		20	37
American Robin	62	44	18
Gray Catbird	27	15	12
Brown Thrasher	3	2	1
Northern Mockingbird	1	0	1
Cedar Waxwing	61	51	10
Ovenbird	22	6	16
Louisiana Waterthrush	2	0	2
Mourning Warbler	7	7	0
Common Yellowthroat	54	23	31
Hooded Warbler	53	38	15
American Redstart	14	10	4
Blackburnian Warbler	7	6	1
Yellow Warbler	32	17	15
Chestnut-sided Warbler	8	3	5
Black-throated Blue Warbler	6	3	3
Black-throated Green Warbler	28	14	14
Canada Warbler	2	2	0
Eastern Towhee	16	10	6
Chipping Sparrow	6	1	5
Field Sparrow	21	1	20
Savannah Sparrow	47	40	7
Grasshopper Sparrow	1	1	0
Song Sparrow	86	50	36
Dark-eyed Junco	22	14	8
Scarlet Tanager	23	15	8
Northern Cardinal	17	2	15
Rose-breasted Grosbeak	16	7	9
Indigo Bunting	18	4	14
Bobolink	137	113	24
Red-winged Blackbird	127	94	33
Eastern Meadowlark	7	1	6
Common Grackle	199	18	181
Brown-headed Cowbird	45	23	22
Orchard Oriole	1	1	0
Baltimore Oriole	5	1	4
Purple Finch	2	1	1
American Goldfinch	48	38	10
Total Birds	1,954	962	992

#### H-4 2016 Eagle Survey

#### 2016 Eagle Surveys at the Proposed Ball Hill Wind Energy Project Chautauqua County, New York

#### October 2016

#### Prepared for:

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#### Prepared by:

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#### ist of Abbreviations and Acronyms

agl above ground level

Ball Hill Windpark, LLC

BGEPA Bald and Golden Eagle Protection Act

DECPG Draft Eagle Conservation Plan Guidance

DEIS Draft Environmental Impact Statement

FEIS Final Environmental Impact Statement

E & E Ecology and Environment, Inc.

ECL Environmental Conservation Law

MW megawatt

NYCRR New York Codes, Rules, and Regulations

NYSDEC New York State Department of Environmental Conservation

project Ball Hill Windpark

RSZ rotor-swept zone

SEQRA (New York) State Environmental Quality Review Act

USFWS United States Fish and Wildlife Service

1

## **Background and Study Area**

#### 1.1 Wind Project Description

Ball Hill Wind Energy, LLC (Ball Hill) is proposing to construct and operate a wind energy project in the Chautauqua County towns of Villenova and Hanover, located in western New York State. The proposed project area encompasses 9.715 acres and comprises forest stands, pastures, hayfields, and agricultural fields. The project would include installing and operating 29 wind turbines (23 in the town of Villenova and 6 in the town of Hanover), with a total capacity of 100 megawatts (MW). Ball Hill proposes to install Vestas Model V126-3.45MW turbines. Each turbine is a 3-bladed, upwind, horizontal-axis wind turbine with a rotor diameter of approximately 413 feet (126 meters). The turbine rotor and the nacelle are mounted atop a tubular tower giving a rotor hub height of 285 feet (87 meters). The maximum height for the turbine is 492 feet when a rotor blade is at the top of its rotation (150 meters). The project would also include the construction and use of access roads, an underground electrical collection system, a collection substation and interconnection substation in the town of Hanover, an overhead 115-kilovolt transmission line in the town of Hanover, and an operations and maintenance (O&M) facility within the project area. Construction of the project is expected to begin in 2017 and finish in 2018.

Ecology and Environment, Inc. (E & E) conducted eagle use point-count surveys from March 2012 through February 2013 at the proposed project area as part of the pre-construction avian studies, and initiated another year of eagle use point-count surveys for Ball Hill in March 2016. This report summarizes the results of the 2016 eagle surveys conducted to date (September 2016). Eagle surveys will continue through February 2017, at which point this report will be updated.

#### 1.2 Project Permitting

The project is subject to the New York State Environmental Quality Review Act (SEQRA) (Environmental Conservation Law [ECL] Article 8) and its implementing regulations (6 New York Codes, Rules and Regulations [NYCRR] Part 617). Following the lead agency's (town of Villenova) acceptance of a Supplemental Draft Environmental Impact Statement (DEIS), Ball Hill is preparing a Final Environmental Impact Statement (FEIS). This report is being submitted in support of the FEIS and as part of continued coordination with the United States Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) regarding Bald Eagle issues. E & E is working with Ball Hill on the permitting for this project.



#### 1.3 Eagle Surveys Overview

The pre-construction surveys are based on the USFWS's *Eagle Conservation Plan Guidance, Module 1 – Land Based Wind Energy, version 2* (USFWS 2013), referred to as ECPG in this report. This study was designed to document the movements of eagles in accordance with the recommended methods and metrics outlined in the ECPG. The 2016-2017 data will supplement data collected from numerous avian studies that have been conducted in the project area since 2006.

Ball Hill and E & E met with the USFWS in Cortland, New York, on May 10 and with NYSDEC on August 10, 2016, to review the survey results to date.

2

# Methodology

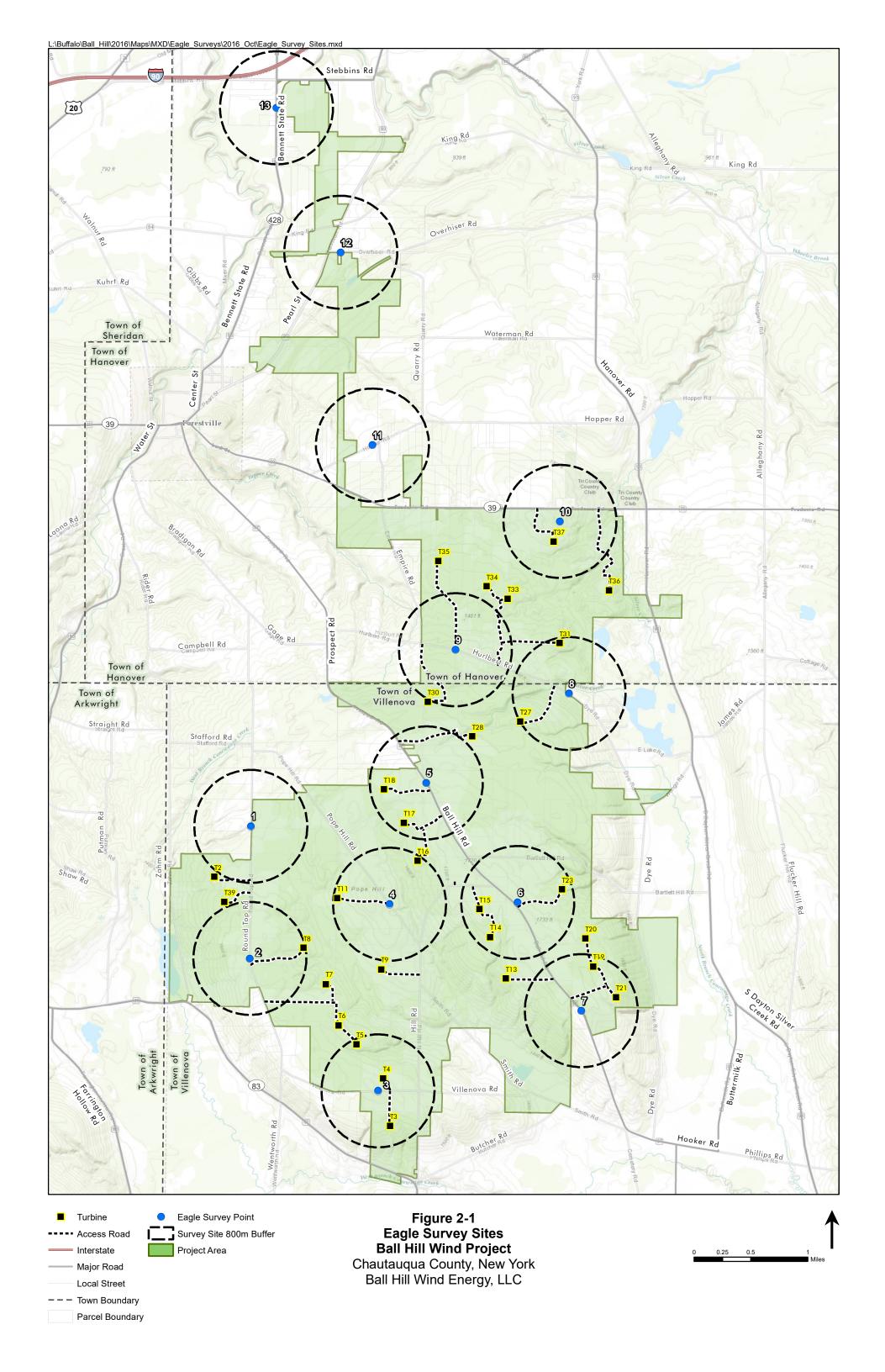
#### 2.1 Eagle Surveys

E & E is conducting eagle use point-count surveys for a 12-month period. During each round of surveys, 13 points are visited for 1 hour once per month, requiring a total of 2 field days per month (see Figure 2-1). Point locations were concentrated in the areas of proposed turbines (points 1 through 10), and three points were surveyed along the proposed transmission line (points 11 through 13). The completed survey effort will include approximately 156 total survey hours and will supplement the 312 survey hours previously completed at the site in 2012 and 2013.

Surveys generally begin at 8:00 a.m. and end at approximately 5:00 p.m., with alternating start and end points. Surveys are conducted during all weather conditions, with the exception of conditions that limit visibility to below 200 meters vertically and 800 meters horizontally. In order to provide an efficient and standardized account of eagle exposure, eagles are recorded in flight within one-minute intervals. One exposure minute is recorded for any eagle observed perching throughout the survey window. The time, direction, behavior, age, number of individuals, and approximate flight height for eagle flights are documented on field survey forms, as recommended in the ECPG. The observer also records weather data, including wind direction and speed, temperature, precipitation, and cloud cover.

#### 2.2 Characterization of the Local Nesting Population

E & E obtained status information from NYSDEC's 2015 and 2016 monitoring of the local Bald Eagle nests. In addition to the eagle use point-count surveys, the E & E avian surveyor visited the two Bald Eagle nests that are closest to the project area during each survey day from March 2016 through September 2016 and documented eagle observations and nest status to the extent possible from nearby roadside locations. E & E provided information to NYSDEC regarding Bald Eagle activity and nesting from these two nests.



3

#### **Results**

#### 3.1 2016 Eagle Survey Results

A total of 36 Bald Eagle (*Haliaeetus leucocephalus*) sightings and no Golden Eagle (*Aquila chrysaetos*) sightings were recorded within the 800-meter-radius survey plots during the point-count surveys conducted from March 2016 through September 2016 (see Tables 3-1 and 3-2 and Appendix A, Table A-1). The eagle survey effort to date amounted to a total of 91 hours (5,460 minutes) of survey time. Bald Eagles were identified in the project area during all seven monthly survey rounds conducted to date. No Golden Eagles were identified during the seven survey rounds. Figure 3-1 depicts all of the eagle flight paths within each survey point to date. The mean sighting rates in the project area (not including incidental sightings) were 0.40 Bald Eagles per hour (see Table 3-1) and 0.00 Golden Eagles per hour.

The greatest number of eagle observations (14) were made at point 12, followed by points 11 and 13 (5 observations each), points 4 and 7 (3 observations each), point 9 (2 observations), and points 1, 3, 8, and 10 (1 observation each) (see Table 3-1). Sighting rates by point ranged from 0.00 to 2.00 eagles per hour (see Figures 3-2 and 3-3). Two incidental Bald Eagle sightings were made. One incidental Bald Eagle was observed to the east within the survey radius, following the completion of the survey at point 2 on April 25, 2016, circling in the rotor-sweep zone (RSZ). A second incidental Bald Eagle was observed to the east, outside of the survey radius of point 13, on September 1, 2016, gliding north within the RSZ.



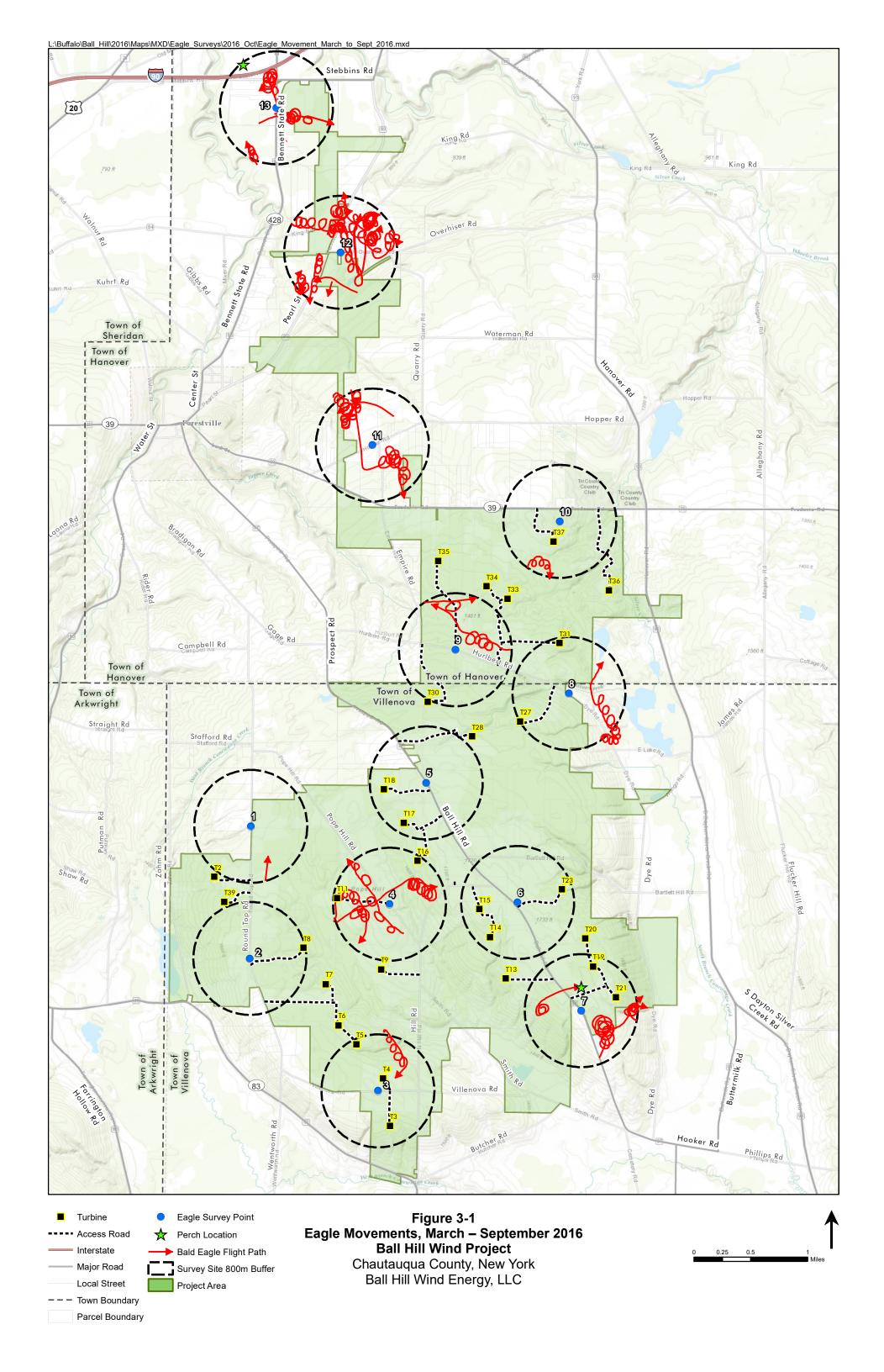


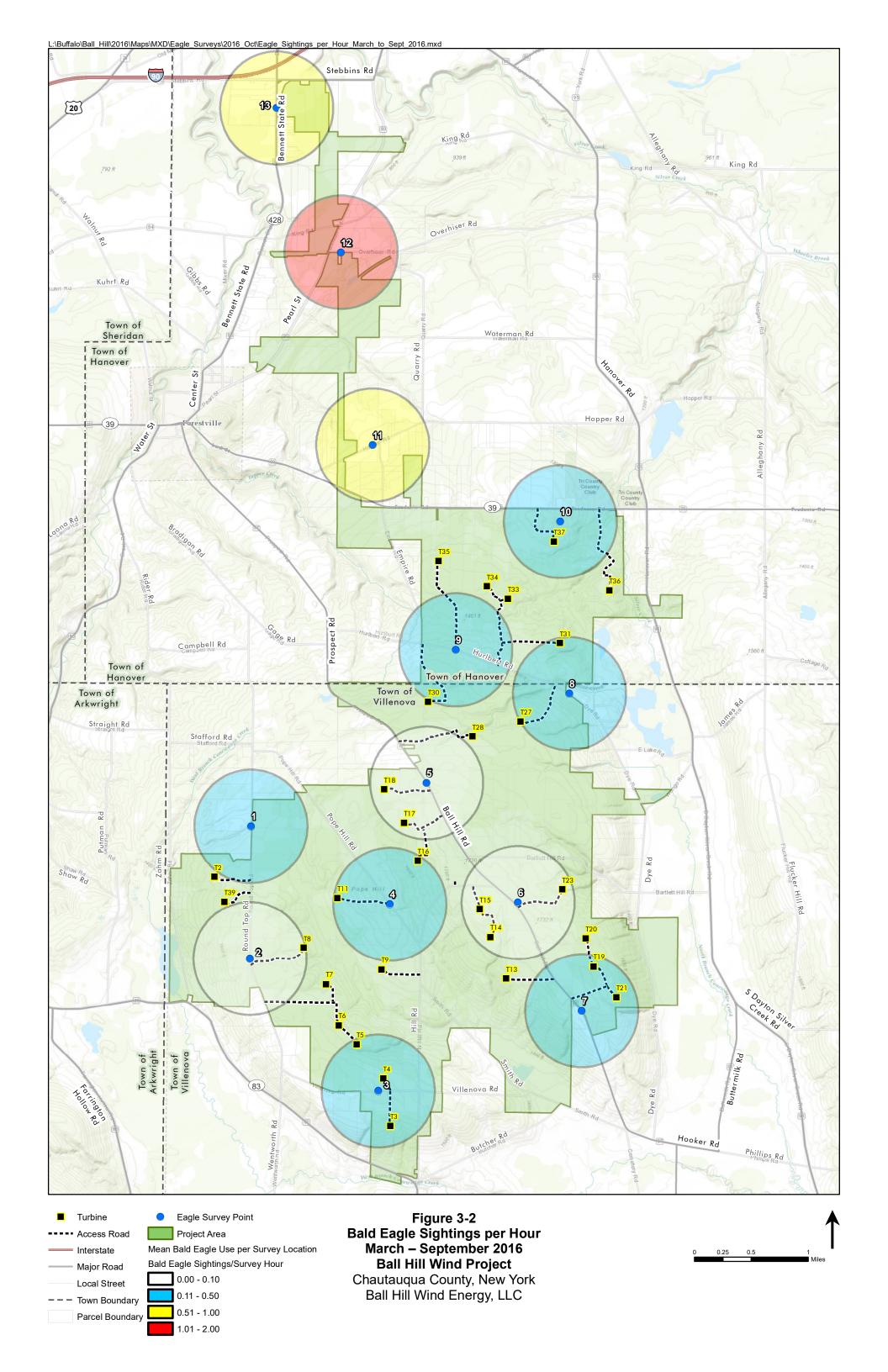
Table 3-1 Eagle Sightings at Survey Points within the Project Area, March 2016 through September 2016

September 201	6							
Survey Point	3/14 and 3/22	4/6 and 4/25	5/7 and 5/25	6/8 and 6/27	7/3 and 7/15	8/14 and 8/23	9/1 and 9/23	Sightings per Point
Bald Eagles								
1	0	1	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	1	0	1
4	1	0	1	0	0	0	1	3
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	3	0	0	0	0	0	3
8	0	0	1	0	0	0	0	1
9	0	1	0	0	1	0	0	2
10	0	0	0	0	0	0	1	1
11	0	0	3	0	0	1	1	5
12	0	0	0	1	2	0	11	14
13	0	1	0	0	0	0	4	5
Total Bald Eagles	1	6	5	1	3	2	18	36
Golden Eagles								
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
Total Golden Eagles	0	0	0	0	0	0	0	0
Total Survey Time (mins.)	780	780	780	780	780	780	780	5,460
Total Survey Time (hrs.)	13	13	13	13	13	13	13	91
Bald Eagle Sightings/ Survey Period (in hrs.)	0.08	0.46	0.38	0.08	0.23	0.15	1.38	0.40
Golden Eagle Sightings/ Survey Period (in hrs.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 3-2 Eagles Sighted Below 200 Meters AGL

Species	Number of Eagle Sightings	Number of Eagle Sightings below 200 meters agl	Percentage
Bald Eagle	36	23	64%
Golden Eagle	0	0	0%





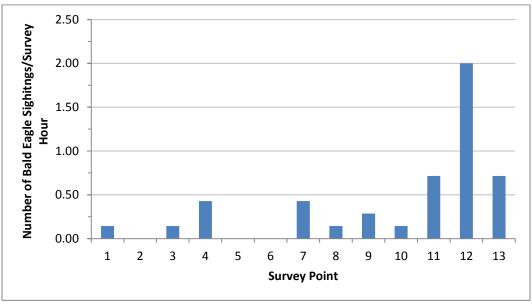


Figure 3-3 Eagle Mean Use (Number of Bald Eagle Sightings/Survey Hour) by Survey Point (March through September 2016)

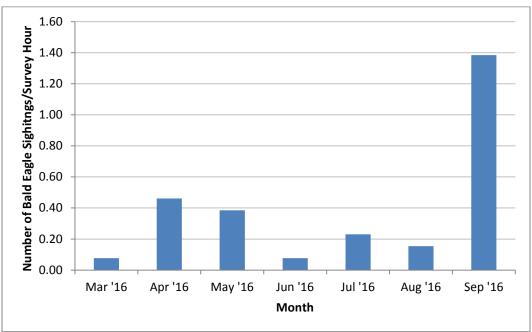


Figure 3-4 Eagle Mean Use (Number of Bald Eagle Sightings/Survey Hour) by Month (March through September 2016)



Bald Eagle sightings within the project area ranged from 1 to 18 sightings per survey round (see Table 3-1). Table 3-1 and Figure 3-4 present eagle detection rates based on survey effort per month. Detection rates of Bald Eagles were highest during September, with 1.38 eagles per survey hour; April and May had the next highest detection rates, ranging from 0.38 to 0.46 eagles/hour during this period. Lower Bald Eagle detection rates were documented in the other months (0.08 to 0.23 eagles/hour). Golden Eagles were not recorded during the survey period (0.00 eagles/hour).

Of the 36 eagle sightings observed during the point-count surveys to date, 64% (23 sightings) were observed flying below 200 meters above ground level (agl) for at least a portion of the viewing time. Approximately 58% (21 sightings) of the eagles observed were recorded flying in the RSZ.

Of the 36 Bald Eagle sightings recorded during the surveys, 17 were adult eagles and 19 were immature. In general, adult Bald Eagles were observed throughout the survey period except for August. Immature Bald Eagles were observed during the April, May, August, and September surveys. Most of the sightings of immature Bald Eagles were likely transient eagles.

Weather conditions were conducive to Bald Eagle sightings during all survey dates (see Appendix B, Table B-1). Precipitation was limited to approximately 15 minutes of light rain on August 14, 2016 (see Appendix B). On most survey dates, temperature rose slowly throughout the day; the coolest temperatures were recorded during the March surveys, while the warmest were recorded during the July surveys. The lowest maximum recorded temperature was 46°F on April 6, 2016, and the highest maximum recorded temperature was 82°F on June 27, 2016. Winds and cloud cover were variable during most survey periods and across all survey dates (see Appendix B).

#### 3.2 Bald Eagle Nests

In 2016, there were two known Bald Eagle nests in the close vicinity of the project area, plus several other Bald Eagle nests within 10 miles of the project area. Bald Eagle nest locations are considered sensitive information; therefore, no figures in this report identify these nest locations. The descriptions below of the nests in the vicinity (i.e., within approximately 10 miles) of the project area include the "Thruway nest" and the "Hanover nest", which were monitored during the 2016 field season

■ The "Thruway nest", located in the vicinity of the NYS Thruway, is approximately 4,000 feet northwest of the proposed transmission line and approximately 5 miles north of the nearest proposed turbine. This nest site has been active for several years, and E & E confirmed it was active again in 2016 (see Appendix C, Table C-1). E & E observed this nest from a distance for a total of 111 minutes during 11 visits between March 2016 and August 2016. An incubating adult Bald Eagle was observed on March 14, 2016, and adults were observed incubating or in the vicinity of the nest in March, April, and May.



By late May leaves had obscured the nest from view. This nest probably fledged two young, as two juvenile Bald Eagles were seen in the vicinity of the nest tree on July 15, 2016.

- The "Hanover nest" was discovered by E & E in early April 2012. The nest is located in the vicinity of the Silver Creek Reservoir, approximately 0.7 miles northeast of the nearest project component (an access road). The closest turbine is located just over 1 mile (6,000 feet) to the southwest of the nest. E & E confirmed the nest was active in 2016 (see Appendix C, Table C-1). E & E observed this nest from three varying distances for a total of 420 minutes during 13 visits between March and September, 2016. An incubating adult Bald Eagle was observed on March 14, 2016, and adults were observed perched on or near the nest in subsequent visits in March, April, and May. The nest apparently failed by May 25, 2016, as indicated by a flycatcher perched on the nest edge. No Bald Eagle activity was recorded at or near the nest during observations between June and September 2016.
- There are an unspecified number of active nests along Cattaraugus Creek in the vicinity of the Cattaraugus Indian Reservation. The distance from the closest turbine to the area with nests along Cattaraugus Creek is approximately 6.3 miles.
- The "Dayton nest" is located approximately 5.5 miles southeast of the project area and has been active in recent years according to NYSDEC.
- The "Pomfret nest" is located approximately 7.0 miles west of the project area, in the vicinity of the Fredonia reservoir. NYSDEC discovered nesting activity in this location in 2012 and it has been active since that time.
- The "Dunkirk nest" is located approximately 9.5 miles west of the project area. This is a more recent nest location according to NYSDEC.
- The "Sheridan nest" is located approximately 3.0 miles northwest of the project area. This is a more recent nest location according to NYSDEC.

4

#### **Discussion**

#### 4.1 2016 Eagle Surveys to Date

Bald Eagles were periodically observed in the project area during surveys between March 2016 and September 2016, with most sightings occurring in September. Golden Eagles were not observed in the project area during the 2016 surveys. The 17 Bald Eagle sightings on September 1 likely involved multiple sightings of the same individuals. The Bald Eagles were likely a mix of migrants, locals, and transients and included adult and immature birds. The relatively high sightings per hour at the three most northern survey points is influenced by the large number of sightings on September 1, which involved surveying only the northern half of the site. Aside from the number of sightings on September 1, the results of the 2016 surveys to date are generally consistent with the results reported in previous studies conducted by E & E in the project area, suggesting Bald Eagle activity within the project area during spring and fall migration seasons and more occasional activity during summer months.

The project area is situated east and south of the Portage Escarpment and Lake Erie plain, where Bald Eagles and other raptor migrants are concentrated during spring migration. It is likely that some of the eagles observed in April, May, and possibly September were migrants. Surveys on September 1, 2016, yielded the highest number of Bald Eagle sightings for any single day thus far (17 sightings). The winds on this day were moderate and from the north, providing good conditions for raptor migration; however, the time period was too early in the fall for migration activity and there is minimal fall raptor migration along the southern shores of the Great Lakes. Therefore, these sightings were likely of local birds and included multiple sightings of the same individuals. The local flights in the project area may have been between possible foraging areas (i.e., East Mud Lake, West Mud Lake, Lake Erie, Silver Creek Reservoir, Fredonia Reservoir, and Dayton gravel ponds). Five Bald Eagle sightings were made at survey point 13, which is the survey point closest to the "Thruway nest." One of these was a perched adult that was likely associated with this nest. The other four Bald Eagle sightings were two adults and two immatures seen during the fall migration season. With the proximity of the "Thruway nest" to Lake Erie (approximately 2.5 miles), it is likely that most foraging flights go toward the lake. One immature Bald Eagle was sighted at survey point 10, which is the survey point closest to the "Hanover nest." There were no sightings of the adult Bald Eagles from the "Hanover nest" at the nearest survey point.



#### 4.2 Golden Eagles

Golden Eagles are uncommon migrants over western New York. No Golden Eagles have been observed during the 2016 surveys to date. Migrant Golden Eagles would be expected to fly over the project area during the usual periods of migration, specifically spring migration. Because the period of time when Golden Eagles would be expected to fly over the project area is brief, and because the occurrence of the Golden Eagle is generally uncommon, it is expected that the Golden Eagle is unlikely to be adversely affected by the Project.

#### 4.3 Bald Eagle Nests

Bald Eagles continue to increase their presence and expand their distribution in Chautauqua County as well as in Western New York State, adjacent states, and the Great Lakes region. Two Bald Eagle nest locations in the vicinity of the project area were monitored in 2016 and both were confirmed to be occupied by incubating Bald Eagles. The "Hanover nest" apparently failed later in the season while the "Thruway nest" possibly fledged two young (see Section 3.2 above).

Nesting typically takes place in forested areas relatively close (usually less than 1.2 miles) to suitable foraging areas, typically large bodies of water (Buehler 2000). Undisturbed forested habitats near lakes, rivers, or wetlands are preferred (Nye 2008). Large nests of sticks and finer materials are typically built in the tops of the largest trees in the area and are reused for many years. Bald Eagles may build one or more alternate nest(s) within their territory and may switch to an alternate nest in successive years, particularly after a nesting failure (Buehler 2000). As Bald Eagle populations continue to increase, greater nest densities may occur in preferred habitats, and eagles may also begin to nest in less ideal habitats further from foraging areas.

#### 4.4 Next Steps

Surveys will continue through February 2017, at which point this report will be updated. Ball Hill will continue to coordinate with NYSDEC and the USFWS regarding eagle activity.

5

## References

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. 2013. Eagle Conservation Plan Guidance, Module 1 – Land Based Wind Energy, Version 2. Washington D.C.:U.S. Fish and Wildlife Service, Division of Migratory Bird Management. http://www.fws.gov/windenergy/eagle\_guidance.html



# A Eagle Surveys Sightings Data

Table A-1 Eagle Survey Sightings (March through September, 2016), Ball Hill Wind Energy Project Area.

Table A-1 Eagle Survey Sightings (March through September, 2016), Ball Hill Wind Energy Project Area.										
				Survey	Flight	Flight			Age	
Species	Date	Time	Number		Height			Behavior	1	Notes
Bald Eagle	3/14	1242	1	4	L	NW	No	S	A	Soaring NW through plot
Bald Eagle										Perched in riparian strip to NW. Likely one of
	4/6	925	1	13			No	P	A	breeding pair of I-90 nest
Bald Eagle	4/6	1251	1	9	RSZ	Е	No	FG	Im	Flew east through plot
Bald Eagle	4/25	1001	1	7	L/RSZ/H	NE	No	S/G	Im	Initially soaring NE with Broad-winged Hawks
										then with second immature Bald Eagle
Bald Eagle	4/25	1008	1	7	L/RSZ	W/E	No	S/FG	Im	Soaring with first immature Bald Eagle
Bald Eagle	4/25	1021	1	7	L	NE	No	FG/P	A	Soaring low then perched in tree to north
Bald Eagle										Gliding north; kettle of Broad-winged Hawks fly-
	4/25	1535	1	1	RSZ	N	No	G	A	ing above
Bald Eagle	5/7	1111	1	8	RSZ/H	NNW	No	S/G	A	Soaring east then NW, net movement NNW
Bald Eagle										Soaring with two immature Bald Eagles; net
	5/7	1323	1	11	Н	SE	No	S	A	movement SE
Bald Eagle										One of two immatures soaring higher than adult
	5/7	1325	1	11	Н	S	No	S	Im	Bald Eagle; soaring south
Bald Eagle										One of two immatures soaring higher than adult
										Bald Eagle; soaring SE then NE, net movement
	5/7	1325	1	11	Н	SE/NE	No	S	Im	east
Bald Eagle	5/25	1243	1	4	RSZ/H	ENE	No	FG/S	A	Flap-gliding NE through plot then soaring SE
Bald Eagle	6/8	1053	1	12	RSZ/H	ESE	No	S	A	Soaring ESE through plot
Bald Eagle	7/3	1129	1	9	Н	NW	No	G/S	A	Gliding and soaring NW through plot
Bald Eagle	7/3	1429	1	12	Н	W	No	FG	A	Adult flap-gliding west over woods to south
Bald Eagle	7/3	1435	1	12	Н	Е	Yes	S	A	Resight of adult soaring off to SW
Bald Eagle	8/14	1125	1	11	RSZ/H	S	No	S/FG	Im	Soaring/gliding south, then east, then south
Bald Eagle	8/23	1402	1	3	Н	SE	No	S	Im	Soaring SE and joins a flock of Turkey Vultures
Bald Eagle	9/1	1032	1	10	RSZ	NE/S	No	S	Im	Soaring off to SSW
Bald Eagle	9/1	1249	1	11	Н	W	No	G	A	Gliding west; flies past a soaring Osprey
Bald Eagle								_		Two immatures soaring and talon grabbing (Im, 1
8	9/1	1306	2	12	RSZ/H	S	No	S	Im	& 2)
Bald Eagle										Likely immature Bald Eagles from 1306 (Im, 1 and
Dura Zagre	9/1	1309	2	12	RSZ	N	Yes	S	Im	2)
Bald Eagle	9/1	1319	1	12	RSZ/H	S/NE	Yes	S/G	Im	Im. 1 gliding south then soaring NE
Bald Eagle		/	-	<b>-</b>		2.1.2	- 40	2.0		Im. 2 gliding south then soaring NE, separates
Zara Eugle	9/1	1319	1	12	RSZ/H	S/NE	Yes	S/G	Im	from Im. 1 flight path
Bald Eagle	9/1	1335	1	12	RSZ	S	Unknown		Im	Soaring off to south; could be a resight or new
Daid Lagic	7/1	1333	1	12	NOL	<u> </u>	OHKHOWII	L B	1111	boaring off to south, could be a resignit of new

Table A-1 Eagle Survey Sightings (March through September, 2016), Ball Hill Wind Energy Project Area.

Tuble A			- Jg.	Survey	Flight	Flight	,,		Age	orgy i rojout Arou.
Species	Date	Time	Number	Point	Height	Direction	Resight	Behavior	Class	Notes
Bald Eagle										Adult gliding north overhead with immature (Im.
	9/1	1324	1	12	Н	N	No	G/S	Α	3) as Im. 1 and 2 glide south
Bald Eagle										Im. 3 gliding north overhead with adult Bald Ea-
	9/1	1324	1	12	RSZ/H	NNE	No	G/S	Im	gle, then soaring with Im. 1, then soaring NW
Bald Eagle	9/1	1332	1	12	Н	NE	No	G/S	Im	Im. 4 soaring with adult; five Bald Eagles visible
Bald Eagle	9/1	1332	1	12	Н	NE	Yes	G/S	Α	Resighted adult soaring with Im. 4
Bald Eagle										Immature soaring NNW then south until too high
	9/1	1448	1	13	RSZ/H	N	No	G/S	Im	to see; net movement north
Bald Eagle										Adult soaring then gliding east with second adult
	9/1	1504	1	13	RSZ/H	Е	No	G/S	Α	Bald Eagle
Bald Eagle										Adult soaring then gliding east with first adult Bald
	9/1	1505	1	13	RSZ/H	Е	No	G/S	A	Eagle
Bald Eagle										Second immature soaring north; joined by another
	9/1	1524	1	13	Н	N	No	S/G	Im	immature Bald Eagle after end of survey
Bald Eagle	9/23	1116	1	4	L/RSZ	NE/S	No	S/G	A	Soaring NE then gliding south; net movement SE
Total			36							

Key:

RSZ = rotor-swept zone

#### Height:

L = < 50 m agl RSZ = 50 - 200 m aglH = > 200 m agl

#### Behavior:

S = Soaring

G = Gliding

FG = Flapping - Gliding

P = Perching

#### Age:

A = Adult

Im = Immature

# **B** Weather Data

Table B-1 Weather Conditions by Survey Date for Eagle Surveys - March 2016 through September 2016

Date	Survey Mean Temperature (°F)	Survey Max Temperature (°F)	Survey Min Temperature (°F)	Survey Wind Direction	Survey Avg. Wind Speed (mph)	Survey Max. Wind Speed (mph)	Average Cloud Cover	Comments
2016 Surve								
3/14/2016	49	56	44	S	17	23	Overcast	
3/22/2016	45	55	34	S	9	15	Overcast	
4/6/2016	41	46	36	S	15	26	Overcast	
4/25/2016	60	65	52	SE	6	8	Partly Cloudy	
5/7/2016	63	70	54	S	7	13	Partly Cloudy	
5/25/2016	77	82	70	W	13	18	Sunny	
6/8/2016	53	57	48	WNW	18	22	Overcast	
6/27/2016	78	82	70	W	10	15	Partly Sunny	
7/3/2016	73	77	64	WNW	7	11	Partly Cloudy	
7/15/2016	77	79	72	WSW	16	25	Partly Sunny	
8/14/2016	74	77	72	W	5	8	Overcast	Light rain (0.25 hour)
8/23/2016	73	79	64	SSW	6	9	Sunny	
9/1/2016	72	77	64	N	8	12	Partly Sunny	
9/23/2016	74	77	66	NW	8	10	Partly Cloudy	

Key:

Cloud Cover: Sunny = 0%-20% Partly Sunny = 21%-50% Partly Cloudy = 51%-80% Overcast = 81%-100%



# C Bald Eagle Nest Observation Data



#### C Bald Eagle Nest Observation Data

Table C-1 E & E Bald Eagle Nest Observations - March 2016 through September 2016

Bald Eagle Activity at or Near the Nest   Observation or Near the Nest   Time (min.)   Industry at or Near the Nest   Industry at or Near the Nes	Table C-1	Hanover Nes		Thruway Nes	
Date   1 adult BAEA incubating nest.   20					
3/14/2016   1 adult BAEA incubating nest.   20	Date				
3/22/2016   1 adult BAEA perched 5 m from nest and 2nd adult perched nearby.   4/6/2016   1 adult BAEA flew south in the vicinity of the nest tree.   4/25/2016   1 adult BAEA perched below the nest for 4 minutes.   5/7/2016   1 adult BAEA perched on nest edge and 2nd adult perched nearby.   5/7/2016   1 adult BAEA perched on nest edge for 4 minutes and perched below the nest for 47 minutes.   65	3/14/2016	i e			
m from nest and 2nd adult perched nearby.		nest.		nest.	
Adult perched nearby.   4/6/2016   1 adult BAEA flew south in the vicinity of the nest tree.   4/25/2016   1 adult BAEA perched below the nest for 4 minutes.   65	3/22/2016		6	1 adult BAEA incubating	12
4/6/2016				nest.	
in the vicinity of the nest tree.  4/25/2016		1 .			
tree.  4/25/2016	4/6/2016		40	None	5
4/25/2016         1 adult BAEA perched below the nest for 4 minutes.         65         1 adult BAEA perched on nest edge and 2nd adult perched nearby.         5           5/7/2016         1 adult BAEA perched on nest edge for 4 minutes and perched below the nest for 47 minutes.         65         1 adult BAEA perched on nest edge.         5           5/25/2016         1 adult BAEA perched 210 m north of nest. A flycatcher perched on the edge of the eagle nest.         68         None; nest not visible.         10           6/7/201         No activity         10         N/A         0           6/8/2016         No activity         65         No activity; nest not visible.           6/13/201         No activity         25         N/A         0           6/22/201         N/A         0         No activity; nest not visible.         10           6/24/201         No activity         30         No activity; nest not visible.         5           7/3/2016         No activity         9         1 adult BAEA perched south of nest tree.         6           7/15/2016         No activity         9         1 adult BAEA flying in vicinity of nest tree.         30           8/14/2016         No activity         5         N/A         0           8/23/2016         N/A         0         No activity; nest not visible.		_			
below the nest for 4 minutes.	4/25/2016		. <del>.</del> .	1 11 5 5 5 1 1	-
minutes.   adult perched nearby.	4/25/2016		65	<u> </u>	5
5/7/2016         1 adult BAEA perched on nest edge for 4 minutes and perched below the nest for 47 minutes.         65         1 adult BAEA perched on nest edge.         5           5/25/2016         1 adult BAEA perched 210 m north of nest. A flycatcher perched on the edge of the eagle nest.         68         None; nest not visible.         10           6/7/201         No activity         10         N/A         0           6/8/2016         No activity         65         No activity; nest not visible.         8           6/13/201         No activity         25         N/A         0           6/22/201         N/A         0         No activity; nest not visible.         10           6/24/201         No activity         30         No activity; nest not visible.         5           7/3/2016         No activity         9         1 adult BAEA perched south of nest tree.         6           7/15/2016         No activity         10         2 juvenile BAEA flying in vicinity of nest tree.         30 in vicinity of nest tree.           8/14/2016         No activity         5         N/A         0           8/23/2016         N/A         0         No activity; nest not visible.           9/1/2016         No activity         5         N/A         0				_	
on nest edge for 4 minutes and perched below the nest for 47 minutes.  5/25/2016	5/7/2016		65		5
minutes and perched below the nest for 47 minutes.         68         None; nest not visible.         10           5/25/2016         1 adult BAEA perched 210 m north of nest. A flycatcher perched on the edge of the eagle nest.         68         None; nest not visible.         10           6/7/201         No activity         10         N/A         0           6/8/2016         No activity         65         No activity; nest not visible.         8           6/13/201         No activity         25         N/A         0           6/22/201         N/A         0         No activity; nest not visible.         10           6/24/201         No activity         30         No activity; nest not visible.         5           7/3/2016         No activity         9         1 adult BAEA perched south of nest tree.         6           7/15/2016         No activity         10         2 juvenile BAEA flying in vicinity of nest tree.         30           8/14/2016         No activity         5         N/A         0           8/23/2016         N/A         0         No activity; nest not visible.           9/1/2016         No activity         5         N/A         0	3///2010	-	03	_	3
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# Visual Resource Assessment

#### I-1 Visual Resource Assessment



Landscape Architects, Architects, Engineers, and Planners, P.C.

#### Memorandum

Date: July 17, 2016

To: Ms. Tegan Kondak
From: John Guariglia, RLA
Project Name: Ball Hill Wind Project

Project #: 2015-039

Subject: Micro-Siting of Turbines 27 and 34

Subsequent to the completion of Saratoga Associates Landscape Architects, Architects, Engineers, and Planners, P.C. (Saratoga Associates) work on the *Ball Hill Wind Project Final Visual Resource Assessment*, Ecology & Environment, Inc (E&E) identified two wind turbines that have been micro sited. As a result it is anticipated that these changes result in:

- 1. Turbine 27 moving approximately 485 feet to the northwest, and
- 2. Turbines 34 moving approximately 415 feet to the southeast.

In an effort to explain how these changes would impact the previously completed illustrations, Saratoga Associates offers the following:

#### Viewshed Mapping

It is not anticipated that these moves will cause a noticeable change in their potential visibility.

#### **Photographic Simulations**

The new location of turbine 27 would mostly affect simulations completed at viewpoint locations 2, 8, and 54.

- 1. Viewpoint 2 (Prospect Road) Although the turbine would be seen in a different location, the appearance of the turbine is generally expected to be the same.
- 2. Viewpoint 8 (NYS Route 39) This turbine will be moving slightly closer to Viewpoint 8. The turbine may be seen to be slightly taller, but with the distance between the turbine and viewer this minor change would probably go unnoticed.
- 3. Viewpoint 54 (Flucker Hill Road) This turbine will be moving slightly further away from Viewpoint 54. The turbine may be seen to be slightly smaller, but with the distance between the turbine and viewer this minor change would probably go unnoticed.

Generally for these locations, visibility and appearance are not expected to change from what was previously illustrated.

#### SARATOGA ASSOCIATES

Ball Hill Wind Project July 14, 2016 Page 2 of 2

The new location of turbine 34 would mostly affect simulations completed at viewpoint locations 7, 8, 54, and 55.

- 1. Viewpoint 7 (Tri-County Country Club) This turbine does not appear to be visible from this location due to vegetative screening. It is anticipated that this will still be the case.
- 2. Viewpoint 8 (NYS Route 39) This turbine will be moving slightly further away from Viewpoint 8. The turbine may be seen to be slightly smaller, but with the distance between the turbine and viewer this minor change would probably go unnoticed.
- 3. Viewpoint 54 (Flucker Hill Road) This turbine will be moving slightly closer to Viewpoint 54. The turbine may be seen to be slightly taller, but with the distance between the turbine and viewer this minor change would probably go unnoticed.
- 4. Viewpoint 55 (Country Route 93) This turbine will be moving slightly closer to Viewpoint 55. The turbine may be seen to be slightly taller, but with the distance between the turbine and viewer this minor change would probably go unnoticed.

Generally for these locations, visibility and appearance are not expected to change from what was previously illustrated.

These viewpoint locations were selected based on the orientation of the views captured in the photographs and because they are in relative close proximity to the turbines. These turbines may also be visible in other photos, however due to the distance between viewer and turbine the changes would be slight and most likely be unrecognizable.

#### Shadow Flicker

Based on the changes in the location of these turbines, there is expected to be some minor impact to nearby residential dwellings. However, the changes in potential shadow flicker do not appear to be highly significant. Reviewing the information contained in the latest report, it is anticipated that the following may occur:

- 1. The new location of turbine 27 may result in noticeable increases to receptors 118, 119, and 327. There is also a potential to see some level of reduction to receptor 326. Since Receptors 118, 119, and 326 are on the fringe of the individual turbines study area, and these receptors were originally subject to a maximum potential of less than 10 shadow hours per year, it is anticipated that these changes will most likely be minor. Receptor 327 which, like the others, have less than 10 shadow hours per year, may have a slightly higher increase than the others, however it is not anticipated to be a significant increase.
- 2. The new location of turbine 34 may result in an increase at receptor 11 and a reduction at receptor 12. Since these two receptors are on the fringe of the turbines study area and were originally subject to a maximum potential of less than 10 shadow hours per year, it is anticipated that these changes will most likely be minor.



### BALL HILL WIND PROJECT FINAL VISUAL RESOURCE ASSESSMENT

Prepared for: Ball Hill Wind Energy, LLC 1101 W. 120<sup>th</sup> Ave., Suite 400 Broomfield, CO 80021

July 5, 2016





#### **Ball Hill Wind Project – Final Visual Resource Assessment**

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### 1.0 Introduction

Ball Hill Wind Energy, LLC is proposing to develop a wind-powered electrical-generating facility consisting of up to 29 turbines with a maximum capacity of 100.5 megawatts (MW). The proposed Ball Hill Wind Project (also referred to as the "Project") will be located in the Towns of Villenova and Hanover, Chautauqua County, New York. An electrical substation, switchyard, and an approximately 5.8-mile 115 kV above ground transmission line will be located in the Town of Hanover.

Since the submission of the Ball Hill Windpark Draft Environmental Impact Statement (DEIS), the Project layout has been revised resulting in fewer yet taller turbines. Based on these changes, it was determined that a Supplemental Draft Environmental Impact Statement (SDEIS) would be needed. As part of the SDEIS being prepared for the permitting of this Project, Saratoga Associates, Landscape Architects, Architects, Engineers, and Planners, P.C. (Saratoga Associates) completed a Supplemental Visual Resource Assessment (SVRA) of the Project. This Final VRA (also referred to as "SVRA") presents an updated version of the *Noble Ball Hill Windpark Visual Resource Assessment* (Saratoga Associates, 2008). The original report completed in 2008 has been revised to reflect the changed layout and number of turbines, as well as address previous questions raised by the community and reviewing agencies.

### 1.1 METHODOLOGY

Consistent with Visual Resource Assessment (VRA) practice, this report evaluates the potential visibility of the proposed Project and objectively determines the difference between the visual characteristics of the landscape setting with and without the Project in place. The process follows basic New York State Department of Environmental Conservation Program Policy "Assessing and Mitigating Visual Impacts" (NYSDEC 2000) (DEC Visual Policy) and State Environmental Quality Review (SEQRA) criteria to minimize impacts on visual resources. This DEC Visual Policy requires a visual assessment when a proposed facility is potentially within the viewshed of a designated aesthetic resource.

There are no specific Federal rules, regulations, or policies governing the evaluation of visual resources. However, the methodology employed herein is based on standards and procedures used by the U.S. Department of Agriculture (National Forest Service, 1974, 1995), U.S. Department of the Interior, Bureau of Land Management (USDOI, 1980), U.S. Department of Transportation, Federal Highway Administration (USDOT, 1981), NYS Department of Transportation (NYSDOT, 1988), and the NYS Department of Environmental Conservation (NYSDEC, July 31, 2000).

The visual impact assessment includes the following steps:

- > Define the existing landscape character/visual setting to establish the baseline visual condition from which visual change is evaluated;
- Conduct a visibility analysis (viewshed mapping and field investigations) to define the geographic area surrounding the proposed facility from which portions of the Project might be seen;



- > Identify sensitive aesthetic resources to establish priority places from which further analysis of potential visual impact is conducted;
- > Select key receptors from which detailed impact analysis is conducted;
- > Depict the appearance of the facility upon completion of construction;
- > Evaluate the aesthetic effects of the visual change (qualitative analysis) resulting from Project construction, completion and operation; and,
- > Identify opportunities for effective mitigation.

Consistent with the DEC Visual Policy, the study area for this study generally extends to a five-mile radius from the outermost turbines (hereafter referred to as the "five-mile study area" or "study area"). Beyond this distance it is assumed that natural conditions of atmospheric and linear perspective will significantly mitigate most visual impacts. However, considering the scale of the proposed Project and recognizing the proposed wind turbines will, at times, be visible at distances greater than five (5) miles, site-specific consideration is given to resources of high cultural or scenic importance that are located beyond the typical five-mile radius.

### 1.2 PROJECT DESCRIPTION

The Project area is located in Western New York, approximately 60 miles northeast of Erie, Pennsylvania, 50 miles southwest of Buffalo, and 25 miles north of Jamestown. The Project includes 29 energy-generating turbines located in the Towns of Villenova (23 turbines) and Hanover (6 turbines). Generally, the turbines are bounded by NYS Route 39 to the north, County Route (CR) 93 to the east, NYS Route 83 to the south, and Empire and Round Top Roads to the west. Turbines will be located on private land under lease agreement with property owners.

Each turbine will include a tall steel tower; a rotor consisting of three composite blades; and a nacelle, which houses the generator, gearbox, and power train. A transformer may be located in the rear of each nacelle, or adjacent to the base of the tower, to raise the voltage of the electricity produced by the turbine generator to the voltage level of the collection system (34.5 kV). The color of the blades, nacelle, and tower will be off-white. The towers will be a tapered tubular steel monopole tower.

Ball Hill Wind Energy, LLC proposes to install 29 Vestas V126-3.45 MW, with a maximum height of approximately 492 feet. These turbines will have a hub height of 285 feet (87 meters) and a rotor diameter of 413 feet (126 meters) resulting in an apex of blade rotation reaching approximately 492 feet. The rotor and nacelle will be mounted on a tapered tubular steel tower. The maximum operating rotational speed of the blades should not be greater than approximately 16.3 revolutions per minute (rpm) or about one revolution every four (4) seconds.

In addition to the wind turbines, the Project will involve the construction of gravel access roads, interconnection cables, a transmission line, an operation and maintenance facility, and an electrical substation and switchyard. It is anticipated that the interconnection cables (between the turbines) will be buried, unless engineering and environmental issues are encountered.



Prior to construction, multiple laydown areas will be placed in strategic locations throughout the Project area. These laydown areas will vary in size from two (2) to 10 acres, initially disturbing a total of 26.2 acres of land. The operations and maintenance (O&M) building with parking, construction storage/work area, and the associated driveway will occupy approximately 2.8 acres on North Hill Road in the Town of Villenova. This facility will provide a base of operations for the Project. The area where the O&M building will be sited is used for agricultural purposes and is currently planted with a field crop of hay. The area will be graded, graveled, and enclosed with a six-foot fence and entrance gate. Construction trailers will be placed in the area with temporary services including

electrical power, telephone, and restroom facilities. The O&M building will be a metal construction, approximately 7,000 square feet, and include managerial offices, monitoring stations, and a storage area for parts and small equipment. At the conclusion of the project, approximately 23.4 acres of the laydown area will be reclaimed and reseeded, leaving only the O&M building and an area designated for parking.



Typical O&M Building and Side Yard

A proposed 5.8-mile overhead 115 kV transmission line will be constructed to connect the turbines with an existing National Grid 230 kV transmission line in the Town of Hanover. This connection will occur at a three-acre± switchyard located near the northern terminus of the overhead transmission line approximately 1,300 feet southeast of the intersection of Bennett State Road (CR 85) and Stebbins Road (CR 86) in the Town of Hanover. Also, an approximately 1.2 acre substation will be located at the southern terminus of the overhead transmission line approximately 800 feet north of Hurlbert Road in the Town of Hanover.

### 1.3 AVIATION OBSTRUCTION MARKING AND LIGHTING

According to the Federal Aviation Administration (FAA), daytime lighting of wind turbines, in general, is not necessary. Turbines themselves, due to their solid construction, as well as their moving characteristics, provide sufficient warning to pilots during daytime conditions, and all document terrain and sky conditions. The FAA recommends that turbines be painted either bright white, or a slight shade from white, to provide maximum daytime conspicuity.

The FAA requires lighting of perimeter turbines, as well as interior turbines with a maximum gap between lit turbines of no more than ½ mile (2,640 feet). Based on these guidelines and the evaluated 29-turbine layout, approximately 22 of the proposed turbines may be illuminated at night for aviation safety. One aviation obstruction light will be affixed to the rear portion of the nacelle on each turbine to be illuminated.

<sup>&</sup>lt;sup>1</sup> The number of lit turbines is subject to change due to discussions with FAA.



Lighting may be L-864 red flashing lights, in the form of incandescent or rapid discharge (strobe). The FAA recommends red light emitting diode or rapid discharge style L-864 fixtures to minimize impacts on neighboring communities, as the fixtures' exposure time is minimal, thus creating less of a nuisance. All light fixtures within the Project must flash in unison, thus delineating the Project as one (1) large obstruction to pilots. L-864 red flashing aviation obstruction lights are designed to emit light in an upward direction with maximum visibility for pilots. The L-864 unit is a low intensity light emitting 2,000 candelas<sup>3</sup> and is commonly used on turbines, communication towers, and other tall structures found throughout the study region.

<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, "Development of Obstruction Lighting Standards for Wind Turbine Farms" (DOT/FAA/AR-TN05/50, November 2005).

<sup>&</sup>lt;sup>3</sup> Candela is the unit of luminous intensity, equal to one lumen per steradian (lm/sr).



Ball Hill Wind Project #2015-039.10M

### 2.0 LANDSCAPE CHARACTER/VISUAL SETTING

Landscape character is defined by the basic pattern of landform, vegetation, water features, land use, and human development. This descriptive section offers an overview of the intrinsic visual condition of the study region and establishes the baseline condition from which to evaluate visual change.

### 2.1 Topography

The proposed Project occupies a small portion of the northern edge of the Cattaraugus Highlands, which is a sub-region of the Allegheny Plateau, and the Erie-Ontario Plain, which is a sub-region of the Great Lakes Plain. The topography within the study area rises quickly from the gently sloping land bordering Lake Erie, to a series of undulating ridge tops with deeply cut generally north-south aligned ravines and valleys. Elevation throughout the study area averages 1,000 to 1,500 feet above sea level. The uplands are defined by relatively broad undulating plateaus, such as those around Boutwell Hill State Forest and Canadaway Creek Wildlife Management Area. Elevations in these areas generally range between 1,725 feet to 2,150 feet above sea level. Terrain throughout the study area consists largely of undulating hills, ridges and areas of smaller rounded hillocks, often bisected by ravines.

### 2.2 VEGETATION

Dominant tree species within the study area are representative of the northern hardwood zone found throughout much of the Western New York Region. Species include beech, maple, ash, elm, and hemlock. In addition to these deciduous climax species, isolated plantings of red and white pine are scattered throughout the study area. Coinciding with the mix of open field and woodlots is a significant amount of secondary growth edge habitat. For the most part, this secondary growth takes the form of hedgerows, wood borders, and old fields. Beyond the Project area, the landscape remains primarily rural agriculture, with the exceptions of the Villages of South Dayton and Forestville, which each feature greater housing and business density, as well as tree-lined streets.

Some of the highest vegetation density within the study area is found within the Boutwell Hill Management Unit, which is comprised of Canadaway Creek Wildlife Management Area to the north and Boutwell Hill State Forest to the south. The dominant tree species in the Unit is northern hardwood, with some Allegheny hardwoods as well. Ninety-four percent of the Boutwell Hill Management Unit is classified as commercial forest.

### 2.3 WATER FEATURES

Water features are not a major component of the visual landscape in the vicinity of the proposed wind farm. The most prominent water resources within the study area include Big Indian Creek, Blaisdell Creek, Canadaway Creek, North and West Branch of the Conewango Creek, Silver Creek, Slab City Creek, Walnut Creek and Tupper Creek. Additional notable resources include, but are not limited to, Black Pond, East and West Mud Lake, and the Silver Creek Reservoir. Numerous private farm ponds, scattered wetlands, and small streams are also found in the study area.

Is should also be noted, that the largest water feature in the area, Lake Erie, is approximately 7.0 miles from the nearest turbine.



### 2.4 Transportation

NYS Routes 39, 83, and 322, are the primary transportation thoroughfares in the study area. These roads generally run west to east. NYS Route 39 enters the study area from the Town of Sheridan and exits the study area through the Village of Perrysburg. This road is located just north of the Project area with the closest turbine proposed to be located within 0.50 miles of the road. NYS Route 83 enters the study area in the Town of Arkwright and exits through the Town of Cherry Creek. NYS Route 322 begins in the Hamlet of Balcom in the Town of Cherry Creek, continuing eastward where NYS Route 322 breaks off to the south. In addition to these, the NYS Thruway (I-90) runs through the northernmost part of the study area in the Town of Hanover for a length of approximately two (2) miles.

A number of county routes are also located within the study area. Among these, CRs 72, 77, 85, 87, 88, 89, and 93 are within Chautauqua County, and CR 2 and 78 are within Cattaraugus County. The CRs within the study area connect numerous hamlets and Villages, and serve as the primary transportation routes outside the NYS Routes within the study area. Also, in select instances, those CR within the center of the Project area may be within 0.25 to 0.5 miles of a turbine.

### 2.5 Population Centers

<u>Community Centers</u> – Within the study area are two (2) villages. These larger community centers include the Villages of Forestville and South Dayton and are located entirely within the study area.

Village of Forestville – The Village of Forestville is located in the Town of Hanover, approximately 2.5 miles northeast of the nearest turbine. The street pattern in this small Village exhibits an organic configuration with several County Roads intersecting the main street (NYS Route 39) at indirect angles. A central median divides NYS Route 39 in Forestville marking the village center. Commercial establishments (service facilities and offices) are



Village of Forestville - Village center. (photo credit - ESRI)

generally clustered along NYS Route 39 (Main Street). The Forestville Elementary, Middle and High Schools are located south of Academy Street. Low to moderate density single-family housing is found within portions of the Village. Residential dwellings tend to be older and well maintained with mature vegetation lining many roadways. Development density drops sharply outside the Village center.

Activities within the Village of Forestville are generally related to small business, local shopping, and residential uses.

Village of South Dayton – The Village of South Dayton is located in the Town of Dayton, approximately 3.0 miles southeast of the nearest turbine. Roads in this Village exhibit a moderate grid-like pattern with several residential roads connecting back to Main Street or NYS Route 322 (Pine Street). A focal point of the community is a well defined "village green," (includes a gazebo, park benches, and informal



Village of South Dayton - Village center. (photo credit - ESRI)

picnicking area) that is bound by NYS 322 (Pine Street), Maple Street, Railroad Street, and Park Avenue. Commercial establishments (service facilities and offices) are generally clustered along NYS Route 322 (Pine Street) and adjacent to the "village green". Industrial uses are also evident within the southeastern portion of the Village, generally situated around the railroad tracks. Low to moderate density single-family housing is found throughout the Village. Residential dwellings tend to be older and well maintained with mature vegetation and sidewalks lining many roadways. Development density drops sharply outside the Village center.

Activities within the Village of South Dayton are generally related to small business, local shopping, recreation, and residential uses.

Rural Residential Areas – Outside of those communities identified above, homes and agricultural support buildings are either clustered at crossroad hamlets (varying in size), such as Hamlet, Black Corners, and Balcom Corners, or are very sparsely located on individual properties. A mix of old and new residences, and accessory structures (barns, garages, etc.) are often found in roadside locations, however many are located on isolated lots out of view from local roads. Rural homes range in quality from well maintained single-family frame construction to older housing stock in need of repair. Mobile homes, of varying vintage, are also a common housing type and are generally located on isolated lots or within mobile home parks.

### 3.0 VISUAL IMPACT ASSESSMENT

### 3.1 VIEWSHED MAPPING (ZONE OF VISUAL INFLUENCE)

### 3.1.1 Viewshed Methodology

The first step in identifying potentially affected visual resources is to determine whether or not the Project would likely be visible from a given location. Viewshed maps are prepared for this purpose. Also known as defining the zone of visual influence, viewshed mapping identifies the geographic area within which there is a relatively high probability that some portion of the proposed Project would be visible.

Viewshed mapping identifies the geographic area within which there is a possibility that some portion of the Project would be visible from a given location. Control points were established at the turbine high points (492 feet) for each of the 29 turbines being evaluated. The resulting viewshed identifies the geographic area within the five-mile study area where some portion of the Project is theoretically visible. The primary purpose of this exercise is to provide a general understanding of a project's potential visibility and identify areas where further investigation is appropriate.

The first viewshed map was prepared defining the area within which there would be no visibility of the Project because of the screening effect caused by intervening topography (see Figure 1). This treeless condition analysis is used to identify the maximum potential geographic area within which further investigation is appropriate. A second map was prepared illustrating the probable screening effect of existing mature vegetation. This vegetated condition viewshed acceptably identifies the geographic area within which one would expect the Project to be screened by intervening forest vegetation (see Figure 2).

For this evaluation, ArcGIS and ArcGIS Spatial Analyst software were used to generate viewshed areas based on publicly available digital topographic and land cover datasets. Viewshed maps were created using a ten-meter resolution digital elevation model (DEM) of the study area. The computer then scanned from each control point to all cells within the DEM, distinguishing between grid cells that would be hidden from view and those that would be visible based solely on topography. All grid cells within the study area were coded based on the number of proposed turbines that would be visible to a theoretical observer whose eye height is conservatively estimated at two meters above ground level.

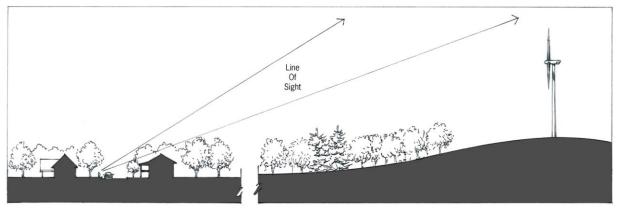
Vegetation data (land cover and canopy closure) was extracted from the National Land Cover Data Set (NLCD), which depicts cover types in a 30-meter resolution raster graphic. The screening effect of vegetation was incorporated by including an additional 40 feet (12.2 meters)<sup>4</sup> of height for those DEM grid cells that are forested (according to NLCD dataset) and then repeating the viewshed calculation procedure. Forested areas were then removed from the viewshed to account for areas located within a full forest canopy.

<sup>&</sup>lt;sup>4</sup> A tree height of 40 feet is considered conservative, as most trees in forested portions of the study area appear to be taller than 40 feet.



-

The NLCD dataset does not depict small vegetation lots (i.e. landscape vegetation), hedgerows, or built structures and may therefore overestimate the potential visibility. This is a particularly important distinction in the populated areas such as the Village of Forestville, or other commercial and residential areas where structures are likely to provide significant screening of distant views. Conversely, recently cleared lots within the study area may not be reflected in the NLCD data.



Screening caused by structures and vegetation is often found in community centers. This causes a viewers "line of sight" to the turbine to be obstructed. Cross-section not to scale.

Identified viewshed areas are further quantified to illustrate the number of turbines that may be visible from any given area. This cumulative degree of visibility is summarized on each map using the following groupings:

- > 1-5 turbines visible;
- > 6- 10 turbines visible;
- > 11-15 turbines visible;
- > 16-20 turbines visible;
- > 21-25 turbines visible; and
- > 26-29 turbines visible.

By themselves, the viewshed maps do not determine how much of each structure is visible above intervening landform or vegetation (e.g., 100%, 50%, 10% etc. of total turbine height), but rather the area within which there is a relatively high probability (theoretical visibility) that the top of one or more turbines would be visible. Also, these maps do not account for the viewer's distance from each visible turbine or the aesthetic character of what may be seen. Their primary purpose is to assist in determining the potential visibility of the Project from the identified visual resources.

### 3.1.2 Nighttime Visibility

A viewshed map (see Figure 3) was also created to assist in the evaluation of potential nighttime visibility. The development of the this viewshed map used the same methodology as described above; however, the map was created using the approximate height (295 feet) of the FAA required lights as the control point for 22 selected turbines.



### 3.1.3 Verification of Viewshed Accuracy

Because the viewshed map identifies the geographic area within which one or more of the proposed turbines could theoretically be visible, but does not specify which of the 29 turbines evaluated would be within view, it is not readily feasible to field confirm viewshed accuracy. While it is common practice to field confirm viewshed maps prepared for a single study point through the use of balloon study or more intuitive means, the inability to field confirm viewshed accuracy is unique to analysis of multiple point projects covering a large geographic area, such as wind energy projects.

To help determine the accuracy of the vegetation data used for viewshed development, the NLCD data set was overlaid on color aerial images of the study area and reviewed for consistency. While minor inconsistencies were noted, including areas of recently cleared lands, areas of inactive/ abandoned agricultural land showing a degree of pioneer species growth, and areas of non-forest vegetative cover (e.g. Village of South Dayton), the vast majority of woodland areas visible on the satellite image were consistent with the NLCD overlay.

### 3.1.4 Viewshed Interpretation

Table 1 indicates the degree of theoretical visibility illustrated on the viewshed maps within the five-mile radius study area.

Vegetation and Topography Viewshed **Topography Only Viewshed** (Figure 1 – Topographic Viewshed) (Figure 2 - Vegetated Viewshed) Acres Percentage of Study Acres Percentage of Study Area Area No Structures Visible 16.978 16.8% 68.387 67.7% 7.6% 1-5 Structures Visible 8.183 8.1% 7.664 6-10 Structures Visible 8,269 8.2% 6,119 6.1% 11-15 Structures Visible 8,359 8.3% 4,735 4.6% 5.3% 16-20 Structures Visible 13.808 13.7% 5.350 21-25 Structures Visible 5.2% 14.683 14.5% 5,248 26-29 Structures Visible 30,738 30.4% 3,515 3.5% Total 101,017 100.0% 101,017 100.0%

**Table 1 Viewshed Coverage Summary** 

\*Table 1 and Figure 1 illustrate that one (1) or more structures are theoretically visible from approximately 83.2 percent of the five-mile study radius. However, as discussed above, this unrealistic treeless condition analysis is used only to identify the maximum potential geographic area within which further investigation is appropriate. The topography only viewshed is not representative of the anticipated geographic extent of visibility and is not intended for public interpretation. Acreage is rounded to the nearest whole number in Tables 1 and 2. Turbine numbers shown on the viewshed figures are out of sequence in order to reference those turbines retained from previous evaluations.

Based on the vegetated viewshed (Table 1 and Figure 2), one (1) or more of the proposed turbines will be theoretically visible from approximately 32.3 percent of the five-mile radius study area. Approximately 67.7 percent of the study area will likely have no visibility of any wind turbines. Visibility is most common in the agricultural uplands from cleared lands with vistas in the direction of turbine groupings.

The vegetated viewshed map shows that the Project will be visible within portions of the Villages of Forestville and South Dayton. Most of the visibility shown within these villages will be further



screened by structures and localized vegetation. From the downtown sections of both villages, potential Project visibility appears to be minimal, when present at all. Within the Village of Forestville, potential for visibility is greatest along NYS Route 39 just west of the village center and filtered views are possible along short segments of Ceder and Chestnut Roads. Potential visibility, within the Village of South Dayton, generally occurs south of NYS Route 322. Views of the Project were noted along sections of 1st Avenue, 2<sup>nd</sup> Avenue and Main Street. Direct and, in some cases, open views are more prevalent on the outskirts of these community centers where localized residential and commercial structures, street trees and site landscaping are less likely to provide a visual barrier. Visibility of the Project may also be available within the hamlets scattered throughout the study area.

Open views of the Project will be available from many roadways where roadside vegetation is lacking. These roadways would include, but are not limited to, the NYS Thruway, NYS Routes 39, 83, and 322, County Routes 93, Prospect/Ball Hill Road, North and South Hill Road, Pope Hill Road, Round Top Road, Aldrich Hill Road, Hanover Road, and Flucker Hill Road. Many of these views may be long distant (background view), fleeting as viewers pass in vehicles, or short in duration. Visibility along roads that intersect the immediate project area is generally greater than visibility from roads farther away. The portion of Prospect/Ball Hill Road that bisects the Project area from southeast to northwest has the greatest visibility of any road immediate to the Project area. Turbines will be visible on both sides of Prospect/Ball Hill Road, as well as Bartlett Hill Road, North Hill Road, Smith Road, Dye Road, Pope Hill Road, and Round Top Road. In these locations, it is anticipated that 360-degree views of the Project may be visible. Open views of the Project will also occur in the agricultural uplands from cleared lands with down-slope vistas in the direction of the proposed Project (e.g. lands south of NYS Route 322).

No views, or limited views will occur on the backside of the many hills and within ravines found throughout the five-mile study area. Where topography is oriented toward the turbines, dense forest cover commonly prevents distant views.

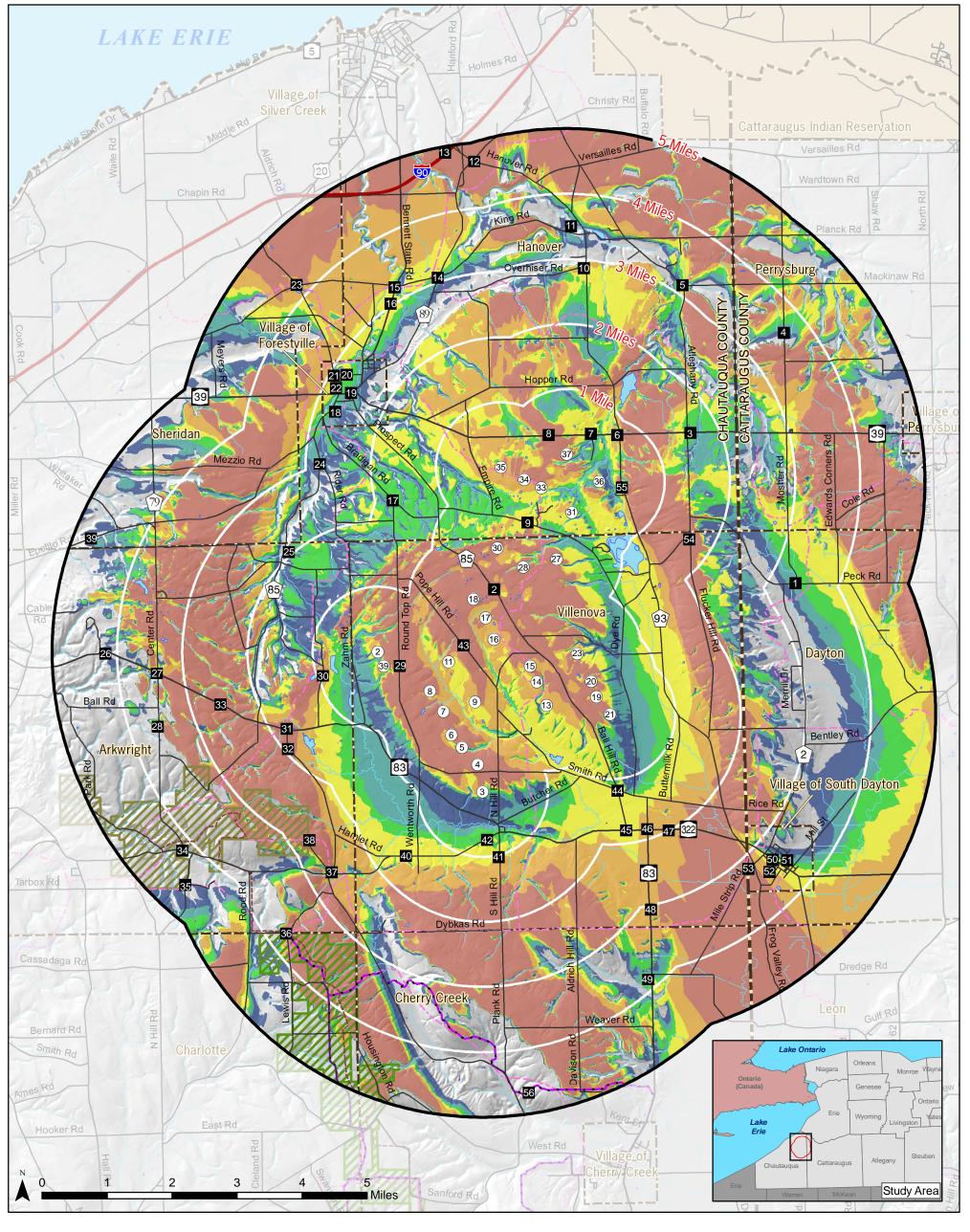
As illustrated in Table 2 and Figure 3, the viewshed map indicates that one (1) or more of the 22 FAA required light sources will theoretically be visible from approximately 28.1 percent of the five-mile radius study area. Approximately 71.9 percent of the study area will likely have no visibility of any proposed light sources. Views of the lit proposed turbines would be possible from sections of the Villages of Forestville

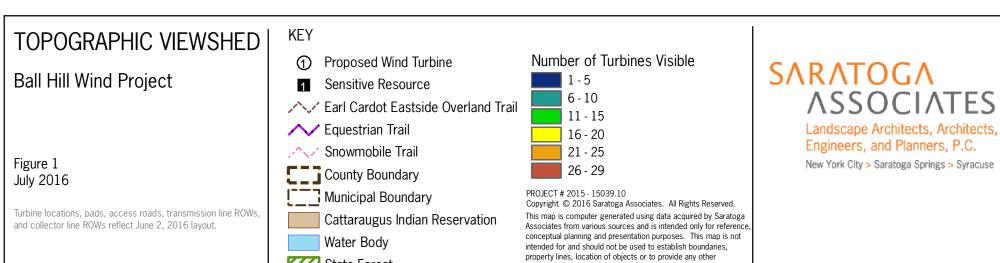
**Table 2 FAA Viewshed Coverage Summary** 

	Vegetation and Topography Viewshed (Figure 3 – FAA Navigation Light Vegetated Viewshed)			
	Acres	Percent cover		
No Structures Visible	72,634	71.9%		
1-5 Structures Visible	11,889	11.8%		
6-10 Structures Visible	8,069	8.0%		
11-15 Structures Visible	5,719	5.7%		
16-20 Structures Visible	2,260	2.2%		
21-22 Structures Visible	445	0.4%		
Total	101,017	100.0%		

and South Dayton, and Hamlets such as Hamlet, Balcom, Balcom Corners and Skunks Corner. However, visibility will be most evident in the agricultural uplands from cleared lands with downslope vistas in the direction of the proposed Project, and participating Project properties with lit turbines. In addition, views of the lit turbines are prominent from a number of roadway segments in

the study area, including the NYS Thruway, NYS Routes 39, 83, and 322, County Routes 93 and 87, North and South Hill Road, Pope Hill Road, Farrington Hollow Road, Round Top Road, and Flucker Hill Road.



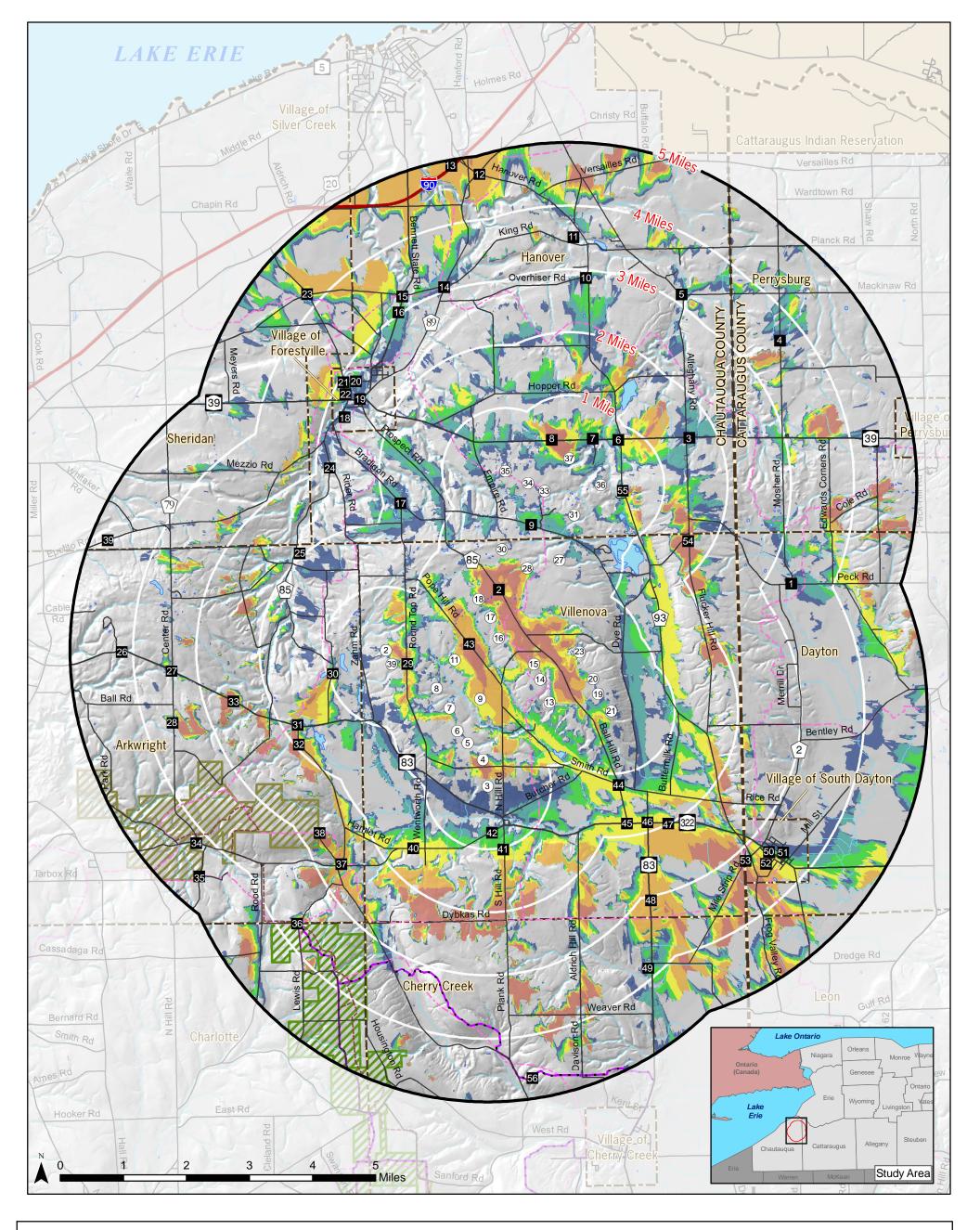


information typically needed for construction or any other purpose when engineered plans or land surveys are required.

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State Forest

Wildlife Management Area



### VEGETATED VIEWSHED\* Ball Hill Wind Project

\*Assumes 40 foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

### Figure 2 July 2016

Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

# Proposed Wind Turbine Sensitive Resource Earl Cardot Eastside Overland Trail Equestrian Trail Snowmobile Trail County Boundary Municipal Boundary Cattaraugus Indian Reservation

Water Body

Wildlife Management Area

State Forest

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Number of Turbines Visible

1 - 5

6 - 10

11 - 15

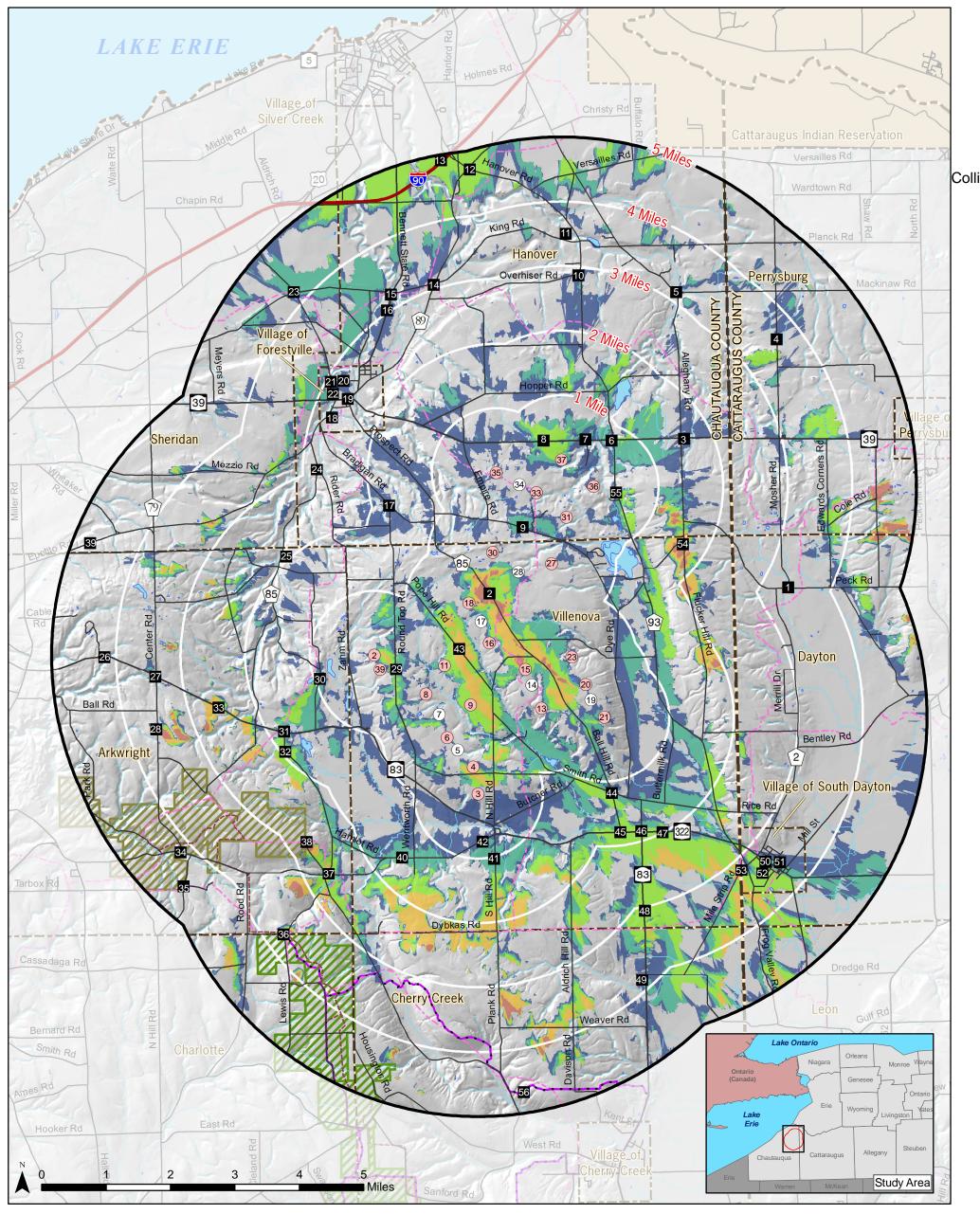
16 - 20

21 - 25

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New York City > Saratoga Springs > Syracus





 $^\star Assumes~40$  foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

### Figure 3 July 2016

Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

### KEY Number of Turbines Visible ⑤ Proposed Wind Turbine 1 - 5 4 Proposed Wind Turbine with FAA Navigation Light 6 - 10 1 Sensitive Resource 11 - 15 16 - 20 Larl Cardot Eastside Overland Trail 21 - 22 Equestrian Trail Snowmobile Trail County Boundary Municipal Boundary PROJECT # 2015 - 15039.18 Copyright © 2016 Saratoga Associates. All Rights Reserved. Cattaraugus Indian Reservation This map is computer generated using data acquired by Saratoga Associates from various sources and is intended only for reference, conceptual planning and presentation purposes. This map is not intended for and should not be used to establish boundaries, properly lines, location of objects or to provide any other Water Body State Forest information typically needed for construction or any other purpose when engineered plans or land surveys are required. File Location: B:2015\15039\Maps\FAA160602\FAAVegViewshed.mxd Wildlife Management Area

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### 3.2 Inventory of Visually Sensitive Resources

### 3.2.1 Inventory Criteria

Because it is not practical to evaluate every conceivable location where the proposed Project might be visible, it is accepted visual assessment practice to limit detailed evaluation of aesthetic impact to locations generally considered by society, through regulatory designation or policy, to be of cultural and/or aesthetic importance. In rural areas where few resources of statewide significance are likely to be found, it is common practice to expand inventory criteria to include places of local sensitivity or high intensity of use.

<u>Resources of Statewide Significance</u> – The DEC Visual Policy requires that all aesthetic resources of statewide significance be identified along with any potential adverse effects on those resources resulting from the proposed Project. Aesthetic resources of statewide significance may be derived from one or more of the following categories:

- > A property on or eligible for inclusion in the National or State Register of Historic Places [16 U.S.C. § 470a et seq., Parks, Recreation, and Historic Preservation Law Section 14.07];
- > State Parks [Parks, Recreation, and Historic Preservation Law Section 3.09];
- > Urban Cultural Parks [Parks, Recreation, and Historic Preservation Law Section 35.15];
- > The State Forest Preserve [NYS Constitution Article XIV], Adirondack and Catskill Parks;
- National Wildlife Refuges [16 U.S.C. 668dd], State Game Refuges, and State Wildlife Management Areas [ECL 11-2105];
- > National Natural Landmarks [36 CFR Part 62];
- > The National Park System, Recreation Areas, Seashores, and Forests [16 U.S.C. 1c];
- > Rivers designated as National or State Wild, Scenic, or Recreational [16 U.S.C. Chapter 28, ECL 15-2701 et seq.];
- A site, area, lake, reservoir, or highway designated or eligible for designation as scenic [ECL Article 49 or NYDOT equivalent and Adirondack Park Agency], designated State Highway Roadside;
- > Scenic Areas of Statewide Significance [of Article 42 of Executive Law];
- > A State or federally designated trail, or one proposed for designation [16 U.S.C. Chapter 27 or equivalent];
- > Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map];
- > State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution];
- > Palisades Park [Palisades Interstate Park Commission]; and
- > Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space category.



<u>Resources of Local Interest</u> – Places of local sensitivity or high intensity of use (based on local context) were also inventoried, even though they may not meet the broader statewide threshold. Aesthetic resources of local interest were generally derived from the following general categories:

- > Recreation areas including playgrounds, athletic fields, boat launches, fishing access, campgrounds, picnic areas, ski centers, and other recreational facilities/attractions;
- > Areas devoted to the conservation or the preservation of natural environmental features (e.g., reforestation areas/forest preserves, wildlife management areas, open space preserves);
- > A bicycling, hiking, ski touring, or snowmobiling trail designated as such by a governmental agency;
- > Architectural structures and sites of traditional importance as designated by a governmental agency;
- > Parkways, highways, or scenic overlooks and vistas designated as such by a governmental agency;
- > Important urban landscape including visual corridors, monuments, sculptures, landscape plantings, and urban green space;
- > Important architectural elements and structures representing community style and neighborhood character;
- > An interstate highway or other high volume (relative to local conditions) road of regional importance;
- > A passenger railroad or other mass transit route; and
- > A residential area greater than 50 contiguous acres and with a density of more than one dwelling unit per acre.

Other Places for Analysis – Given the rural character of much of the study area, the inventory of aesthetic resources has been further expanded to be conservatively over-inclusive. In several cases, locations not rising to the threshold of statewide significance or local interest have been included to represent visibility along sparsely populated rural roadways; most were selected based on field observation of open vistas. Although possibly of interest to local residents, such locations are not considered representative of any aesthetically significant place.

Resources of statewide significance, resources of local interest and other places for analysis were identified though a review of published maps and other paper documents, online research, and windshield survey of publicly accessible locations.



### 3.2.2 Summary Characteristics of Inventoried Resources

Overall Population and Density of Development – This portion of New York State is quite rural

with a very small population. Based on the 2010 census, the population of Town of Villenova is just 1,110 with a population density of just 32 persons per square mile. This compares with a population density of 127 persons per square mile for Chautauqua County and 411 persons per square mile for New York State as a whole. The population of the Town of Hanover is 7,127 including 697 residing in the Village of Westfield. The population density of the Town (excluding the Village) is 149 persons per square mile. Table 3 summarizes these demographics for other municipalities within the study area.

Table 3 Demographic Summary of Study Area Municipalities \*

Municipality	Year Round Population	Population Density⁵	Total Housing Units
New York State	19,378,102	411	
Cattaraugus County	80,317	61	41,111
Town of Perrysburg	1,626	62	736
Village of Perrysburg	401	406	152
Town of Sheridan	2,673	72	1,169
Town of Dayton	1,886	54	836
Village of South Dayton	620	616	271
Town of Leon	1,365	38	485
Chautauqua County	134,905	127	66,920
Town of Villenova	1,110	32	531
Town of Cherry Creek	1,118	31	586
Town of Charlotte	1,729	47	802
Town of Hanover	7,127	149	3,529
Village of Forestville	697	713	315
Town of Arkwright	1,061	31	539

<u>Highway Corridors</u> – Due predominately to the sparse population of the study area, many of the roadways are relatively lightly traveled with a few exceptions (e.g. NYS Thruway I-90). The primary roadways within the study area are NYS Route 39, NYS Route 83, CR85, CR87, CR93, CR322, and NYS Thruway (I-90).

NYS Route 39 is a west-east route that enters the study area west of Forestville and exits the study area in the Village of Perrysburg. According to the NYS DOT, with the exception of the CR 141/Pearl Street to US Route 20 section that sees an AADT of 3,233, approximately 2,000 cars per day travel NYS Route 39 through the study area.

NYS Route 83 crosses the study area from west to east, entering from the Town of Arkwright and turning south upon its intersection with CR 322 and exiting the study area from the Town of Cherry Creek. Approximately 1,800 cars per day travel NYS Route 83 through the study area.

The NYS Thruway (I-90) receives more traffic than any other road within the study area. Roughly two (2) miles of I-90 cross through the study area within the Town of Sheridan. Approximately 24,285 vehicles travel on this stretch of road each day.

Table 4 summarizes the average annual daily traffic (AADT) for state highways within the study area. In addition to a number of NYS Routes and I-90, numerous county and local roads traverse the study area. Generally, these roads are lightly traveled.

<sup>&</sup>lt;sup>5</sup> Population density is calculated by residents per square mile and is rounded to the nearest whole number.



-

Table 4 Annual Average Daily Traffic Volumes for Study Area Highways <sup>6</sup>

Route	Section	AADT
NYS Route 39	Cattaraugus County Line to CR 141/Pearl Street	1,914
NYS Route 39	CR 141/Pearl Street to US Route 20	3,233
NYS Route 39	Cattaraugus County Line to North Road	1,840
NYS Route 83	Between CR70/Southside Ave East and NYS Route 322	1,778
NYS Route 83	NYS Route 322 and CR312/Cassadaga Road	1,445
NYS Route 83	CR 312/Cassadaga Road and CR307/Creek Road	1,116
NYS Route 83	CR 307 Creek Road and NYS Route 60 Laona (end NYS Route 83)	1,509
NYS Route 322	CR83 to Cattaraugus County Line	1,704
NYS Route 322	Cattaraugus County Line to CR2/Main Street	2,005
NYS Route 322	CR2/Main Street to US Route 62 (end of NYS Route 322)	1,126
CR85	NYS Route 83 to Henry Road	376
CR85	Henry Road to Sheridan Town Line	404
CR85	Sheridan Town Line to Rider Road	596
CR85	Rider Road to Bradigan Street	1,048
CR85	Bradigan Street to NYS Route 39	1,626
CR85	Pear Street to Forrestville Village Line	1,007
CR85	Forrestville Village Line to CR84/King Road	636
CR85	CR84/King Road to CR86/Stebbins Road	690
CR85	CR29/CR68 to Plank Road (0.17 miles south)	480
CR85	Plank Road to Cherry Creek	497
CR85	Cherry Creek to Cassadaga Road	506
CR85	Cassadaga Road to NYS Route 83	485
NYS Thruway (I-90)	Between Exit 59 and Exit 58	24,285

<u>Park, Recreation and Open Space Resources</u> – Visitors traveling to this area may enjoy numerous outdoor recreational activities including hiking, biking, hunting, and fishing during the warmer months. Cross-country skiing and snowmobile riding are popular during the winter months. Other passive outdoor pursuits, such as bird watching or a leisurely drive through the county's wine country are also common. The Boutwell Hill Management Unit provides various recreational opportunities, as do a number of municipal parks. Some of the more prominent recreational facilities are discussed below.

Approximately seventy percent of the Boutwell Hill Management Unit, which is comprised of the Boutwell Hill State Forest and the Canadaway Creek Wildlife Management Area, are within the study area. The 5,124-acre Unit is a source of numerous types of outdoor activities including hunting, hiking, biking, horseback riding, and snowmobiling. Between Canadaway Creek WMA and Boutwell Hill State Forest, there are 6.2 miles of snowmobile and horse trails in winter and summer respectively. The Unit also includes 8.5 miles of the Earl Cardot Eastside Overland Trail.

- > The Boutwell Hill State Forest consists of 2,964 acres of protected forest with numerous multi-use trails, wildlife viewing opportunities, and it serves as a significant resource for deer hunters. In addition to its recreational offerings, the Forest also provides raw materials for New York's timber industry. Roughly half of the Boutwell Hill State Forest is within the study area.
- > The Canadaway Creek Wildlife Management Area, just south of the Town of Arkwright and north of the Boutwell Hill State Forest, is home to 2,160 acres of forest and its main purpose is to provide prime habitat for ruffed grouse. In addition to preservation efforts, the forest serves to provide numerous recreational opportunities including hiking, snowmobiling and

<sup>&</sup>lt;sup>6</sup> http://gis3.dot.ny.gov/html5viewer/ (website last accessed 11/6/15). AADT based on 2013 actual or forecasted numbers.



Final VRA – July, 2016 Page 23 bicycling. The majority of the Canadaway Creek Wildlife Management Area is within the study area.

The Earl Cardot Eastside Overland Trail offers hiking and biking opportunities to users. The trail is comprised of 19 miles extending from Twenty-Eighth Road in the Town of Gerry at the southernmost end and terminates in the Town of Arkwright to the north. Of the 19 miles, roughly seven and three quarters (7.75) miles are within the study area. This trail is maintained by Chautauqua County's Department of Public Works, Parks Division and County Park Commission.

Snowmobile trails may be found throughout the study area whether on public/private land or along roadways/seasonal roads. Snowmobiling is a popular activity throughout many sections of western New York and is likely enjoyed by large numbers of participants within the study area during the winter months. State snowmobile trails that bisect the area include, but are not limited to C1, C1A, C1B and C4. A number of these trails have significant portions that go through the different parcels of the Boutwell Hill Management Unit. The trails are generally funded by the State, but maintained by local snowmobile groups such as the Cherry Creek Snowmobile Club.

The Chautauqua County Equestrian Trail is a proposed 23.8 mile trail system. Phase 1 of the trail is under development and is located in the southern portion of the study area. The trail starts at the intersection of Ruttenbur and Lewis Roads, along the northern boundary of the Boutwell Hill State Forest. From this location it heads in a southerly direction along the Earl Cardot Eastside Overland Trail and Arab Hill Road which also coincides with an existing snowmobile trail. Ultimately, the portion of the trail that follows Arab Hill Road is anticipated to be relocated west of the current alignment. A future connection (Phase 4) will link Arab Hill Road and the Village of Cherry Creek. This connection appears to be made utilizing existing snowmobile trails. Of the 23.8 miles, roughly eight and three quarters (8.75) miles are within the study area.

<u>Tourism</u> – This section of Chautauqua County draws visitors year-round, as it is ideal for a range of activities including hiking, snowmobiling, cross-country skiing, and sightseeing.

<u>Cultural Resources</u> – The State and National Register of Historic Places do not list any properties (within the study area) in the Towns of Villenova, Hanover, Perrysburg, Dayton, Cherry Creek, Arkwright, and Sheridan. Historically significant properties within the study area are being identified as part of the studies being prepared for the State Historic Preservation Office.

### 3.2.3 Visibility Evaluation of Inventoried Resources

Each inventoried visual resource was evaluated to determine whether a visual impact might exist. Generally, this consisted of reviewing viewshed maps, aerial photos, and field observations to determine whether or not individual resources would have a view of the Project.

Table 5 lists 56 visual resources located within the five-mile study area and identifies potential Project visibility. The location of these visual resources is referenced by numeric code within Figures 1 and 2. Of the 56 visual resources inventoried, 12 would likely be screened from the Project by either intervening landform or vegetation and are thus eliminated from further study.



### Table 5 Visual Resource Visibility Summary

Kov				<u>Pc</u>	tential Visibilit	Y
Key ● Visibility	y Indicated			Theoretical View	Theoretical View	
•	bility Indicated		Indicated by Viewshed -	Indicated by Viewshed -		
■ Filtere	ed view through trees or limited view t	hrough structures possible		Excluding Existing	Including Existing	
Map ID	Receptor Name	Municipality	Inventory Type	Vegetation (See Figure 1)	Vegetation (See Figure 2)	Potential View
	onal and Tourist Resources			<u> </u>	<u> </u>	
25	Hill Side Acres (Western NY Land Conservancy)	Town of Arkwright	Local Importance	•	0	0
26	Arkwright Hills Campground	Town of Arkwright	Local Importance	0	0	0
35	Woodside Country Campground	Town of Arkwright	Local Importance	0	0	0
36	Boutwell Hill State Forest and Overland Trail	Town of Arkwright	Statewide Significance	•	•	•
38	Canadaway Creek WMA	Town of Arkwright	Statewide Significance	•	•	•
20	American Legion Post 953 Ball Fields	Village of Forestville	Local Importance	•	•	•
21	Village of Forestville Park	Village of Forestville	Local Importance	•	0	•
22	Walnut Falls	Village of Forestville	Other Places for Analysis	•	0	•
7	Tri-County Country Club	Town of Hanover	Local Importance	•	•	•
11	Town of Hanover Park	Town of Hanover	Local Importance	0	0	0
51	Village of South Dayton Park	Village of South Dayton	Local Importance	•	•	
56	Chautauqua County Equestrian Trail	Towns of Charlotte and Cherry Creek	Local Importance	•	•	•
Highway	Corridors/Roadside Receptors	S				
28	Center Road	Town of Arkwright	Other Places for Analysis	•	•	•
29	Round Top Road	Town of Villenova	Other Places for Analysis	•	•	•
30	Putnam Road	Town of Arkwright	Other Places for Analysis	•	•	•
32	Farrington Hollow Road	Town of Arkwright	Other Places for Analysis	•	•	•
33	NYS Route 83	Town of Arkwright	Local Importance	•	•	•
8	NYS Route 39	Town of Hanover	Local Importance	•	•	•
9	Hurlbert Road	Town of Hanover	Other Places for Analysis	•	•	•
12	Hanover Road	Town of Hanover	Other Places for Analysis	•	•	•
13	NYS Thruway (I-90)	Town of Hanover	Local Importance	•	•	•
16	Bennett State Road	Town of Hanover	Other Places for Analysis	•	•	•
17	Bradigan Road	Town of Hanover	Other Places for Analysis	•	•	•



### Table 5 Visual Resource Visibility Summary

Key				Po	tential Visibilit	Y
	Indicated			Theoretical View	Theoretical View	
O <sub>No Visit</sub>	oility Indicated			Indicated by Viewshed -	Indicated by Viewshed -	
Filtere	d view through trees or limited view	through structures possible		Excluding Existing	Including Existing	
Map ID	Receptor Name	Municipality	Inventory Type	Vegetation (See Figure 1)	Vegetation (See Figure 2)	Potential View
24	Creek Road	Town of Hanover	Other Places for Analysis	•	•	•
55	County Route 93	Town of Hanover	Other Places for Analysis	•	•	•
39	Epolito Road	Town of Sheridan	Other Places for Analysis	•	0	•
2	Prospect Road	Town of Villenova	Other Places for Analysis	•	•	•
40	County Route 72	Town of Villenova	Other Places for Analysis	•	•	•
41	South Hill Road	Town of Villenova	Other Places for Analysis	•	•	•
43	Pope Hill Road	Town of Villenova	Other Places for Analysis	•	•	•
47	NYS Route 322	Town of Villenova	Other Places for Analysis	•	•	•
48	NYS Route 83	Town of Villenova	Local Importance	•	•	•
54	Flucker Hill Road	Town of Villenova	Other Places for Analysis	•	•	•
Residen	tial/Community Resources					
27	Hamlet of Arkwright	Town of Arkwright	Local Importance	•	0	0
31	Hamlet of Black Corners	Town of Arkwright	Local Importance	•	•	•
34	Hamlet of Griswold	Town of Arkwright	Local Importance	0	0	0
37	Hamlet of Town Corners	Town of Arkwright	Local Importance	•	•	•
49	Pine Valley Central Schools	Town of Cherry Creek	Local Importance	•	•	•
1	Hamlet of Cottage	Town of Dayton	Local Importance	•	•	
3	Hamlet of Nashville	Town of Hanover	Local Importance	•	•	•
5	Hamlet of Balltown	Town of Hanover	Local Importance	•	0	
6	Hamlet of Parcells Corners	Town of Hanover	Local Importance	•	•	•
10	Hamlet of Smiths Mills	Town of Hanover	Local Importance	•	•	•
14	Hamlet of Dennison Corners	Town of Hanover	Local Importance	•	•	•
15	Hamlet of Keaches Corners	Town of Hanover	Local Importance	•	0	•
4	Hamlet of West Perrysburg	Town of Perrysburg	Local Importance	•	•	•
23	Hawkins Corner	Town of Sheridan	Local Importance	•	•	•



Table 5 Visual Resource Visibility Summary

Kov				<u>Pc</u>	tential Visibilit	<u>Y</u>
<u>Key</u> ● Visibility	· Indicated			Theoretical View	Theoretical View	
O No Visit	pility Indicated			Indicated by Viewshed -	Indicated by Viewshed -	
Filtere	d view through trees or limited view t	hrough structures possible		Excluding Existing	Including Existing	
Map ID	Receptor Name	Municipality	Inventory Type	Vegetation (See Figure 1)	Vegetation (See Figure 2)	Potential View
42	Hamlet of Hamlet	Town of Villenova	Local Importance	•	•	•
44	Hamlet of Wrights Corners	Town of Villenova	Local Importance	•	•	•
45	Hamlet of Balcom	Town of Villenova	Local Importance	•	•	•
46	Balcom Corners	Town of Villenova	Local Importance	•	•	•
18	Forestville School Complex	Village of Forestville	Local Importance	•	0	0
19	Village of Forestville	Village of Forestville	Local Importance	•	•	•
50	Village of South Dayton - Downtown	Village of South Dayton	Local Importance	•	•	•
52	Village of South Dayton - Residential	Village of South Dayton	Local Importance	•	•	•
53	Village of South Dayton/Hamlet of Skunks Corner	Village of South Dayton	Local Importance	•	•	•

### 3.2.4 Select Resources Beyond Five Miles

Considering the scale of the proposed Project and recognizing the turbines will, at times, be visible at distances greater than five (5) miles, Saratoga Associates completed a vegetated viewshed map to 7.5 miles around the outermost turbines (Appendix A – Figure A1). In addition, supplemental resources were identified outside the five-mile study area during the research completed for this study. Although not all-inclusive, the following resources were identified:

- > Hatch Creek State Forest (Towns of Gerry and Ellington; located approximately 9.2 miles from the closest proposed turbine) Hatch Creek is a 1,280 State Forest with several miles of snowmobile trails and forest roads, which can be utilized as hiking trails, traversing the forest from north to south. Hunting is a popular activity within Hatch Creek.
- > Harris Hill State Forest (Towns of Gerry and Ellington; located approximately 9.2 miles from the closest proposed turbine) The Harris Hill State Forest is 3,554 acres of hardwood and conifer forests make up Harris Hill State Forest. Hiking is a common activity at Harris Hill, and the Earl Cardot Eastside Overland Trail traverses roughly four (4) miles of the forest.
- > Zoar Valley Multiple Use Area (Towns of Collins, Persia and Otto; located approximately 9.6 miles from the closest proposed turbine) Zoar Valley is a 2,540-acre Multiple Use Area consisting of one of New York State's last remaining old growth forests, and a steep canyon. Patron use of the Area is restricted to minimal-impact activities.



- > Evangola State Park (Town of Brant; located approximately 10.1 miles from the closest proposed turbine) Evangola State Park has 733 acres of lakeshore, woodlands, wetlands and an abundance of wildlife, including deer, wild turkey and red-tailed hawks. The park offers facilities for a variety of recreational activities, including picnicking, swimming, camping, tennis, volleyball and baseball. A large beachfront banquet is also available for rental.
- > Seaway Trail (located approximately 6.7 miles from the closest proposed turbine) The New York State Seaway Trail runs for 454 miles along Lake Erie, Lake Ontario, the Niagara River and the St. Lawrence Seaway, and has been recognized by the US Department of Transportation as one of America's Scenic Byway Trails. The Trail coincides with NYS Route 5 through the City of Dunkirk, and passes several historic markers for the War of 1812.
- > Lake Erie (located approximately 7.0 miles from the closest proposed turbine to the nearest shoreline point) The Lake has the fourth largest surface area of the Great Lakes and averages 571 feet above sea level. The Lake and its shoreline are a popular seasonal destination due to its abundant opportunities for water recreation (e.g. boating fishing, swimming), scenic vistas from the shoreline, shoreline parks (including State and local parks), and shopping.

### 3.3 FACTORS AFFECTING VISUAL IMPACT

To bring order to the consideration of visual resources, the inventory of visual resources is organized into several recognizable elements, as follows:

### 3.3.1 Landscape Units

Landscape units are areas with common characteristics of landform, water resources, vegetation, land use, and land use intensity. While a regional landscape may possess diverse features and characteristics, a landscape unit is a relatively homogenous, unified landscape of visual character. Landscape units are established to provide a framework for comparing and prioritizing the differing visual quality and sensitivity of visual resources in the study area. Discrete landscape units were identified through field inventory and air photo interpretation, and divide the study area into zones of unique patterns and visual composition. Within the visual resources study area, four distinctive landscape units were defined. These landscape units, their general landscape character, and use are as follows:

<u>Village Center</u> – The study area contains the Villages of South Dayton and Forestville, and a very small portion of the Village of Perrysburg. These villages are primarily residential and commercial community centers with built structures and tree-lined streets dominating the visual landscape. Each village includes a small downtown area based around a main thoroughfare.



Village Characteristics

Most buildings are one (1) to three (3) stories tall, including brick and wood frame structures. Buildings are a mix of older architectural styles (e.g. predominately Federal and Late Victorian) interspersed with conventional, more modern, mid- to late-20th century residences. Some of the older buildings are very well maintained or restored while others are in various states of disrepair or alteration. Views are generally short distance and focused along streets (which are typically arranged in a grid/block pattern). Structures and trees generally block

most distant views, however, filtered or framed views are possible through foreground vegetation and buildings from the perimeter of the villages.

Development density drops sharply as one moves away from the central business district as the Village Center landscape unit transitions to the Rural Agricultural Landscape Unit.

Views within the Village Center landscape unit may be considered to be of moderate visual quality depending on the character and composition of built and natural features within view.



Village Characteristics

Rural Hamlet – Rural hamlets are characterized by low to medium density clusters of older residential dwellings and very limited to no retail or commercial services. Buildings are typically one (1) to two (2) stories tall, and include brick commercial blocks and wood frame structures. Buildings styles are an interesting mix of older architectural styles (e.g. Federal, Late Victorian, Italianate) interspersed with more modern, utilitarian styles as well as pre-manufactured homes.



**Hamlet Characteristics** 

A number of rural crossroad hamlets exist within the study area. These areas vary in size but are generally typified by a small group of houses in an otherwise rural area. Residences (a mix of old and new and of varying maintenance) and accessory structures (barns, garages, etc.) are a main feature of rural hamlets. Places of worship, community buildings and general stores are also common.

Roadside residences and street trees often reinforce axial views along the roadway. As a result, views are typically short distance and directed towards the main thoroughfare and adjacent structures. While structures and trees generally block most views, filtered or framed views beyond the hamlet may exist through foreground vegetation. Development density drops almost immediately as one travels away from the hamlet center; transitioning quickly to the character of the surrounding Rural Agricultural Landscape Unit.

The study area includes 16 definitive hamlets. The hamlets of Hamlet, Laona, Cottage, Griswold, Black Corners, and Balcom are representative of this landscape unit.

Views found within the Rural Hamlet landscape unit may be considered to be of moderate visual quality depending on the character and composition of built and natural features within view.

Rural Agricultural – This landscape unit is predominantly a patchwork of open land, including working cropland/pastures and a succession of old-fields transected by property-line hedgerows, occasionally interspersed with woodlots. The terrain itself consists of relatively level topography with gentle low-lying hills and small rounded hillocks primarily under a thousand feet high, but including a few that are up to roughly 1,800 feet. Within this unit, population densities are very low and structures are sparsely located. Uses are predominantly agricultural and very low-density



Characteristics of Agricultural Land

residential. Minor areas of commercial use are occasionally found along the roadside. Building stock consists primarily of permanent homes and manufactured housing, along with accessory structures (barns, garages, sheds, etc.). Structures are of varying vintage and quality. Poorly maintained or dilapidated structures and properties are not uncommon sights.

Views within the Rural Agricultural landscape unit are often short distance, contained by foreground vegetation and surrounding mountains. However, distant vistas are common from higher elevations across down-slope agricultural lands. Narrow and curving roads often provide an interesting series of short views of the rural landscape, but also force drivers to direct their attention to the road rather than the adjacent scenery. Some local residents and visitors may regard the aesthetic character of this landscape unit as an attractive and pastoral setting; others may view it as a working landscape, similar in character with much of rural western New York.

Views within the Rural Agricultural landscape unit may be considered of moderate visual quality.

Forest Land – Forest cover dominates large areas of land throughout the study area. In addition to privately owned forested land, the study area contains the Boutwell Hill State Forest and the Canadaway Creek Wildlife Management Area. Vegetation is predominantly mature second growth deciduous woodland with occasional stands of evergreen cover. The State owned property may include paved and unimproved roads and trails that are commonly used for hiking, snowshoeing, nature viewing, snowmobiling, horseback riding, and in some instances may be used



Characteristics of Forest Land

for cross-country skiing.<sup>7</sup> Hunting is also permitted on designated sections of State owned property.

Within this landscape unit, dense forest typically prevents distant vistas. However, views beyond the immediate foreground may occur in discrete hillside locations where openings in the forest cover permit. Filtered views through woodland vegetation may also be available during leaf-off seasons.

Views found within the Forest Land landscape unit may be considered to be of moderate to high visual quality depending on the character and composition of built and natural features within view

### 3.3.2 Viewer/User Groups

Viewers engaged in different activities, while in the same landscape unit, are likely to perceive their surroundings differently. The description of viewer groups is provided to assist in understanding the sensitivity and probable reaction of potential observers to visual change resulting from the proposed Project.

<u>Local Residents</u> – These individuals would view the Project from homes, businesses, and local roads. Except when involved in local travel, such viewers are likely to be stationary and could have frequent and/or prolonged views of the Project. They know the local landscape and may be sensitive to changes in particular views that are important to them. Conversely, the sensitivity of an individual observer to a specific view may be diminished over time due to repeated exposure.

<sup>&</sup>lt;sup>7</sup> Activities may vary depending on resource.



Ball Hill Wind Project #2015-039.10M <u>Local Workers</u> – Local workers are those who work within the study area. It is expected that the workers would generally be indoors and would not experience the surrounding landscape and will therefore not be affected by a change in the surroundings. For the time any workers may be outdoors, sensitivity may vary, however, most workers will primarily be focused on their job responsibilities and give minimal consideration to the surrounding landscape.

<u>Through Travelers</u> – Commuters and through travelers would view the Project from highways. These viewers are typically moving and focusing on the road in front of them. Consequently, their views of the proposed turbines may be peripheral, intermittent, and/or of relatively brief duration. Given a general unfamiliarity or infrequent exposure to the regional or local landscape, travelers are likely to have a lower degree of sensitivity to visual change than would local residents and workers.

<u>Recreational Users and Tourists</u> – This group generally includes all local residents involved in outdoor recreational activities, as well as visitors who come to the area specifically to enjoy the cultural, recreational, scenic resources, and open spaces of the area.

The sensitivity of recreational users to visual quality is variable; but to many, visual quality is an important and integral part of the recreational experience. The presence of wind turbines may diminish the aesthetic experience for those that believe the rural landscape should be preserved for agricultural, rural residential, open space and similar uses. Such viewers will likely have high sensitivity to the visual quality and landscape character, regardless of the frequency of duration of their exposure to the Project. For those with strong utilitarian beliefs, the presence of the turbines will have little aesthetic impact on their recreational experience.

While the scenic quality of the local landscape is an important aspect of the recreational experience for most visitors, viewers will also be cognizant of various foreground details, developments and other visually proximate activities. Visitors and recreational users currently view the existing working landscape, low to moderate-density roadside residential and commercial uses of varying aesthetic quality, as well as utility infrastructure and occasional hilltop communications towers.

A greater number of recreational users will be present in the region when the weather is clear and warm as compared to overcast, rainy or cold days. In addition, more recreational users will be present on weekends and holidays than on weekdays.

It is important to note that Lake Erie, a tourist attraction to the region, is not within the study area. The lakefront provides numerous activities for boating, fishing, sightseeing and shopping.

### 3.3.3 Distance Zones

Distance affects the apparent size and degree of contrast between an object and its surroundings. Distance can be discussed in terms of distance zones, which was established by the U.S. Forest Service and reiterated by the NYSDEC Visual Policy. A description of each distance zone is provided below to assist in understanding the effect of distance on potential visual impacts.

Foreground (0-½ mile) – At a foreground distance, viewers typically have a very high recognition of detail. Cognitively, in the foreground zone, human scale is an important factor in judging spatial



relationships and the relative size of objects. From this distance, the sense of form, line, color and textural contrast with the surrounding landscape is highest. The visual impact is likely to be considered the greatest at a foreground distance.

Middleground (½ mile to 3 miles) – This is the distance where elements begin to visually merge or join. Colors and textures become somewhat muted by distance, but are still identifiable. Visual detail is reduced, although distinct patterns may still be evident. Viewers from middleground distances characteristically recognize surface features such as tree stands, building clusters and small landforms. Scale is perceived in terms of identifiable features of development patterns. From this distance, the contrast of color and texture are identified more in terms of the regional context than by the immediate surroundings.

<u>Background (3-5 miles to horizon)</u> – At this distance, landscape elements lose detail and become less distinct. Atmospheric perspective<sup>8</sup> changes colors to blue-grays, while surface characteristics are lost. Visual emphasis is on the outline or edge of one landmass or water resource against another with a strong skyline element.

### 3.3.4 Duration/Frequency/Circumstances of View

The analysis of a viewer's experience must include the distinction between stationary and moving observers. The length of time and the circumstances under which a view is encountered is influential in characterizing the importance of a particular view.

<u>Stationary Views</u> – Stationary views are experienced from fixed viewpoints. Fixed viewpoints include residential neighborhoods, recreational facilities, historic resources and other culturally important locations. Characteristically, stationary views offer sufficient time, either from a single observation or repeated exposure, to interpret and understand the physical surroundings. For this reason, stationary viewers have a higher potential for understanding the elements of a view than do moving viewers.

Stationary views can be further divided to consider the effect of short-term and long-term exposure. Sites of long-term exposure include any location where a stationary observer is likely to be visually impacted on a regular basis, such as from a place of residence. Sites of short-term exposure include locations where a stationary observer is only visiting, such as recreational facilities. Although the duration of visual impact remains at the discretion of the individual observer, short-term impacts are less likely to be repeated for a single observer on a regular basis.

<u>Moving Views</u> – Moving views are those experienced in passing, such as from moving vehicles, where the time available for a viewer to cognitively experience a particular view is limited. Such viewers are typically proceeding along a defined path through highly complex stimuli. As the tendency of automobile occupants is to focus down the road, the actual time a viewer is able to focus

<sup>8</sup> Atmospheric Perspective: Even on the clearest of days, the sky is not entirely transparent because of the presence of atmospheric particulate matter. The light scattering effect of these particles causes a reduction in the intensity of colors and the contrast between light and dark as the distance of objects from the observer increases. Contrast depends upon the position of the sun and the reflectance of the object, among other items. The net effect is that objects appear "washed out" over great distances.



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on individual elements of the surrounding landscape may be a fraction of the total available view time. Obviously, a driver is most affected by driving requirements.

Conversely, the greater the contrast of an element within the existing landscape, the greater the potential for viewer attention, even if viewed for only a moment by a moving viewer. Billboards along a rural highway, designed to attract attention and recognition, are an example of this condition. Furthermore, an element is more likely to be perceived in greater detail by local residents to whom it is experienced on a daily basis than it is to passers-by.

### 3.3.5 Summary of Affected Resources

As listed in Table 5, of the original 56 inventoried visual resources, 12 would likely be screened from the proposed Project by either intervening landform or vegetation and are thus eliminated from further study. Table 6 summarizes the factors affecting visual impact (landscape unit, viewer group, distance zone and duration/frequency/circumstances of view) described above for each visual resource determined to have a potential view of the Project.



Table 6 Visual Resource Impact Summary

					Factors Affecting Visual Impact			
Map ID	Receptor Name	Municipality	Inventory Type	Approximate Number of Turbines Visible (see Figure 2)	Landscape Unit	Viewer/User Group(s)	<b>Distance</b> (miles) / <b>Distance Zone</b> (nearest turbine) <sup>9</sup>	Moving/ Stationary
1	Hamlet of Cottage	Town of Dayton	Local Importance	1	Rural Hamlet	Travelers, Local residents/workers	3.4/Background	Stationary
2	Prospect Road	Town of Villenova	Other Places for Analysis	29	Rural Agricultural	Local residents/workers	0.3/Foreground	Moving
3	Hamlet of Nashville	Town of Hanover	Local Importance	4	Rural Hamlet	Travelers, Local residents/workers	1.6/Middleground	Stationary
4	Hamlet of West Perrysburg	Town of Perrysburg	Local Importance	3	Rural Hamlet	Travelers, Local residents/workers	3.6/Background	Stationary
5	Hamlet of Balltown	Town of Hanover	Local Importance	0	Rural Hamlet	Travelers, Local residents/workers	3.2/Background	Stationary
6	Hamlet of Parcells Corners	Town of Hanover	Local Importance	18	Rural Hamlet	Travelers, Local residents/workers	0.8/Middleground	Stationary
7	Tri-County Country Club	Town of Hanover	Local Importance	8	Rural Agricultural	Recreational	0.5/Foreground	Stationary
8	NYS Route 39	Town of Hanover	Local Importance	28	Rural Agricultural	Travelers, Local residents/workers	0.3/Foreground	Moving
9	Hurlbert Road	Town of Hanover	Other Places for Analysis	12	Rural Agricultural	Local residents/workers	0.4/Foreground	Moving
10	Hamlet of Smiths Mills	Town of Hanover	Local Importance	11	Rural Hamlet	Travelers, Local residents/workers	2.9/Background	Stationary
11	Town of Hanover Park	Town of Hanover	Local Importance	0	Rural Agricultural	Recreational	3.5/Background	Stationary
12	Hanover Road	Town of Hanover	Other Places for Analysis	25	Rural Agricultural	Local residents/workers	0.3/Foreground	Moving
13	NYS Thruway (I-90)	Town of Hanover	Local Importance	25	Rural Agricultural	Travelers, Local residents/workers	4.6/Background	Moving
14	Hamlet of Dennison Corners	Town of Hanover	Local Importance	1	Rural Hamlet	Travelers, Local residents/workers	3.1/Background	Stationary
15	Hamlet of Keaches Corners	Town of Hanover	Local Importance	0	Rural Hamlet	Travelers, Local residents/workers	3.2/Background	Stationary
16	Bennett State Road	Town of Hanover	Other Places for Analysis	24	Rural Agricultural	Local residents/workers	2.6/Middleground	Moving
17	Bradigan Road	Town of Hanover	Other Places for Analysis	10	Rural Agricultural	Local residents/workers	1.5/Middleground	Moving
18	Forestville School Complex	Village of Forestville	Local Importance	0	Village Center	Local residents/workers	2.7/Middleground	Stationary
19	Village of Forestville	Village of Forestville	Local Importance	19	Village Center	Travelers, Local residents/workers	1.9/Middleground	Stationary
20	American Legion Post 953 Ball Fields	Village of Forestville	Local Importance	10	Village Center	Recreational	2.8/Middleground	Stationary
21	Village of Forestville Park	Village of Forestville	Local Importance	0	Village Center	Recreational	2.9/Background	Stationary
22	Walnut Falls	Village of Forestville	Other Places for Analysis	0	Village Center	Recreational	2.8/Middleground	Stationary
23	Hawkins Corner	Town of Sheridan	Local Importance	20	Rural Hamlet	Travelers, Local	4.2/Background	Stationary

<sup>&</sup>lt;sup>9</sup> Potential visibility of nearest turbine is not considered when determining distance.



Table 6 Visual Resource Impact Summary

						Factors Affecting	Visual Impact	
Map ID	Receptor Name	Municipality	Inventory Type	Approximate Number of Turbines Visible (see Figure 2)	Landscape Unit	Viewer/User Group(s)	<b>Distance</b> (miles) /Distance Zone (nearest turbine) <sup>9</sup>	Moving/ Stationary
						residents/workers		
24	Creek Road	Town of Hanover	Other Places for Analysis	10	Rural Agricultural	Local residents/workers	1.6/Middleground	Moving
25	Hill Side Acres (Western NY Land Conservancy)	Town of Arkwright	Local Importance	0	Rural Agricultural	Recreational	2.1/Middleground	Stationary
26	Arkwright Hills Campground	Town of Arkwright	Local Importance	0	Rural Agricultural	Recreational	4.2/Background	Stationary
27	Hamlet of Arkwright	Town of Arkwright	Local Importance	0	Rural Hamlet	Travelers, Local residents/workers	3.4/Background	Stationary
28	Center Road	Town of Arkwright	Other Places for Analysis	29	Rural Agricultural	Local residents/workers	3.4/Background	Moving
29	Round Top Road	Town of Villenova	Other Places for Analysis	25	Rural Agricultural	Local residents/workers	0.3/Foreground	Moving
30	Putnam Road	Town of Arkwright	Other Places for Analysis	21	Rural Agricultural	Local residents/workers	0.9/Middleground	Moving
31	Hamlet of Black Corners	Town of Arkwright	Local Importance	10	Rural Hamlet	Travelers, Local residents/workers	1.8/Middleground	Stationary
32	Farrington Hollow Road	Town of Arkwright	Other Places for Analysis	26	Rural Agricultural	Local residents/workers	1.8/Middleground	Moving
33	NYS Route 83	Town of Arkwright	Local Importance	29	Rural Agricultural	Travelers, Local residents/workers	1.0/Middleground	Moving
34	Hamlet of Griswold	Town of Arkwright	Local Importance	0	Rural Hamlet	Travelers, Local residents/workers	4.2/Background	Stationary
35	Woodside Country Campground	Town of Arkwright	Local Importance	0	Forest Land	Recreational	4.5/Background	Stationary
36	Boutwell Hill State Forest and Overland Trail	Town of Arkwright	Statewide Significance	29	Forest Land	Recreational	3.1/Background	Stationary
37	Hamlet of Town Corners	Town of Arkwright	Local Importance	24	Rural Hamlet	Travelers, Local residents/workers	2.6/Middleground	Stationary
38	Canadaway Creek WMA	Town of Arkwright	Statewide Significance	29	Forest Land	Recreational	2.5/Middleground	Stationary
39	Epolito Road	Town of Sheridan	Other Places for Analysis	0	Rural Agricultural	Local residents/workers	4.4/Background	Moving
40	County Route 72	Town of Villenova	Other Places for Analysis	28	Rural Agricultural	Local residents/workers	0.7/Middleground	Moving
41	South Hill Road	Town of Villenova	Other Places for Analysis	28	Rural Agricultural	Local residents/workers	0.7/Middleground	Moving
42	Hamlet of Hamlet	Town of Villenova	Local Importance	14	Rural Hamlet	Travelers, Local residents/workers	0.7/Middleground	Stationary
43	Pope Hill Road	Town of Villenova	Other Places for Analysis	29	Rural Agricultural	Local residents/workers	0.3/Foreground	Moving
44	Hamlet of Wrights Corners	Town of Villenova	Local Importance	15	Rural Hamlet	Travelers, Local residents/workers	1.2/Middleground	Stationary
45	Hamlet of Balcom	Town of Villenova	Local Importance	20	Rural Hamlet	Travelers, Local residents/workers	1.8/Middleground	Stationary
46	Balcom Corners	Town of Villenova	Local Importance	20	Rural Hamlet	Travelers, Local residents/workers	1.9/Middleground	Stationary



Table 6 Visual Resource Impact Summary

						Factors Affecting	Visual Impact	
Map ID	Receptor Name	Municipality	Inventory Type	Approximate Number of Turbines Visible (see Figure 2)	Landscape Unit	Viewer/User Group(s)	<b>Distance</b> (miles) / <b>Distance Zone</b> (nearest turbine) <sup>9</sup>	Moving/ Stationary
47	NYS Route 322	Town of Villenova	Local Importance	22	Rural Agricultural	Travelers, Local residents/workers	1.9/Middleground	Moving
48	NYS Route 83	Town of Villenova	Local Importance	24	Rural Agricultural	Travelers, Local residents/workers	0.4/Foreground	Moving
49	Pine Valley Central Schools	Town of Cherry Creek	Local Importance	11	Rural Agricultural	Local residents/workers	3.8/Background	Stationary
50	Village of South Dayton - Downtown	Village of South Dayton	Local Importance	13	Village Center	Travelers, Local residents/workers	3.4/Background	Stationary
51	Village of South Dayton Park	Village of South Dayton	Other Places for Analysis	8	Village Center	Recreational	3.5/Background	Stationary
52	Village of South Dayton - Residential	Village of South Dayton	Local Importance	22	Village Center	Local residents/workers	3.4/Background	Stationary
53	Village of South Dayton/Hamlet of Skunks Corner	Village of South Dayton	Local Importance	16	Village Center	Travelers, Local residents/workers	3.2/Background	Stationary
54	Flucker Hill Road	Town of Villenova	Other Places for Analysis	29	Rural Hamlet	Local residents/workers	1.5/Middleground	Moving
55	County Route 93	Town of Hanover	Other Places for Analysis	29	Rural Hamlet	Local residents/workers	1.4/Middleground	Moving
56	Chautauqua County Equestrian Trail	Towns of Charlotte and Cherry Creek	Local Importance	15	Forest Land <sup>10</sup>	Recreational	3.1/Background	Moving

 $<sup>^{10}</sup>$  The trail may traverse different landscape units (e.g. Rural Agricultural), similarly to long linear corridors.



### 3.4 DEGREE OF PROJECT VISIBILITY

### 3.4.1 Field Observation and Photography

On November 20, 2015 a field crew obtained photographs from many of the locations that were previously simulated<sup>11</sup> and contained in the original VRA. All photographs were taken to document the existing views from the selected resources using a 12.2-mega pixel digital camera with a lens setting of approximately 50mm<sup>12</sup> to simulate normal human eyesight relative to scale. Photographs were taken at various times of the day in order to illustrate how the turbines would be seen under different lighting conditions (e.g. backlit, etc). In doing so, the photographer made every attempt to minimize the effect of glare within the camera's field of view.

The precise coordinates of each photo location were recorded in the field using a handheld global positioning system (GPS) unit. To determine the direction of the Project from each photo location, the precise coordinates of all proposed turbines were pre-programmed into the GPS as a "waypoint." The GPS waypoint direction indicator (arrow pointing along calculated bearing) was used to determine the appropriate bearing for the camera, so that a desired turbine, group of turbines, or Project would be generally centered in the field of view of each photograph.

### 3.4.2 Photo Simulations

<u>Selection of Key Receptors for Photo Simulation</u> – To illustrate how the turbines will appear within the study area from a variety of distances and locations, 14 representative photo simulations were prepared. These 14 locations are the same as those simulated in the original VRA and were

initially chosen for their relevance to the factors affecting visual impact (viewer/user groups, landscape units, distance zones, and duration/frequency and circumstances of view discussed above).

Although the original VRA was submitted in 2008, the study area has seen little development (e.g. commercial, residential, etc.). As such, the photo or series of photos

Table 7 Key Receptors Selected for Photo Simulation

Map ID	Receptor Name	Municipality
2	Prospect Road	Town of Villenova
7	Tri-County Country Club	Town of Hanover
8	NYS Route 39	Town of Hanover
13	NYS Thruway (I-90)	Town of Hanover
33	NYS Route 83	Town of Arkwright
36	Boutwell Hill State Forest and Overland Trail	Town of Arkwright
38	Canadaway Creek WMA	Town of Arkwright
42	Hamlet of Hamlet	Town of Villenova
47	NYS Route 322	Town of Villenova
48	NYS Route 83	Town of Villenova
49	Pine Valley Central Schools	Town of Cherry Creek
53	Village of South Dayton/Hamlet of Skunks	Village of South
	Corner	Dayton
54	Flucker Hill Road	Town of Villenova
55	County Route 93	Town of Hanover

that were deemed most appropriate to illustrate the existing conditions was used for each simulated location. This also provided an opportunity to illustrate the Project over multiple seasons.

The locations of simulated views are presented in Appendix A.

A Canon digital SLR with a 24-85 millimeter (mm) zoom lens was used for all Project photography. This digital camera, similar to most digital SLR cameras, has a sensor that is approximately 1.6 times smaller than a comparable full frame 35mm film camera. Recognizing this differential, the zoom lens used was set to approximately 31mm to achieve a field-of-view comparable to a 50mm lens on a full frame 35mm camera (31mm x 1.6 = 50mm).



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<sup>&</sup>lt;sup>11</sup> Photographs for simulated locations contained within the original VRA were obtained on April 30, 2008 or July 17, 2008.

<u>Photo Simulation Methodology</u> – A photo simulation of the Project was prepared from each key receptor location. Photo simulations were developed by superimposing a rendering of a three-dimensional computer model of the Project into the base photograph taken from each corresponding visual resource (see section 3.4.1). The three-dimensional computer model was developed in *Autodesk Civil 3D*<sub>®</sub> *and 3D Studio Max Design*<sub>®</sub> software (3D Studio Max).

Simulated perspectives (camera views) were then matched to the corresponding base photograph for each simulated view by replicating the precise coordinates of the field camera position (as recorded by GPS) and the focal length of the camera lens used (50mm). Precisely matching these parameters assures scale accuracy between the base photograph and the subsequent simulated view. The cameras elevation (Z) value is derived from Digital Elevation Model (DEM) data plus the cameras height above ground level. The camera's target position was set to match the bearing of the corresponding existing condition photograph. With the existing conditions photograph displayed as a "viewport background," and the viewport properties set to match the photograph pixel dimensions, minor camera adjustments were made (horizontal and vertical positioning, and camera roll) to align the horizon in the background photograph with the corresponding features of the 3D model.

The appearance of the turbines is based on the specifications of the turbine with a hub height of 285 feet (87 meters) and a rotor diameter of 413 feet (126 meters).<sup>14</sup> The turbine model was constructed so that the apex of the blade is 492 feet above ground elevation.

To verify the camera alignment, visible elements (e.g. structures, towers, roads) within the photograph are identified and digitized from digital orthophotos. Each element is assigned a Z value (elevation) based on DEM data and then imported to 3D Studio Max. A 3D terrain model is also created (using DEM data) to replicate the existing site topography. The digitized elements are then aligned with corresponding elements in the photograph by adjusting the camera target.

Once the camera alignment is verified, a to-scale 3D model of the Project is merged into the model space. The 3D model of the Project is intended to accurately convey the current design intent. To the extent practicable, and to the extent necessary to reveal impacts, design details of the proposed turbines were built into the 3D model and incorporated into the photo simulation. Consequently, the scale, alignment, elevations and location of the visible elements of the proposed facilities are true to the conceptual design.

With the model in place, a daylight system is created based on the date and time of the photograph. Regional inputs such as time zone and location are also applied to the daylight system. To accurately depict "reflected light" a ground plane utilizing the previously created mesh (based on DEM data) is placed in the scene. This ground plane also portrays any additional shadows cast by the proposed Project. The camera view is then rendered and saved.

The rendered view was then opened using *Adobe Photoshop* software for post-production editing (i.e., airbrush out portion of turbines that fall below foreground topography and vegetation).

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<sup>&</sup>lt;sup>14</sup> Blades will be 190 feet long.

<u>Arms Length Rule</u> – The photo simulations included in Appendix A have been printed using an 11"x17" page format. At this image size, the page should be held at approximately arms length<sup>15</sup> so that the scene will appear at the correct scale. Viewing the image closer would make the scene appear too large and viewing the image from greater distance would make the scene appear too small compared to what an observer would actually see in the field.

For viewing photo simulations at other page sizes (i.e., computer monitor, projected image or other hard copy output) the viewing distance/page width ratio is approximately 1.5/1. For example, if the simulation were viewed on a 42-inch wide poster size enlargement, the correct viewing distance would be approximately 63 inches, or 5 ½ feet.

<u>Field Viewing</u> – The photo simulations present an accurate depiction of the appearance of proposed turbines suitable for general understanding of the degree and character of Project visibility. However, these images are a two-dimensional representation of a three-dimensional landscape. The human eye is capable of recognizing a greater level of detail than can be illustrated in a two-dimensional image. Agency decision-makers and interested parties may benefit from viewing the photo simulations in the field from any or all of the simulated vantage points. In this manner, observers can directly compare the level of detail visible in the base photograph with actual field observed conditions.

#### 3.5 CHARACTER OF PROJECT VISIBILITY

#### 3.5.1 Compatibility with Regional Landscape Patterns

The visual character of a landscape is defined by the patterns, forms and scale relationships created by lines, colors, and textures. Some patterns dominate while others are subordinate. The qualitative impact of a Project is the effect the development has on these patterns, and by corollary on, the visual character of the regional landscape.

<u>Existing Landscape</u> – The visible patterns (form, line, color, and texture) found within the Project area can best be described as representative of the agricultural landscape typical of the region. Given the rural nature of the study area, visible colors are natural, muted shades of green, brown, gray, and other earth tones. When viewed from a distance, the landscape maintains a rather uniform and unbroken blending of colors, which tend to fade with hazing of varying atmospheric conditions.

The following describes the compatibility of the Project with regional landscape patterns within which it is contained and viewed. This evaluation is graphically depicted in the photographic simulations provided in Appendix A.

<u>Form</u> – The form of the regional landscape is essentially a planar landscape. The woodland edge of agricultural fields commonly creates a brief vertical offset of the prevailing planar form. The proposed Project will be comprised of 29 thin, tapered vertical structures distributed throughout the landscape; topped with large rotating blades. The introduction of such clearly man-made and kinetic structures creates a noticeable visual disruption of the agricultural landscape.

<sup>15</sup> Viewing distance is calculated based a 39.6-degree field-of-view for the 50mm camera lens used, and the 15.5" wide image presented in Appendix A. "Arm's length" is assumed to be approximately 22.5 inches from the eye. Arm's length varies for individual viewers.



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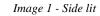
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Access roads associated with the Project will generally be visible to the foreground viewer. These roads will be similar to existing unpaved maintenance roads found frequently throughout the VRA study area.

<u>Line</u> – The existing landscape maintains a horizontal line formed by extended vistas over an agricultural plain that often forms the visible horizon. The well-defined vertical form of 29 turbines that may be visible across this plain introduces a contrasting and distinct perpendicular element into the landscape. Views will commonly include multiple turbines at varying distances from the viewer. It is anticipated that the turbines will most commonly be viewed in an off-axis manner creating the appearance of a rather random arrangement.

<u>Color</u> – Generally, the neutral off-white color of the proposed turbine tower, nacelle, and blades will be viewed against the background sky. Under bright conditions when the turbines are front lit (sun behind viewer) the turbines would be highly compatible with the hue, saturation and brightness of the background sky and distant elements of the natural landscape (see Images 1 and 3<sup>16</sup>). However, when turbines are backlit (sun in front of viewer) the shaded side of the turbine will be darker with increased contrast with the background sky (see Image 2). Increasing the distance between the viewer and turbines, and/or periods of increased atmospheric haze or precipitation will reduce the amount of color contrast.





**Turbine Color** 



Image 2 - Back lit



Image 3 - Front lit

<u>Texture</u> – The turbines will consist of a tubular style monopole tower, which provides a simple, visually appealing form. However, turbines have a riged, engineered texture that may contrast existing organic textures.

<u>Scale/Spatial Dominance</u> – The proposed turbines will be the tallest visible elements on the horizon and will be disproportionate to other elements (e.g. silos) commonly visible on the regional landscape. From most foreground and middleground vantage points the contrast of the proposed turbines with commonly recognizable features, such as structures and trees, will result in the proposed Project being perceived as a highly dominant visual element. However, when viewed from background vantage points, perceived scale and spatial dominance of the turbines begins to lessen.

<sup>&</sup>lt;sup>16</sup> Images 1 - 3 are stock images from Saratoga Associates.



#### 3.5.2 Visual Character during the Construction Period

Construction of the proposed wind turbines will require use of large mobile cranes and other large construction vehicles. Turbine components will be delivered in sections via large semi-trucks. The construction period for each turbine is expected to be quite short. As such, construction related visual impacts will be brief and are not expected to result in adverse prolonged visual impact to area residents or visitors.

#### 3.6 SHADOW FLICKER ANALYSIS

For the purpose of this analysis, shadow flicker shall be defined as:

Rotating blades of wind turbines will result in shadows moving across nearby structures and the surrounding landscape. When the repeating change of light intensity falls across a narrow opening, such as a window, it can cause a flicker effect within the structure (hereafter referred to as "receptors"), as the shadow appears to flick on and off. This effect is known as shadow flicker and only occurs within a structure. 17

Shadow flicker will only occur when certain conditions coincide. This would include:

- > The turbine blades are rotating during daylight hours (sunrise to sunset), as shadow flicker will not occur at night. Also, shadow flicker will not occur when the turbine is not in operation.
- > The sun is low in the sky (e.g. shortly after sunrise or shortly before sunset) so that the shadows are cast.
- > Shadow-flicker will not occur on foggy or overcast days when daylight is not sufficiently bright to cast shadows.
- > A receptor is within ten rotor diameters of the turbine. Evidence from operational turbines suggests that the intensity of shadow flicker is only an issue at short distances. Beyond ten rotor diameters, a person should not perceive a wind turbine to be chopping through sunlight, but rather as an object with the sun behind it. It is generally accepted that shadow flicker will have a minimal to unperceivable affect on properties at a distance greater than ten turbine rotor diameters<sup>18</sup> from the turbine.
- > Turbine shadows can enter a structure only through unshaded windows that face the turbine.

Shadow flicker is a quantitative analysis identifying its potential effect within structures, however it should be noted that shadows outside of the structure might also be apparent. Shadow flicker may occur when light passes through vegetation or other structures, but mostly the shadow would be perceived as it moves across the landscape. These shadows are not considered a nuisance since outdoor ambient lighting is typically higher and the shadows rarely contribute to significant changes in light intensity. As such, outdoor impacts are not further evaluated in this analysis.

Onshore Wind Energy Planning Conditions Guidance Note – A Report for the Renewables Advisory Board and BERR (October 2007).
Planning for Renewable Energy - A Companion Guide to PPS22 Queen's Printer and Controller of Her Majesty's Stationery Office 2004.



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Because of constantly changing solar aspect and azimuth, shadows will be cast on specific days of the year and may pass a stationary receptor relatively quickly. Shadow-flicker will not be an everyday event or be of extended duration when it does occur. Additionally, shadow-flicker is most likely to occur during early morning or late afternoon hours, thus specific receptors may experience shadow-flicker, but the occupants of the receptor may either be inactive or absent. For example, receptors such as residential dwellings located to the west of a turbine, will fall within the shadow zone shortly after sunrise when affected residents are typically asleep with shades drawn. Receptors located to the

east of a turbine will fall within the shadow zone shortly before sunset (see Figure 4 for typical shadow pattern). In this case, receptors such as schools or office buildings are likely to be unoccupied during this time.

When the rotor plane is in-line with the sun and receptor (as seen from the receptor), the cast shadows will be very narrow (see Image 1), of low intensity, and will move more quickly past the stationary receptor. When the rotor plane is perpendicular to the sun-receptor "view line," the cast shadow of the blades will move within a larger elliptical area (see Image 2).



Image 1 – Aligned Rotor Plane



Image 2 – Perpendicular Aligned Rotor Plane

The distance between a wind turbine and a receptor directly affects the intensity of the shadows cast by the blades, and therefore the intensity of flickering. Shadows cast close to a turbine (e.g. 250 meters from the turbine) will be more intense, distinct and "focused" compared to the same shadow further away (e.g. 1,000 meters from the turbine). This is because a greater proportion of the sun's disc is intermittently blocked. Similarly, flickering is more intense if created by the area of a blade closer to the rotor and further from the tip. Beyond ten (10) rotor diameters the intensity of the blade shadow is considered negligible and at such a distance there will be virtually no distinct chopping of the sunlight.

#### 3.6.1 Shadow Flicker Methodology

The Projects shadow-flicker analysis was conducted using *WindPRO Basis* software (WindPro) and associated shadow module. This is a widely accepted modeling software package developed specifically for the design and evaluation of wind power projects.

#### 3.6.2 Data Input and Assumptions

Variables and assumptions used in calculating shadow-flicker include:

> <u>Terrain</u> – The terrain within the Project area was developed using a digital elevation model (DEM) obtained through the United States Geological Survey in 1/3 arc second resolution

- (approximately 10 meters). This data was interpolated and exported at three-meter interval contours for use in WindPro.
- Latitude and Longitude WindPro considers the azimuth and altitude of the sun in relation to the proposed turbine. For this analysis, the Project coordinates were specified by using Universal Transverse Mercator coordinate system (UTM) North American Datum (NAD) 83 Zone 18 (reflecting the appropriate zone for this region of New York).
- > <u>Turbine Dimensions and Blade Rotation Speed</u> Each turbine was modeled using the dimensions of a Vestas V126-3.45. That is, the analysis assumed a hub height of 285 feet (87 meters) and a rotor diameter of 413 feet (126 meters). The frequency of flickering is directly related to the rotor speed and number of blades on the rotor. The shadow flicker analysis assumed a three-bladed wind turbine rotating at 16.3 revolutions per minute (RPM), which is the maximum operating speed of the Vestas V126-3.45 turbine.
- > <u>Sun Coverage</u> Shadow flicker will occur when more than 20 percent of the sun is blocked by the turbine blade. Less than 20 percent will not result in a noticeable shadow.
- > <u>Sun Angle</u> The angle of the sun over the horizon will be at least three (3) degrees. A lower angle will result in the light passing through atmosphere becoming too diffused to form a coherent shadow.<sup>19</sup>
- Receptor Locations Locations of structures (referred to as "receptors"), within the Project area, were provided to Saratoga Associates. The location of each receptor is shown in Figures 5 and 6. The shadow flicker analysis was conducted for all receptors located within a 4,134-foot (1,260-meters or 0.78 miles) radius of each proposed turbine. Within this distance 241 residential locations were identified.
- Receptor Windows It was conservatively assumed that every receptor had windows (one meter by one meter) one meter above ground, in all directions. WindPro refers to this as the "Green house" mode.
- > <u>Sunshine probabilities (percentage of time from sunrise to sunset with sunshine)</u> The WindPro model calculated shadow frequency based on monthly sunshine probabilities. The following sunshine probabilities were used for this analysis and are on historic meteorological data for Buffalo, New York (closest major metropolitan area to the Project).<sup>20</sup>

Jan Feb Mar Apr May Jun Aug Sep Oct Nov Dec 31% 38% 46% 51% 56% 65% 67% 64% 57% 50% 29% 27%

> Operational Time/Rotor Orientation – The WindPro model assumes there will be no shadow flicker during calm winds (when the blades are not turning). Moreover, the orientation of the rotor (e.g., determined by wind direction) affects the size of a shadow cast area. To more accurately calculate the amount of time a shadow will be over a specific location (based on rotor orientation), the WindPro model considers typical wind direction. The following operational time (hours per year [hrs/yr]) of wind direction is based on collected meteorological data provided by Ball Hill Wind Energy, LLC:

<sup>&</sup>lt;sup>20</sup> http://www.ncdc.noaa.gov/ (Data for Buffalo, NY. Website last accessed on 11/15/15.)



<sup>&</sup>lt;sup>19</sup> WindPro (EMD International A/S).

N	NNE	ENE	E	ESE	SSE	S	ssw	WSW	W	WNW	NNW
491	399	331	246	272	482	1.169	1.032	1.059	1.395	1.179	705

Using these variables, WindPro was used to calculate the theoretical number of hours per year the shadow of a rotor would fall at any given location within the 4,134-foot turbine radius. This calculation includes the cumulative sum of shadow hours for all turbines and is accurate to a 10-meter grid cell resolution. Providing cumulative hours for a receptor does not take into account activities within the dwelling (i.e. rooms of primary use and enjoyment versus less frequently occupied rooms) or account for the direction/location of windows. Figure 5, illustrates the geographic area of cumulative shadow impact using the following increments:

- > 0-2 hrs/yr;
- > 2-10 hrs/yr;
- > 10-20 hrs/yr;
- > 20-30 hrs/yr;
- > 30-40 hrs/yr; and
- > 40+

WindPro does not have the capability to incorporate the possible screening effect of existing vegetation. To account for this condition, a second shadow limit map was prepared excluding areas determined through viewshed analysis to be screened from turbine visibility by existing vegetation. This vegetated condition shadow limits map, although not considered absolutely definitive, identifies the geographic area within which one may expect to have a potential for screening from turbine shadows by intervening forest vegetation. Figure 6, illustrates the geographic area of cumulative shadow impact including the screening effect of existing vegetation.

#### 3.6.3 Shadow Flicker Impact on Existing Structures

There are 241 existing structures located within a 4,134-foot radius of the proposed turbines. These structures were identified through a combination of air-photo interpretation and field verification. Each existing structure was evaluated to determine potential shadow impact. Table 8 summarizes the number of hours per year each inventoried structure would theoretically fall within the shadow zone of one or more proposed turbine. The location of inventoried structures is included in Figure 5 and Figure 6.



**Table 8 Shadow Flicker Summary** 

Map ID*	Maximum Potential Shadow Hours per Year <sup>21</sup>	Does the Receptor Have Visibility of the Project? <sup>22</sup>	Map ID*	Maximum Potential Shadow Hours per Year	Does the Receptor Have Visibility of the Project?
1	18:32	No	67	11:52	Yes
2	15:45	Yes	68	37:09	Yes
6	0:00	Yes	72	0:00	No
7	0:000	Yes	73	0:00	Yes
8	0:59	Yes	74	4:22	No
10	3:06	Yes	75	12:21	Yes
11	2:45	No	76	28:06	Yes
12	8:58	No	77	37:39	Yes
13	6:32	Yes	95	8:33	Yes
14	27:51	Yes	96	1:43	Yes
15	30:27	Yes	97	3:58	Yes
16	15:35	Yes	98	20:46	Yes
17	11:34	No	99	20:25	Yes
18	10:10	Yes	102	5:17	Yes
19	5:12	Yes	103	7:06	Yes
20	6:45	Yes	106	13:24	Yes
21	7:10	Yes	110	0:50	No
22	4:29	Yes	111	1:14	Yes
23	0:00	Yes	112	0:00	Yes
24	0:00	Yes	113	1:03	Yes
25	0:00	Yes	114	0:22	Yes
26	2:05	Yes	115	0:50	Yes
28	11:06	Yes	116	4:53	Yes
29	8:47	Yes	117	1:31	Yes
30	29:52	Yes	118	3:52	Yes
32	8:23	No	119	6:23	No
33	27:54	No	120	14:43	Yes
34	18:57	No	122	3:48	Yes
35	15:53	No	123	9:38	Yes
36	16:31	No	124	19:10	Yes
37	25:38	Yes	125	5:12	Yes
38	13:37	No	126	12:35	Yes
39	4:13	Yes	127	25:38	Yes
40	9:44	No	128	28:42	Yes
48	4:42	Yes	129	26:53	Yes
65	0:00	Yes	131	39:36	Yes
66	0:00	Yes	132	37:47	Yes

 $<sup>^{21}</sup>$  Hours based on topography only.  $^{22}$  Visibility based on topography and vegetation viewshed data used for Figure 2.



**Table 8 Shadow Flicker Summary** 

Map ID*	Maximum Potential Shadow Hours per Year <sup>21</sup>	Does the Receptor Have Visibility of the Project? <sup>22</sup>	Map ID*	Maximum Potential Shadow Hours per Year	Does the Receptor Have Visibility of the Project?
133	20:56	Yes	188	39:20	Yes
134	17:33	Yes	189	43:10	Yes
136	40:19	Yes	190	30:14	Yes
137	36:28	Yes	191	31:31	Yes
138	18:36	Yes	193	31:45	Yes
140	5:17	Yes	194	29:11	Yes
141	7:58	No	195	7:10	Yes
142	14:48	Yes	197	6:27	Yes
143	7:49	Yes	198	12:01	Yes
144	6:30	Yes	199	13:47	Yes
145	10:48	Yes	200	23:20	Yes
146	10:10	Yes	201	30:06	Yes
147	21:16	Yes	203	20:05	Yes
148	14:24	No	204	22:23	Yes
149	2:10	No	206	23:29	Yes
159	5:51	Yes	207	9:15	Yes
161	8:14	Yes	208	1:54	Yes
162	7:54	Yes	209	2:36	Yes
164	31:47	Yes	210	5:01	Yes
165	29:57	Yes	211	15:02	Yes
167	34:42	Yes	212	21:59	Yes
168	22:26	Yes	213	20:05	Yes
169	17:27	No	214	4:06	Yes
170	12:51	Yes	215	2:48	Yes
171	0:00	No	216	3:17	No
172	1:57	Yes	217	1:04	Yes
173	0:54	Yes	218	1:32	Yes
174	10:00	Yes	219	1:50	Yes
175	7:40	Yes	220	7:08	Yes
176	6:49	Yes	222	4:00	Yes
178	0:00	Yes	228	2:52	Yes
179	0:00	No	229	7:19	Yes
180	0:00	Yes	230	17:07	Yes
181	0:00	Yes	231	22:18	Yes
182	1:22	Yes	232	17:18	No
183	10:23	Yes	236	9:23	No
184	39:30	Yes	237	8:47	Yes
185	13:16	Yes	238	10:11	Yes
186	25:59	Yes	240	28:17	Yes
187	51:29	Yes	241	0:12	Yes

**Table 8 Shadow Flicker Summary** 

Map ID*	Maximum Potential Shadow Hours per Year <sup>21</sup>	Does the Receptor Have Visibility of the Project? <sup>22</sup>	Map ID*	Maximum Potential Shadow Hours per Year	Does the Receptor Have Visibility of the Project?
243	7:08	Yes	283	0:00	Yes
244	21:46	Yes	284	0:00	Yes
245	0:00	No	285	0:00	Yes
246	4:43	No	286	0:00	Yes
247	4:03	Yes	287	0:00	Yes
248	2:05	Yes	288	0:00	Yes
249	4:00	Yes	289	0:00	Yes
250	4:22	Yes	290	0:00	Yes
251	29:27	Yes	291	0:00	Yes
252	39:32	Yes	292	0:00	Yes
253	42:47	Yes	293	0:00	No
254	21:35	Yes	294	0:00	Yes
255	28:38	Yes	295	0:00	Yes
256	3:49	Yes	296	0:00	Yes
257	8:20	Yes	297	0:00	Yes
258	10:40	Yes	298	0:00	Yes
259	9:58	Yes	299	0:00	Yes
260	18:15	No	300	0:00	Yes
261	21:09	Yes	301	0:00	Yes
262	5:55	Yes	302	0:00	Yes
263	10:58	No	303	0:00	Yes
264	16:29	No	304	0:00	Yes
265	16:41	Yes	305	0:00	Yes
266	35:14	Yes	306	0:00	Yes
267	21:33	Yes	307	0:00	Yes
268	23:00	No	308	0:00	No
269	0:00	No	309	0:00	Yes
270	1:29	No	310	0:00	Yes
271	5:48	Yes	311	0:00	Yes
272	11:49	Yes	312	0:00	Yes
273	10:08	No	313	0:00	Yes
274	24:20	Yes	314	0:00	Yes
275	0:00	Yes	315	0:00	Yes
276	0:00	Yes	316	0:00	Yes
277	8:06	No	317	0:00	Yes
278	34:11	Yes	318	0:00	Yes
279	13:27	Yes	319	7:00	Yes
280	42:02	Yes	320	10:36	No
281	0:00	Yes	321	9:54	Yes
282	0:00	No	321	2:41	Yes



**Table 8 Shadow Flicker Summary** 

Map ID*	Maximum Potential Shadow Hours per Year <sup>21</sup>	Does the Receptor Have Visibility of the Project? <sup>22</sup>	Map ID*	Maximum Potential Shadow Hours per Year	Does the Receptor Have Visibility of the Project?
323	1:42	Yes	325	6:21	Yes
324	19:59	No	326	9:06	Yes
			327	6:15	No

<sup>\*</sup> The numbering system used for identifying shadow flicker receptors is different from those numbers identifying visual resources. Receptor ID's shown on Figures 5 and 6 are out of sequence in order to reference those clearly identified as structures from previous evaluations. Additional or relocated ID points are also included in this analysis.

Based on the expected values (topography only) of the 241 studied receptors located within 4,134-feet of any turbines:

- > 57 (23.6%) will theoretically not be impacted;
- > 18 (7.5%) will theoretically be impacted 0-2 hrs/yr;
- > 69 (28.6%) will theoretically be impacted 2-10 hrs/yr;
- > 43 (17.8%) will theoretically be impacted 10-20 hrs/yr;
- > 32 (13.3%) will theoretically be impacted 20-30 hrs/yr;
- > 17 (7.1%) will theoretically be impacted 30-40 hrs/yr; and
- > 5 (2.1%) will theoretically be impacted 40+ hrs/yr.

There are 22 receptors that will theoretically be impacted more than 30 hours per year, including:

- > Receptor 15 (30:27 hours)
- > Receptor 68 (37:09 hours)
- > Receptor 77 (37:39 hours)
- > Receptor 131 (39:36 hours)
- > Receptor 132 (37:47 hours)
- > Receptor 136 (40:19 hours)
- > Receptor 137 (36:28 hours)
- > Receptor 164 (31:47 hours)
- > Receptor 167 (34:42 hours)
- > Receptor 184 (39:30 hours)
- > Receptor 187 (51:29 hours)

- > Receptor 188 (39:20 hours)
- > Receptor 189 (43:10 hours)
- > Receptor 190 (30:14 hours)
- > Receptor 191 (31:31 hours)
- > Receptor 193 (31:45 hours)
- > Receptor 201 (30:06 hours)
- > Receptor 252 (39:32 Hours)
- > Receptor 253 (42:47 hours)
- > Receptor 266 (35:14 hours)
- > Receptor 278 (34:11 hours)
- > Receptor 280 (42:02 hours)

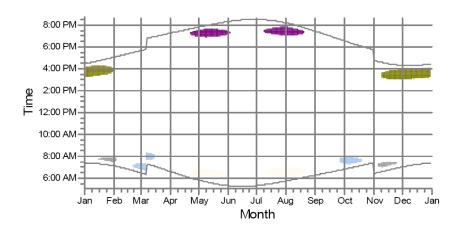
Of those receptors that exceed 30 hours all are expected to have views of the Project. In addition, based on the data presented in Table 8, 39 of the 241 receptors will not have visibility of the Project. It is anticipated that those receptors without a view of the Project will not be impacted or will have reduced potential for impact from the shadow caused by the turbines.



Included below is a graph, generated by WindPro, illustrating the general times of the day and year that shadows are likely at Receptor 187, which has the highest expected duration of shadow flicker. The graph does not include potential adjustments for sunshine probability<sup>23</sup>, vegetative screening, or Project operating hours that may occur from year to year. Actual average hours therefore may be less than this graph shows, but the graph is useful because it illustrates when the shadows are physically possible to occur.

Receptor 187 – Shadow flicker is possible at this location during (i) mid January through early February between 7:45 AM and 8:00 AM and again early November through late November between 7:00 and 7:45 AM from turbine 12; (ii) early November through late January between 3:15 PM and 4:15 PM from turbine 13; (iii) early May through early August between 7:00 PM and 8:00 PM from turbine 14; (iv) late February through the beginning of March between 6:45 AM and 7:30 AM, beginning of March to mid March between 7:45 AM and 8:15 AM, and again from late September through mid October between 7:30 AM and 8:00 AM from turbine 19; and (v) mid April through mid May and again from late July through late August between 6:00 AM and 7:00 AM from turbine 20.

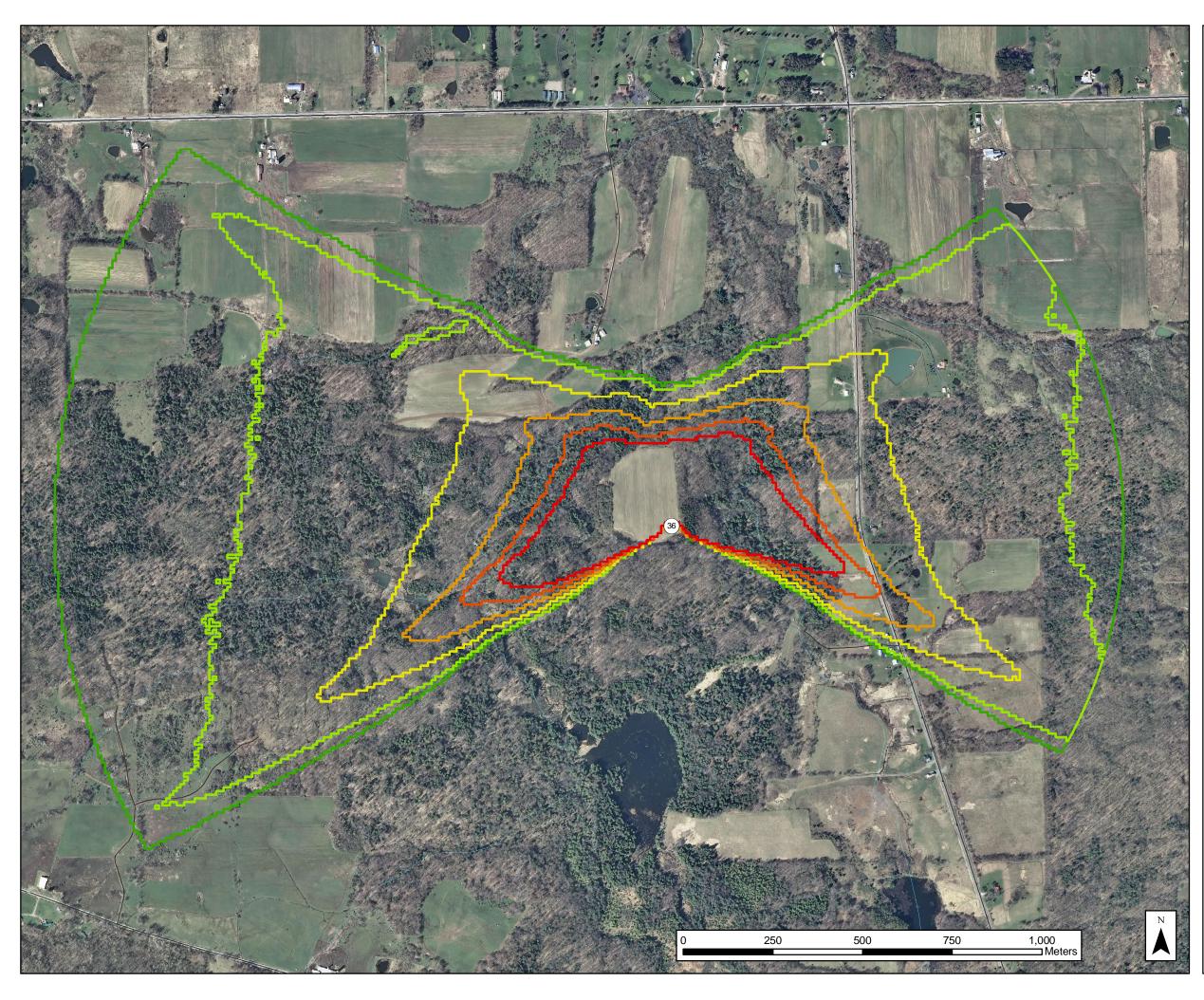
#### Potential Time and Duration of Shadow Flicker at Receptor 187



<sup>&</sup>lt;sup>23</sup> The average amount of sunshine will change yearly.



\_



# TYPICAL SHADOW PATTERN FROM TURBINE 36

Ball Hill Wind Project

Figure 4 July 2016

KEY

36 Proposed Wind Turbine

Shadow Hours Per Year

Less than 2

2 - 10

10 - 20

20 - 30

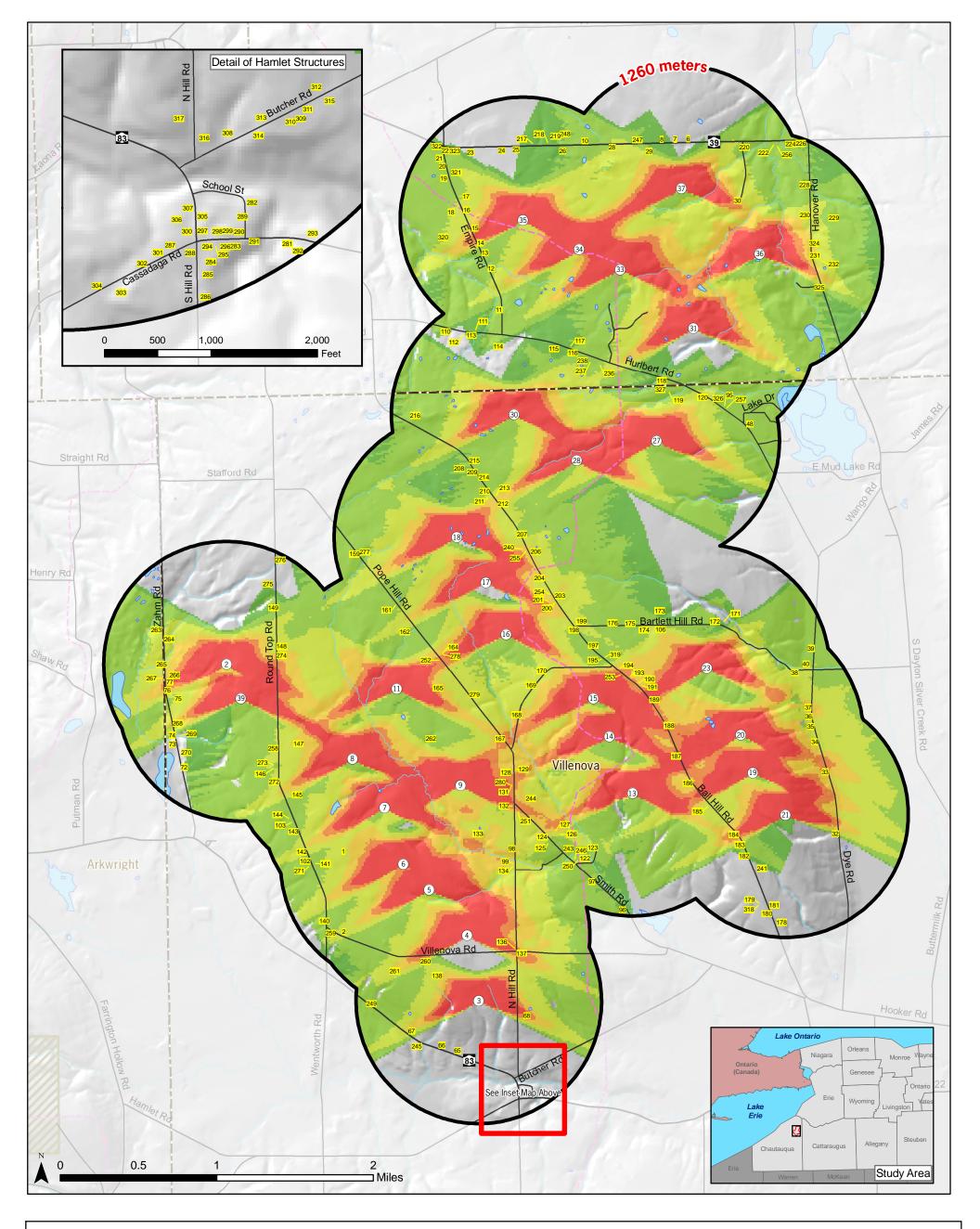
30 - 40

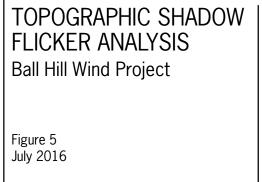
Greater than 40

PROJECT # 2015 - 15039.10
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File Location: B:\2015\15039Maps\Flicker160602\FlickerTypicalPattern.mxd

## SARATOGA ASSOCIATES

Landscape Architects, Architects, Engineers, and Planners, P.C.





Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

# Proposed Wind Turbine Structure Snowmobile Trail Municipal Boundary Water Body State Forest Wildlife Management Area

KEY

# Shadow Hours Per Year Less than 2 2 - 10 10 - 20 20 - 30 30 - 40 Greater than 40

PROJECT # 2015 - 15039.10
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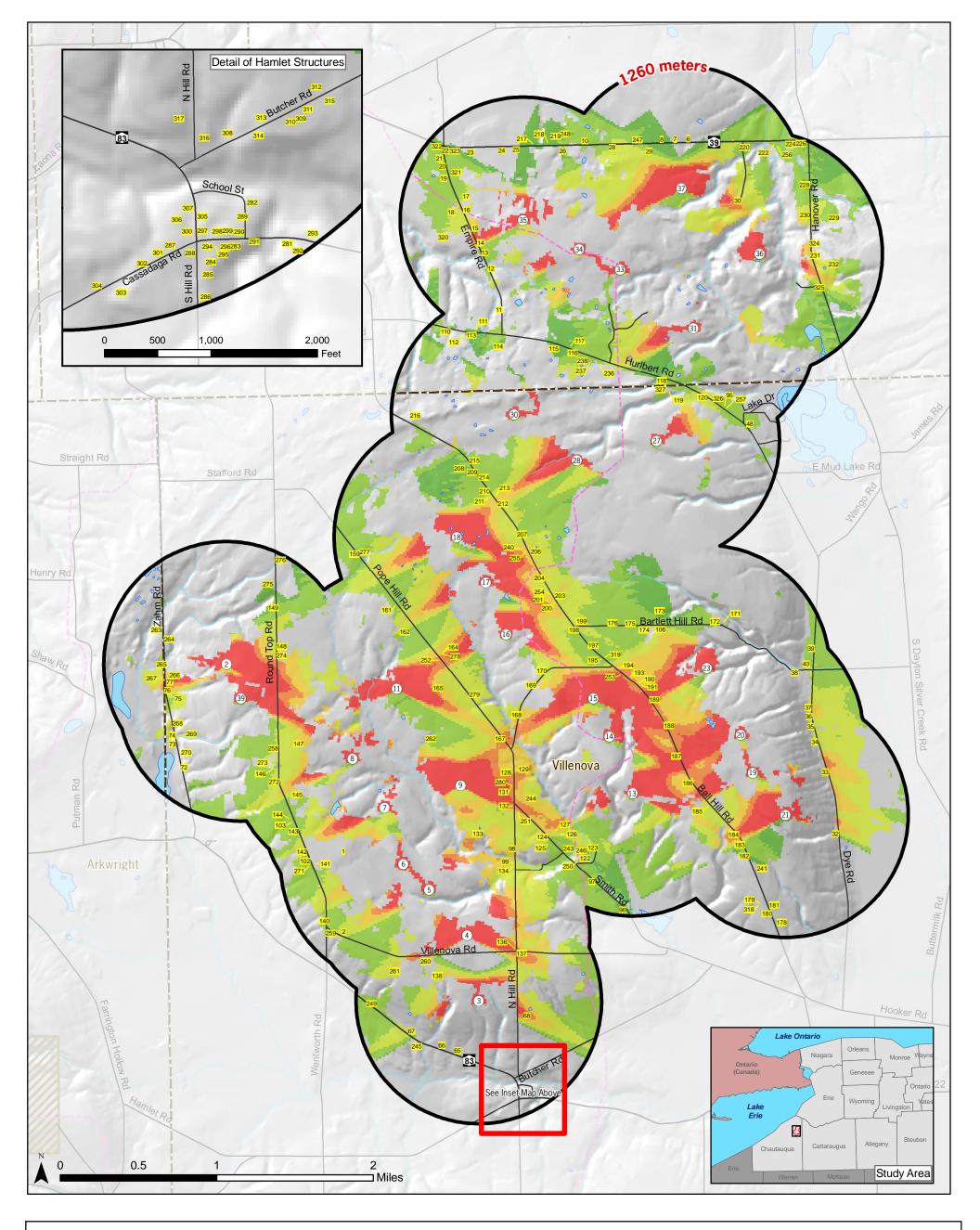
conceptual pianning and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required.

File Location:

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\*Assumes 40 foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

Figure 6 July 2016

Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

# KEY ①

Proposed Wind Turbine

248 Structure

- Snowmobile Trail

Municipal Boundary

Water Body

State Forest
Wildlife Mana

Wildlife Management Area

### Shadow Hours Per Year

Less than 2 2 - 10 10 - 20

20 - 30 30 - 40

Greater than 40

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 $\label{location:bilinear} File Location: \\ B:\2015\15039\Maps\Flicker160602\VegFlicker160602.mxd$ 

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#### 3.7 CUMULATIVE ANALYSIS

A cumulative analysis of the Project and the proposed Arkwright Summit Wind Farm and Cassadaga Wind Project was completed as part of this study.

The proposed Arkwright Summit Wind Farm (Arkwright Summit Wind Farm, LLC) is located within the Project's five-mile study area and consists of 38 2.0/2.2 MW turbines that are generally bounded by Straight Road to the north, Livermore Road/Ruttenbur Road to the east, CR 72 to the south, and Miller Road/Park Road to the west.

The proposed Cassadaga Wind Project (EverPower Wind Holdings, Inc.) is partially located within the Projects five-mile study area and consists of up to 62 3.0 MW turbines. The 23 turbines located within the study area are generally bound by Dybkas Road to the north, Dawson Road to the east, West Road to the south, and Road Road to the west.

The cumulative analysis of these three (3) proposed projects includes a vegetated viewshed map and two (2) simulations.<sup>24</sup>

#### 3.7.1 Cumulative Viewshed

A cumulative viewshed map (Appendix B – Figure B1) was created to show where there was a possibility to see the Project as well as the proposed Arkwright Summit Wind Farm and Cassadaga Wind Project from a specific location within the Projects five-mile study area.

The viewshed map, based on topography and vegetation, follows the same methodology discussed in section 3.1.1, above. The heights used for the cumulative viewshed map are:

- > Ball Hill Wind Project (29 turbines) 492-foot blade tip height (same height in Figures 1 and 2);
- > Arkwright Summit Wind Farm (38 turbines including 2 alternative locations) 492-foot blade tip height; and
- Cassadaga Wind Project (62 turbines) 540-foot blade tip height.

Within the Projects five-mile study area, the potential visibility of the three (3) wind projects was further quantified to illustrate the number of turbines that may be visible from the previously identified sensitive resources and any given area. This cumulative degree of visibility is summarized on Table 9.

#### 3.7.2 Viewshed Analysis

Based on Table 9 the total cumulative visibility of the proposed wind projects is approximately 40,645 acres. When compared to the viewshed completed for the Ball Hill Wind Project this is an increase of 8,015 acres. Theoretically, as the result of the two (2) adjacent wind projects, one (1) or more turbines would be visible from approximately 40.2% of the entire five-mile Project study area (comprised of 101,017 acres).

<sup>&</sup>lt;sup>24</sup> Cumulative shadow-flicker analysis is not included.



The introduction of additional turbines within the same viewshed will increase the number of structures visible from many affected vantage points – thus creating a potential higher density of visible turbines. Viewer position is an important factor influencing which of the projects might be visible, or the number of total turbines within view. It is also possible that the adjacent projects may not be visible in a single field of view.

#### **Table 9 Cumulative Viewshed Coverage Summary**

#### **Vegetation and Topography Viewshed**

(Figure B1 - Cumulative Vegetated Viewshed Analysis)

	Ana	llysis)
	Acres*	Percent of Study Area
No Structures Visible	60,372	59.8%
1-5 Structures Visible	5,420	5.2%
6-10 Structures Visible	4,613	4.5%
11-15 Structures Visible	3,604	3.6%
16-20 Structures Visible	2,937	2.9%
21-30 Structures Visible	4,744	4.6%
31-45 Structures Visible	6,442	6.4%
46-60 Structures Visible	5,436	5.4%
61-75 Structures Visible	3,853	3.8%
76-90 Structures Visible	2,338	2.3%
91-110 Structures Visible	862	0.9%
111-129 Structures Visible	576	0.6%
Total	101,017	100.0%

<sup>\*</sup> Acreage quantities are rounded to nearest whole number and percentages are rounded to the nearest tenth.

As previously discussed,

several factors suggest that actual visibility of the projects from many areas within the study area may be further reduced

#### 3.7.3 Photo Simulations

# Selection of Key Receptors for Photo Simulation – The specific location of the two (2) simulation locations was chosen for their

locations was chosen for their relevance to the factors affecting visual impact (e.g. viewer/user

Table 10 Key Receptors Selected for Cumulative Photo Simulation

Map ID	Receptor Name	Municipality
33	NYS Route 83	Town of Arkwright
54	Flucker Hill Road	Town of Villenova

groups, landscape units, distance zones and duration/frequency). Table 10 lists the key receptors selected for photo simulation.

All cumulative photo simulations are presented in Appendix B.



#### 3.8 115 kV Transmission Line

The Project will require the construction of an approximately 5.8-mile 115 kV transmission line. The proposed transmission line will include a new substation, switchyard, and 60 new tangent and angle structures (i.e. transmission towers).

Although the route of the transmission line has not been finalized, a proposed route has been reviewed for this study with technical guidance from Ball Hill Wind Energy, LLC. The line will start at a new 175 by 290 foot substation located about 800 feet north of Hurlbert Road, east of Empire Road, in the Town of Hanover. The substation will then tie into a new 115 kV transmission line placed on

structures varying in height from 70 to 75 feet.<sup>25</sup> These structures will have an appearance of wood as they will be constructed using wood or metal that will be allowed to oxidize so that they will appear similar to the color of wood. All structures will be located within a permanent 80-foot Right-of-Way<sup>26</sup> (ROW) as it continues in a northerly direction terminating at a switchyard. From the switchyard, the line will be connected to an existing transmission line owned and operated by National Grid (photo to the right) located southeast of the Stebbins and Bennett State Road intersection



**Existing Transmission Line** 

The basic components of the substation and switchyard generally consist of a main transformer (substation only), a control house, capacitor banks, high voltage bus work, outdoor circuit breakers, relaying equipment, metal clad switchgear, steel support structures, an underground grounding grid, and overhead lightning suppression conductors. It is anticipated that the substation will be similar in

characteristic to the built Bliss Windpark substation (photo to the right).

The transmission line will, along certain segments of the new ROW, require vegetation clearing. Although trees along the ROW will be permanently cleared so that they will not interfere with the transmission line once it is operational, the ROW will be allowed to return to a partial vegetative state (low scrub/shrub or agricultural crops).



Substation Example

#### 3.8.1 Transmission Line Viewshed

To calculate the maximum area of potential visibility, one (1) control point was established at the high point for each of the 60 structures located between the proposed substation and switchyard. The resulting viewsheds identify the geographic area within a three-mile radius where some portion of the

<sup>&</sup>lt;sup>26</sup> A temporary 12-foot ROW will be used during construction.



Final VRA - July, 2016

<sup>&</sup>lt;sup>25</sup> Actual structure heights and locations will vary based on final siting/design.

proposed transmission line is theoretically visible based on intervening topography and/or existing mature vegetation (Appendix C – Figures C1 and C2).

#### 3.8.2 Viewshed Analysis

Table 11 and Figure C2 illustrates that one (1) or more of the proposed transmission structures will theoretically be visible from approximately 23.1 percent of the three-mile radius, and that approximately 76.9 percent of this area will likely have no visibility of any of the structures when considering the vegetated viewshed. Visibility is most common from properties adjacent or in close proximity to the proposed transmission line, as well as areas to the north, east, and west. Visibility will also be evident from agricultural uplands with cleared lands and down slope vistas in the direction of the proposed transmission line.

Table 11 Transmission Line Viewshed Coverage Summary

		hy Only Viewshed	Vegetation and Topography Viewsho (Figure C2 – Transmission Line Vegeta Viewshed)	
	` `	smission Line Topographic Viewshed)		
	Acres	Percentage of Study Area	Acres	Percentage of Study Area
No Structures Visible	12,595	32.3%	30,047	76.9%
1-5 Structures Visible	2,370	6.1%	2,502	6.4%
6-10 Structures Visible	1,552	4.0%	1,352	3.5%
11-15 Structures Visible	1,592	4.1%	1,083	2.7%
16-20 Structures Visible	2,000	5.1%	669	1.7%
21-35 Structures Visible	4,303	11.0%	1,547	4.0%
36-50 Structures Visible	5,984	15.2%	1,361	3.5%
51-56 Structures Visible	8,652	22.2%	489	1.3%
Total	39,048	100.0%	39,048	100.0%

\*Table 11 and Figure C1 illustrate that one (1) or more structures are theoretically visible from approximately 67.7 percent of the three-mile radius. However, as discussed above, this unrealistic treeless condition analysis is used only to identify the maximum potential geographic area within which further investigation is appropriate. This viewshed is not representative of the anticipated geographic extent of visibility and is not intended for public interpretation. Acreage is rounded to the nearest whole number.

As shown on the vegetated viewshed, there is potential for high visibility along roadways located within the northern half of the 3-mile study area. Open views of the proposed transmission line will be available from many roadways where roadside vegetation is lacking. These roadways include, but are not limited to, the NYS Thruway (I-90), Hanover Road, County Route 89, Bennett State Road, and King Road. Many of these views may be fleeting and short in duration as viewers pass in vehicles. The proposed transmission line will bisect five (5) roadways including, NYS Route 39, with structures located in close proximity and on both sides of the roadways.

Viewers within close proximity to the proposed transmission line will notice that structures will frequently appear and disappear behind intervening foreground landform and vegetation as they move about the study area.

Viewshed mapping also shows that there is a potential for visibility of the structures within the Villages of Forestville and Silver Creek. Based on field investigations, it is anticipated that visibility would be substantially reduced by the relatively long distance between the village and the proposed



transmission line, the generally low/slim profile of the proposed structures, and screening such as structures and localized vegetation,

#### 3.8.3 Photo Simulations

#### Selection of Key Receptors for

<u>Photo Simulation</u> – Two (2) photo simulations were prepared to show how the proposed transmission line would appear in the landscape. The

**Table 12 Key Locations Selected for Photo Simulation** 

		eceptor Name Municipality	Receptor Name	Map ID
	r	S Route 39 Town of Hanover	NYS Route 39	T1
T2 King Road Town of Hanove	r	ng Road Town of Hanover	King Road	T2

locations were selected within close proximity to the transmission line so that visibility of the slender transmission structures would be the greatest. Table 12 lists the key locations selected for photo simulation.

The appearance and spacing of the structures is based on information provided by Ball Hill Wind Energy, LLC. All transmission line photo simulations are presented in Appendix C.



#### 4.0 MITIGATION PROGRAM

#### **Professional Design**

- > Proposed turbines will not be used for commercial advertising, or include conspicuous lettering or corporate logos identifying the Project owner or equipment manufacturer.
- > Roads should be designed to generally follow topographic contours to minimize cut and fill and will be located in agricultural lands to the greatest extent possible to minimize vegetative cuts.
- > The architectural style of the operations/maintenance structure should be similar to area structures. Concrete block construction and façade should be avoided.
- > Fencing around the operations and maintenance building should be limited to only those areas needed for safety.
- > Ball Hill Wind Energy, LLC will maximize to the extent possible the subsurface routing of electrical interconnects used to transmit power from between turbine locations.

#### Screening

- > Considering the proposed Project includes 29 wind turbines that will be visible over a wide viewshed area, traditional treatments such as fences, earthen berms and vegetative screening cannot be applied in an effective manner to screen these major structures.
- Visibility of the proposed substation should be screened from the public right-of-way and non-participating landowners utilizing perimeter plantings. A mix of evergreen and deciduous plant materials should be used.
- > Building foundation and perimeter plantings should be included in the development plans of the operations/maintenance building. Perimeter plantings should be used to screen service yard and other storage areas the public right-of-way and non-participating landowners. A mix of evergreen and deciduous plant materials should be used.
- > Vehicles and areas of the storage yard located at the operations/maintenance building identified for long-term storage should be screened from non-participating parcels and roadways.
- > Residences may utilize window shades or strategically placed vegetation in the event shadows cast by the turbines become a nuisance.

#### Project Siting/Relocation

- > The proposed Project is located in the Towns of Villenova and Hanover for the following reasons:
  - Favorable elevation and exposure of the Project area which is well suited for receiving prevailing winds;
  - Reliable winds that meet the necessary criteria for a commercially viable wind energy project; and
  - The relatively low population of the Project area.



By their very nature, modern wind energy projects are large and highly visible facilities. The need to position wind turbines in areas of higher elevation cannot be readily avoided. Given the necessary scale of wind energy turbines and the number of turbines required for a sustainable project, there is no opportunity to substantially relocate the Project or any of its components to other sites in the Towns where it would be significantly less visible.

- > Proposed turbines will maintain a minimum setback from residential structures. Such separation of uses assures maximum screening benefit of existing woodland vegetation, where such exists, and minimizes the potential for extended duration shadow flicker on nearby residences.
- > Vegetation clearing along the transmission line ROW as well as around the base of the turbines and other project components should be kept to a minimum, however it should not impede operation.

#### Camouflage/Disguise

- > As mandated by the FAA for aviation safety, the color of the blades, nacelle, and tower will be a neutral off-white.
- > Utilizing wood or steel poles that oxidize to a brownish color for the transmission structures (not including the substation and switchyard), the color and materials of the structures will be compatible with the surrounding landscape.

#### Low Profile/Downsizing

- > The profile of the wind turbines is dictated by operational efficiency. Because wind turbine power extraction is a function of the cube of wind speed (relatively large increases in power from small increases in wind speed), the height of a tower plays an important role in overall energy production. Reducing the height of the turbines to a meaningful degree would substantially reduce the amount of energy produced rendering the development of the Project impractical or would require constructing a greater number of smaller units to be economically viable.
- > The shortest and fewest possible number of transmission poles should be used.

#### Alternate Technologies

- > Wind energy itself is an alternative to traditional energy sources. Meaningful development of renewable wind energy will reduce reliance on fossil fuel combustion and nuclear fission facilities and result in reduction in air pollutants and greenhouse gasses.
- > Alternative turbines have been considered (see Section 1.3 of the SDEIS) for this Project. While smaller turbines might be marginally less visible, a greater number would be required to provide the same energy output, resulting in increased visual impacts from higher blade rotation rate and a greater number of turbines within view. Likewise, a fewer number of larger wind turbine generators would require turbines of increased height and/or rotor diameter which would be more prominent in the landscape. Visually, a change in the height or number of turbines may provide a minimal benefit at a particular receptor, but it would do little to change the overall impact of the Project on the regional landscape.



#### Lighting

- > Due to the height of the proposed turbines, the Federal Aviation Administration requires red flashing aviation obstruction lighting be placed atop the nacelle on approximately 22 of the 29 turbines to assure safe flight navigation in the vicinity of the Project. This federally mandated safety feature cannot be omitted or reduced. If appropriate, alternative approved FAA lighting options will be evaluated to determine if they can minimize the visual impact within the study area.
- Lighting for the substation/switchyard should be down firing, motion triggered, and task oriented (e.g. maintenance and emergency). Appropriate light shields should be used to minimize light trespass on neighboring properties or roadways.

#### Maintenance

> How a landscape and structures in the landscape are maintained has aesthetic implications to the long-term visual character of a project. Ball Hill Wind Energy, LLC places a high priority on facility maintenance, not only for operational purposes, but for aesthetic appearance as well. Recognizing that its public image will be directly linked to the outward appearance of its facilities and desiring to be a welcomed member of the community, Ball Hill Wind Energy, LLC will implement a strict policy of maintenance, including materials and practices that ensure a clean and well-maintained appearance over the full life of the facility.

#### **Decommissioning**

- > The lifespan of the primary Project components is approximately 20 years. The wind turbines could be repaired indefinitely to extend their useful life. However, it is likely that advancements in technology within this time will make upgrades or replacement of the turbines a more attractive alternative. However, in the unlikely event that the site is to be abandoned, Ball Hill Wind Energy, LLC has developed a draft Decommissioning Plan which is included in the SDEIS as Appendix N. The Decommissioning Plan for the Project includes detailed cost estimates for the removal of Project components to a depth of four feet below grade. This will include the wind turbines, including the tower, nacelle, transformer, electrical components, concrete foundations, and maintenance roads. The Plan also describes the specific steps that will be taken in removing the wind turbines, including the tower, nacelle, transformer, electrical components, transmission lines, concrete foundations, and maintenance roads/rigging pads. Restoration of the areas after removal will include re-vegetation to return the area to as near its present condition as possible.
- > When the transmission line, substation, and switchyard structures are no longer necessary, they should be removed. Disturbed areas will become re-established as natural or cultivated vegetation over time.



#### 5.0 SUMMARY AND DISCUSSION OF POTENTIAL VISUAL IMPACT

#### Visibility Summary

The vegetated viewshed map clearly indicates that one (1) or more of the proposed turbines will be theoretically visible from approximately 32.3 percent of the five-mile radius study area (based on vegetative viewshed). Approximately 67.7 percent of the study area will likely have no visibility of any wind turbines. Visibility is most common in the agricultural uplands from cleared lands with down slope vistas in the direction of turbine groupings.

While viewshed mapping indicates that the Project will be visible within portions of the Village of South Dayton and the Village of Forestville, as well as several hamlets within the study area, field confirmation determined the prevalence of mature street trees and site landscaping combined with one to three story residential and commercial structures. Because of this, views will generally be screened by intervening vegetation and localized structures, although filtered or framed views are likely through foreground vegetation and buildings were found from isolated locations. Direct views are more prevalent on the outskirts of these community centers where localized residential and commercial structures, street trees and site landscaping are less likely to provide a visual barrier.

Open views of the Project will be available from many roadways where roadside vegetation is lacking. These roadways would include, but are not limited to, the NYS Thruway, NYS Routes 39, 83, and 322, County Routes 93 and 87, North and South Hill Road, Pope Hill Road, Farrington Hollow Road, Round Top Road, Aldrich Hill Road, Hanover Road, and Flucker Hill Road. Many of these views may be long distant (background view), fleeting as viewers pass in vehicles, or short in duration.

Views along roadways located in the center of the Project area are likely to include turbines on both sides of the road. Some locations may experience an impacted field of view exceeding 180 degrees. Roadways including Prospect Road (see Figure A3), Hurlbert/Dye Road, Round Top Road, and Pope Hill Road will be impacted by such view extents.

No views, or limited views will occur on the backside of the many hills and within ravines found throughout the five-mile study area. Where topography is oriented toward the turbines, dense forest cover commonly prevents distant views.

The area most directly affected by views of the Project will be where there is a significant amount of cleared or agricultural land within immediate proximity to the Project. Residents and visitors will regularly encounter proximate views of one or more turbines within the foreground and near-middle-ground distances (e.g., ½ to 1 ½ miles). This is also the distance at which the visual contrast of the turbines will be greatest. Within such close proximity, turbines frequently appear and disappear behind intervening foreground landforms and vegetation as viewers move about the Project area.

#### Impact on Visual Resources

<u>Resources of Statewide Significance</u> – Viewshed analysis, field investigation, and simulations determined that the visual resources of Statewide Significance (Boutwell Hill State Forest and Canadaway Creek WMA) would not be notably affected by the proposed Project. Views from these



resources were field verified from the property boundaries, which the vegetated viewshed analysis indicated having the highest potential for visibility; also it is anticipated that overall visibility would be minimal within the boundaries of the State-owned land due to the vegetative screening witnessed in the field.

In addition, five (5) resources were identified, beyond the five-mile study area, during the completion of the original Visual Resource Assessment. Based solely on results determined through the use of vegetated viewshed data, potential visibility consist of:

- > Evangola State Park Viewshed analysis indicates minimal Project visibility from this receptor.
- > Harris Hill State Forest Viewshed analysis indicates minimal Project visibility from this receptor.
- > Zoar Valley Multiple Use Area Viewshed analysis indicates no Project visibility from this receptor.
- > Hatch Creek State Forest Viewshed analysis indicates no Project visibility from this receptor.
- > 5.2 miles of the Seaway Trail (NYS Route 5) falls within 7.5 miles of the Project (Figure A1). 2.3 miles or 44% percent of that length has potential visibility of the Project. Potential visibility is further reduced by screening (vegetation and structures) in developed areas such as the Village of Silver Creek.

The NYSDEC visual Policy states,

"Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Significant aesthetic impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place. Proposed large facilities by themselves should not be a trigger for a declaration of significance. Instead, a project by virtue of its siting in visual proximity to an inventoried resource may lead staff to conclude that there may be a significant impact."

Based on this definition, it is reasonable to conclude that simple visibility of the proposed wind farm (albeit a large facility) from any of these affected resources of statewide significance does not imply detrimental effect on the perceived beauty of the place or structure; nor will the Project necessarily cause the diminishment of public enjoyment and appreciation of an inventoried resource, or impair the character or quality of such a place.

<u>Resources of Local Interest</u> – Because of the number, scale and distribution of the proposed turbines, some portion of the Project will be visible from places of local interest, that do not necessarily meet the broader statewide threshold for visual significance. Most commonly affected are roadside views along various county and local roadways (for example, see Figures A13 and A15-A16).



Views were found along portions of several county and town roads at varying distance. Most residential neighborhoods and other resources (e.g. playgrounds) located in the villages, hamlets, and throughout the study area where the prevalence of mature street trees and/or site landscaping combined with one (1) and two (2) story structures may substantially limit or screen distant views (for example, see Figures A11 and A13-A14).

In addition to those resources of local interest identified in the VRA, one notable resource, Lake Erie, is located beyond the five-mile study area. Based on field investigation of the shoreline area north of the Village of Silver Creek (within 7.5 miles of the Project), visibility along the shoreline is anticipated to be minimal due to screening caused by vegetation and structures. The potential for Project visibility is anticipated to increase the further the viewer is from the shore. Although a clear line of sight to the Project is a potential, visibility will be further reduced by such factors as distance, atmospheric conditions, and viewer activities.

#### Character of View

Within the study area typical views, outside developed communities, are characterized by a patchwork of working farms, old fields and forest on a landscape of rolling hills. Built structures consist primarily of low-density permanent homes and manufactured housing, along with accessory structures (barns, garages, sheds, etc.). Development density within the study area is variable, ranging from large, open lots set back from nearby roadways and neighboring properties, to neighborhood clusters of mid-20<sup>th</sup> century homes or Victorian style homes of varying quality, vintage and size in the more populated villages. Mobile home communities are present within the study area as well. Overall, the structures are of varying vintage and quality.

As shown in the simulations, the introduction of large, clearly man-made structures creates a visible disruption of the landscape. The prominent hills and forests in the study area should be effective sources of minimizing the visual impact of the wind turbines (for example, see Figure A10). This should be true in terms of how visible each turbine will be individually from any given point in the study area and how many turbines can be viewed from any one point in the study area. However, in more level areas, the proposed turbines will be the tallest visible elements within view and will be disproportionate to other elements in the immediate landscape (for example, see Figures A3 and A5). Given the rolling hills in the study area, distribution of turbines across an extended area will result in a minimization of having an overwhelmingly disproportionate amount of turbines visible from any single point (for example, see Figures A4, A10-A11). The moderately paced sweeping rotation of the turbine blades will heighten the conspicuity of the turbines no matter the degree of visibility.

#### Affected Viewers

The Towns of Hanover, Villenova, Perrysburg, Sheridan, Dayton, Charlotte, Cherry Creek, Leon, and Arkwright are each quite rural and have small populations. The population of the Town of Villenova is only 1,110 while the population of the Town of Hanover is 7,127. These towns have a population density of 32 and 149 persons per square mile, respectively. This compares with a population density of 127 persons per square mile for Chautauqua County, and 411 persons per square mile for New York State as a whole.



With the exception of a small section of I-90 within the study area, highways are generally lightly traveled. The small stretch of I-90 that goes through the study area has the highest average annual daily traffic (AADT) volume of any roads in the study area (approximately 24,200 vehicles per day). Aside from I-90, the most heavily traveled stretch of road that lies entirely within the study area is a section of NYS Route 39, located between US Route 20 (outside the five-mile study area) and County Route 141. This section of NYS Route 39 receives approximately 3,200 vehicles per day. While the Project will frequently be visible to local residents and travelers, the total number of potentially affected permanent year-round viewers within the study area is relatively small when compared to other regions of New York State.

The impact to those residents and tourists recreating in the study area will vary. The sensitivity of individuals to visual quality is variable; but to many, visual quality is an important and integral part of their outdoor experience. The presence of wind turbines may diminish the aesthetic experience for those that believe that the rural landscape should be preserved for agricultural, rural residential, open space and similar uses. Such viewers will likely have high sensitivity to the visual quality and landscape character, regardless of the frequency of duration of their exposure to the proposed Project.

Viewshed and field analysis determined that the Project would be visible from locations including the Overland Trail, Tri-County Country Club, Boutwell Hill State Forest (perimeter of property) and the Canadaway Creek WMA (perimeter of property). Hunters and snowmobile riders on private lands will most likely view the Project across open agricultural fields and may also have a view of the turbines in close proximity.

#### Other Project Components

Construction Related Impacts – Construction of the proposed wind turbines will require the use of large mobile cranes and other large construction vehicles. Turbine components will be delivered in sections via large semi-trucks. During construction, multiple laydown areas totaling 26.2 acres will be scattered throughout the Project area. A permanent O&M building, and associated infrastructure, will occupy 2.8 acres along North Hill Road in the Town of Villenova. The O&M building will provide a base of operations for the Project. The construction period for each turbine is expected to be quite short. As such, construction related visual impacts will be brief and are not expected to result in adverse prolonged visual impact to area residents or visitors.

<u>Operations and Maintenance Building</u> – The proposed operations and maintenance building will be located in the Town of Villenova and is a relatively minor component of the Project. The single story operations and maintenance building will be approximately 7,000 square feet in size, and of similar scale and architectural character to other large agricultural/industrial buildings in the area.

<u>Access Roadways</u> – Roadways to each turbine will be constructed in order for personnel to perform maintenance. These roadways will be similar in characteristic to farm driveways/roads and the driveways that lead to existing gas wells. These are relatively minor components of the Project and will not be highly visible.



<u>Collection Line</u> – It is anticipated that the interconnection cables (between the turbines) will be buried and will not be considered an impact.

<u>FAA Lighting</u> – While red flashing aviation obstruction lighting on communications towers are commonly visible nighttime elements almost everywhere, the concentration of lights within the turbine area would be somewhat unique. While red flashing aviation obstruction lighting on communications towers is commonly visible nighttime elements almost everywhere, the concentration of lights within the turbine area would be somewhat unique. Up to 22 red lights flashing in unison will be conspicuous and somewhat discordant with the current dark nighttime conditions. Although aviation obstruction lighting is generally directed upward, the relatively low intensity does not result in perceptible atmospheric illumination (sky glow).

A preliminary lighting plan, following FAA regulations, was developed for use in completing a viewshed map. The viewshed map clearly indicates that one or more of the 22 proposed lights would theoretically be visible from approximately 28.1 percent of the five-mile study area. The magnitude of this impact will depend on how many lighted turbines are visible at a specific location and existing ambient lighting conditions present within the view. Local residents quietly enjoying the rural nighttime setting will likely be more affected by this condition than would motorists traveling through the area after dark. These are federally mandated safety features and cannot be omitted of reduced. Daytime lighting of the turbines is not required.

#### Shadow Flicker

Based on Table 8 and Figures 5 and 6, of the 241 studied shadow receptors located within 4,134-feet of the proposed turbines:

- > 57 (23.6%) will theoretically not be impacted;
- > 18 (7.5%) will theoretically be impacted 0-2 hrs/yr;
- > 69 (28.6%) will theoretically be impacted 2-10 hrs/yr;
- > 43 (17.8%) will theoretically be impacted 10-20 hrs/yr;
- > 32 (13.3%) will theoretically be impacted 20-30 hrs/yr;
- > 17 (7.1%) will theoretically be impacted 30-40 hrs/yr; and
- > 5 (2.1%) will theoretically be impacted 40+ hrs/yr.

All 22 receptors that exceed 30 hours of shadow will theoretically have views of the Project. For these receptors, if they are determined to be not participating in the Project, potential mitigation should be evaluated on a case-by-case basis. Potential mitigation for those ultimately participating in the Project may be included in their lease agreements.

There are no regulations or guidelines that establish an acceptable degree of shadow flicker impact on a potential receptor. Based on the limited number of hours any structure will be impacted, shadow flicker is not expected to create an adverse impact on most nearby residential dwellings. For residences where shadow flicker is greatest, this impact might be considered an annoyance by some, and unnoticed by others.



#### **Cumulative Impact**

With the introduction of the proposed Ball Hill Wind Project, as well as the Arkwright Summit Wind Farm and Cassadaga Wind Project, one (1) or more structures will be theoretically visible from approximately 40.2 percent of the Projects five-mile radius study area. The total cumulative visibility of the proposed wind projects is approximately 40,645 acres. When compared to the vegetated viewshed completed solely for the Ball Hill Wind Project this is an increase of 8,015 acres. Overall, the cumulative impact appears to be relatively minor as the increased geographic area of additional visibility is approximately 7.9% of the total acreage of the study area.

The introduction of additional turbines within the same viewshed will increase the number of structures visible from many affected vantage points – thus creating a potential higher density of visible structures. However, visibility of the projects is dependent on viewer location/orientation, distance, and other factors discussed in the VRA (Section 3.3). It is possible that with the additional turbines, the cumulative impact may be minimal (for example, see Figures B2 and B3). As illustrated in both figures, the additional Arkwright and Cassadaga turbines are visible in the distance, behind the proposed Project, limiting potential impact.

It is also possible that all three (3) projects may not be visible in a single field of view. For example, views of the Ball Hill Wind Project are to the east and north, views of the Arkwright Summit and Cassadaga projects are to the west and south. If a viewer is at a location north of the adjacent projects and is viewing eastward, it is possible that the adjacent projects will not be visible.

#### 115 kV Transmission Line

Visibility is most common from properties adjacent or in close proximity to the proposed transmission line, as well as areas to the north, east, and west. Visibility will also be evident from agricultural uplands with cleared lands and down slope vistas in the direction of the proposed transmission line.

Open views of the proposed transmission line will be available from many roadways where roadside vegetation is lacking. These roadways would include, but are not limited to, the NYS Thruway (I-90), Hanover Road, County Route 89, Bennett State Road, and King Road. Many of these views may be fleeting as viewers pass in vehicles, short in duration, or in the context of other transmission structures. However, the transmission structures will be located in close proximity and on both sides of many roadways noted above (for example, see Figure C3).

Viewers within close proximity to the proposed transmission line will also notice that structures will frequently appear and disappear behind intervening foreground landform and vegetation as they move about the study area. Along some portions of the route, vegetation will need to be cleared (for example, see Figure C4). The clearing will be more noticeable in close proximity and along ridge tops.

Given the potential for limited visibility of the proposed transmission line and the frequency of existing electrical and telephone lines with the study area, the proposed line will not have a significant impact on the visual character of the region. When visible, the factors outlined in Section 3.3



(landscape unit, viewer group, distance zone and duration/frequency/circumstances of view), will have an effect on the structures visibility.

#### Comparison of the SVRA and Original VRA

#### Landscape Character/Visual Setting

In comparing the landscape character identified in both the SVRA and original VRA there has been little change within the study area. Some of the more notable differences include changes in roadside vegetation (e.g. vegetation growth or removal), as well as a few newly built structures. Generally, these structures were seen as small buildings (e.g. garage, barn), new utility poles, and an occasional residential structure.

#### Viewshed Mapping

The potential visibility identified in both the SVRA and original VRA are similar, not only in the number of acres, but geographic area as well. The SVRA evaluated a slightly larger study area (additional 995acres) and had a slight increase in visibility (3,425 acres) when comparing the vegetated viewshed maps. This increase in visibility is most likely the result of a larger study area and taller turbines.

#### **Photographic Simulations**

Although the Project contains 31 fewer turbines than the layout presented in the original VRA, overall visibility of both projects are similar. The noticeable changes illustrated in the simulations are likely the result of the Project layout and reduction in the number of turbines. Generally, the increased heights of the turbines do not appear to be significant factor in the completed simulations.

#### Shadow Flicker Analysis

The potential shadow flicker evaluated in both the SVRA and VRA are generally similar, but it appears that the proposed Project will have an overall greater impact on structures receiving 30+ hours of shadow flicker per year. Although the Project has fewer turbines, it analyzed a larger study area (4,134 feet from a turbine) and more structures (receptors). The Project had notable differences in the following yearly categories:

- > 0-2 hrs/yr SVRA's 31.1% compared to the VRA's 23.6 for a difference of 7.5%;
- > 2-10 hrs/yr SVRA's 28.6% compared to the VRA's 40.1% for a difference of 11.5%;
- > 10-20 hrs/yr SVRA's 17.8% compared to the VRA's 19.1% for a difference of 1.3%;
- > 20-30 hrs/yr SVRA's 13.3% compared to the VRA's 10.2% for a difference of 2.1%;
- > 30-40 hrs/yr SVRA's 7.1% compared to the VRA's 2.5% for a difference of 4.6%; and
- > 40+ hrs/yr SVRA's 2.1% compared to the VRA's 4.5% for a difference of 2.4%.

#### Transmission Line

The SVRA reviewed a potential design for a 115 kV transmission line that was very similar to the 115 kV line analyzed in the original VRA. Both viewsheds were similar in the number of acres analyzed and the geographic area the transmission structures would be visible. The SVRA evaluated a slightly



smaller study area (128 acres less) with fewer structures. The Project has a slight increase in visibility (1.4% acres) when comparing the vegetated viewshed maps. The increased visibility is most likely the result of layout changes.

#### **Visual Impact Conclusion**

The U.S. Department of Energy and New York State Public Service Commission have mandated that renewable energy sources, such as wind turbines, will provide an increasing percentage of the nation's electricity in the coming years. Meaningful development of renewable wind energy will reduce the reliance on fossil fuel combustion and nuclear fission facilities and result in reduction in air pollutants and greenhouse gasses. This Project is proposed to meet, in small part, this ambitious federal and state objective to provide an environmentally friendly and renewable energy source to help meet the growing energy needs for New York State residents and business.

By their very nature, modern wind energy projects are large and highly visible facilities. The need to position these tall moving structures in highly visible locations cannot be readily avoided. The siting of wind turbines within a rural agricultural area provides increased opportunity for potentially discordant views both near and far. While the use of mitigation techniques will help to minimize adverse visual impact, the construction of the Project will be an undeniable visual presence on the landscape. However, unlike development projects such as housing complexes and commercial centers, the proposed wind energy facility can and will be decommissioned and removed at the end of its useful working life. All of the towers will be removed and the Project area restored as close to its present condition as possible, thus restoring the landscape to its original condition.



#### Glossary<sup>27</sup>

**Aesthetic impact**: Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Mere visibility, even startling visibility of a project proposal, should not be a threshold for decision-making. Instead a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation of the appearance of an inventoried resource (e.g. cooling tower plume blocks a view from a State Park overlook).

Aesthetically significant place: A formally designated place visited by recreationists and others for the express purpose of enjoying its beauty. For example, millions of people visit Niagara Falls on an annual basis. They come from around the country and even from around the world. By these measurements, one can make the case that Niagara Falls (a designated State Park) is an aesthetic resource of national significance. Similarly, a resource that is visited by large numbers who come from across the state probably has statewide significance. A place visited primarily by people whose place of origin is local generally is generally of local significance. Unvisited places either have no significance or are "no trespass" places.

**Aesthetic Quality**: There is a difference between the quality of a resource and its significance level. The quality of the resource has to do with its component parts and their arrangement. The arrangement of the component parts is referred to as composition. The quality of the resource and the significance level are generally, though not always, correlated.

**Atmospheric perspective**: Even on the clearest of days, the sky is not entirely transparent because of the presence of atmospheric particulate matter. The light scattering effect of these particles causes atmospheric or aerial perspective, the second important form of perspective. In this form of perspective there is a reduction in the intensity of colors and the contrast between light and dark as the distance of objects from the observer increases. Contrast depends upon the position of the sun and the reflectance of the object, among other items. The net effect is that objects appear "washed out" over great distances.

**Scientific Perspective**: Scientific, linear, or size perspective is the reduction in the apparent size of objects as the distance from the observer increases. An object appears smaller and smaller as an observer moves further and further from it. At some distance, depending upon the size and degree of contrast between the object and its surroundings, the object may not be a point of interest for most people. At this hypothetical distance it can be argued that the object has little impact on the composition of the landscape of which it is a tiny part. Eventually, at even greater distances, the human eye is incapable of seeing the object at all.

**Viewshed**: A map that shows the geographic area from which a proposed action may be seen is a viewshed.

**Visual Assessments**: Analytical techniques that employ viewsheds, and/or line-of-sight profiles, and descriptions of aesthetic resources, to determine the impact of development upon aesthetic resources; and potential mitigation strategies to avoid, eliminate or reduce impacts on those resources.

**Visual impact:** Visual impact occurs when the mitigating effects of perspective do not reduce the visibility of an object to insignificant levels. Beauty plays no role in this concept. A visual impact may also be considered in the context of contrast. For instance, all other things being equal, a blue object seen against an orange background has greater visual impact than a blue object seen against the same colored blue background. Again, beauty plays no role in this concept.

<sup>&</sup>lt;sup>27</sup> NYSDEC Visual Policy (2000) pp. 9-11.



Ball Hill Wind Project #2015-039.10M

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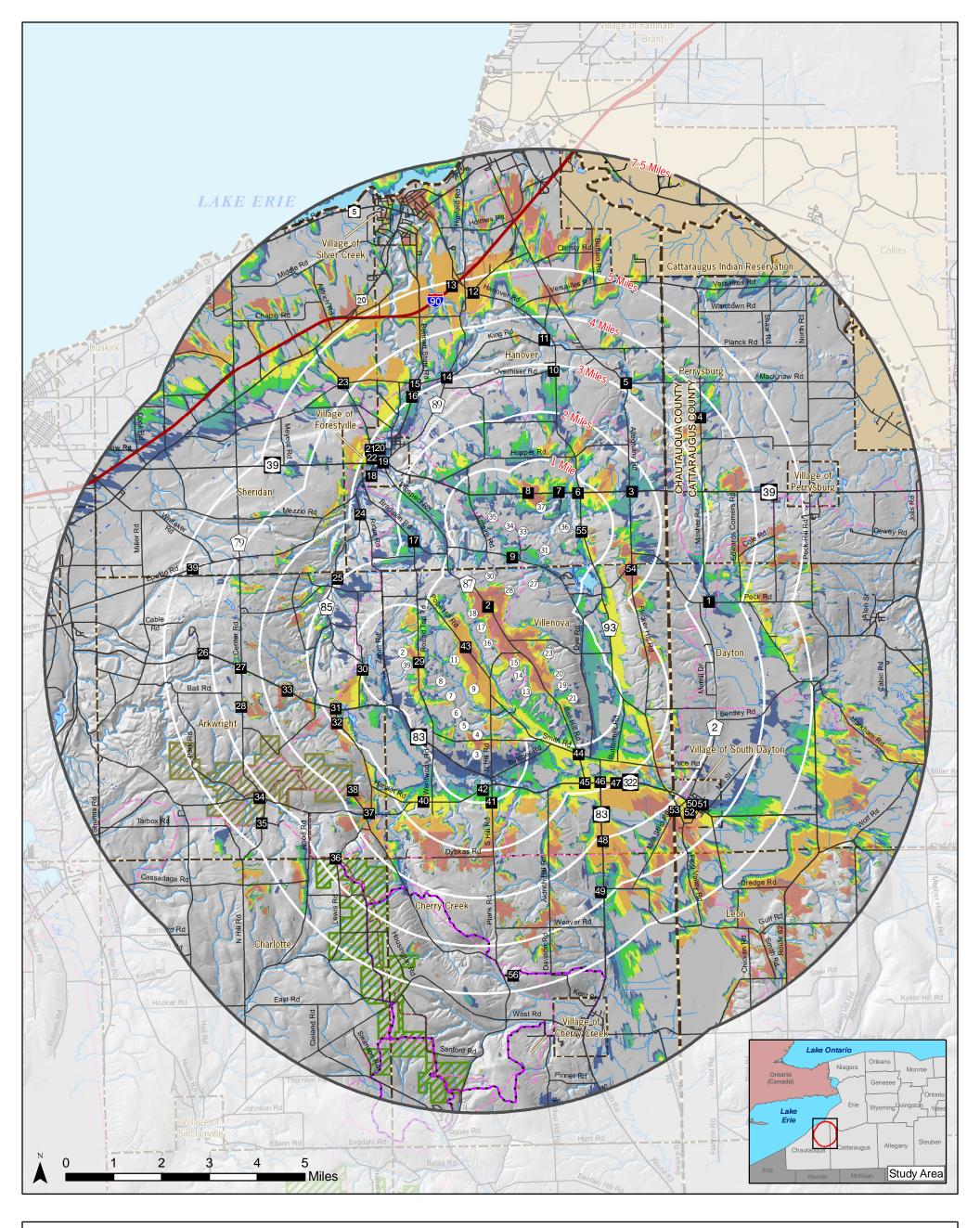
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# Appendix A Viewsheds and Photographic Simulations





#### Ball Hill Wind Project

\*Assumes 40 foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

Figure A1 July 2016

Turbine locations, pads, access roads, transmission line ROWs and collector line ROWs reflect June 2, 2016 layout.

#### KEY

1 Proposed Wind Turbine

1 Sensitive Resource

Earl Cardot Eastside Overland Trail

Equestrian Trail

Snowmobile Trail

County Boundary

Municipal Boundary

Cattaraugus Indian Reservation

Water Body

State Forest

Wildlife Management Area

#### Number of Turbines Visible

1 - 5

6 - 10

11 - 15

16 - 20

21 - 25

26 - 29

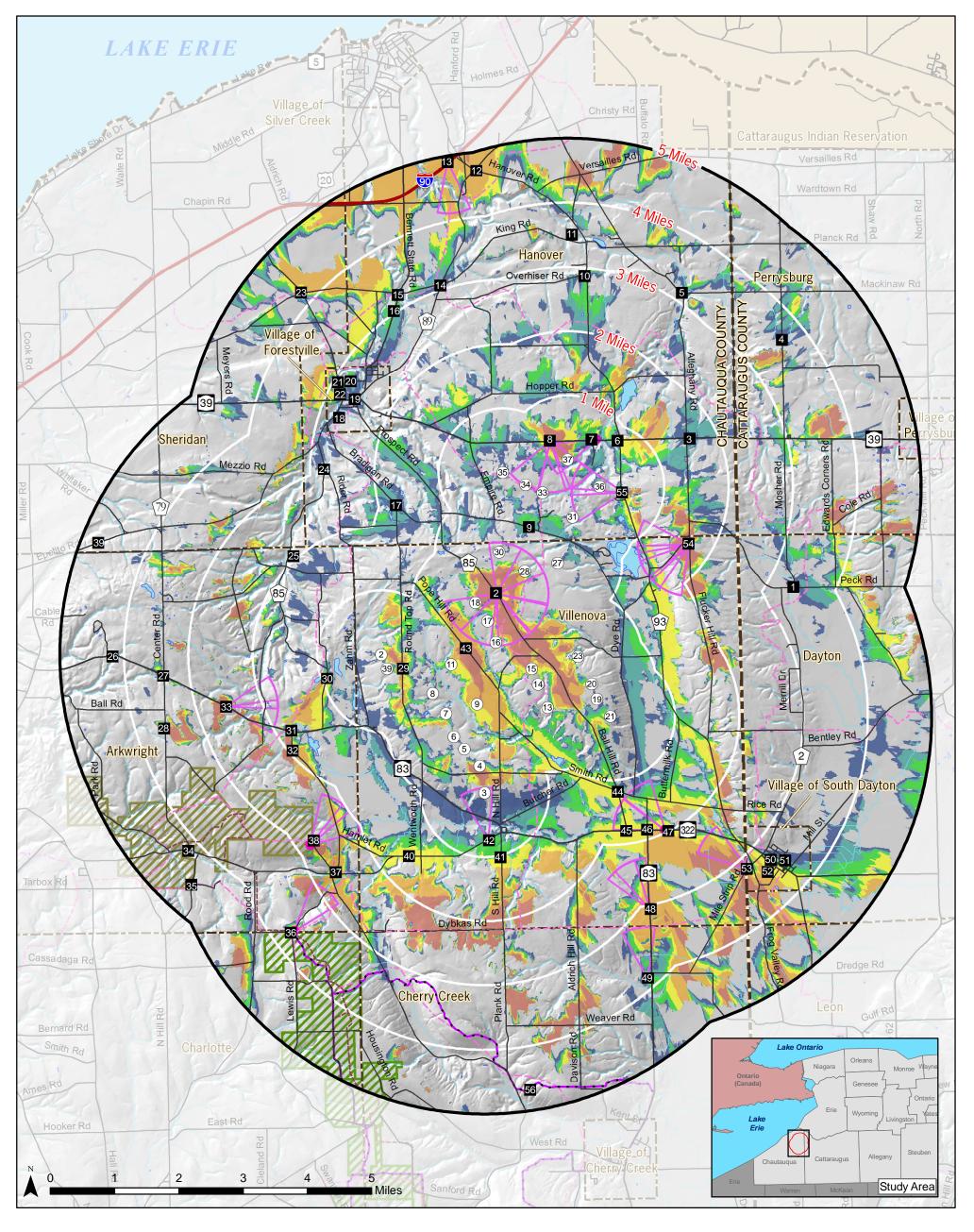
PROJECT # 2015 - 15039.10 Copyright © 2016 Saratoga Associates. All Rights Reserved.

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\*Assumes 40 foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

#### Figure A2 July 2016

Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

#### **KEY** Number of Turbines Visible 1 - 5 Proposed Wind Turbine 6 - 10 Sensitive Resource 11 - 15 Earl Cardot Eastside Overland Trail 16 - 20 21 - 25 Equestrian Trail 26 - 29 Snowmobile Trail Approximate Photo Angle County Boundary PROJECT # 2015 - 15039.10 Municipal Boundary Copyright $\, @ \,$ 2016 Saratoga Associates. All Rights Reserved. This map is computer generated using data acquired by Saratoga **Cattaraugus Indian Reservation** Associates from various sources and is intended only for reference conceptual planning and presentation purposes. This map is not Water Body intended for and should not be used to establish boundaries property lines, location of objects or to provide any other State Forest information typically needed for construction or any other purpose when engineered plans or land surveys are required.

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Wildlife Management Area

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Existing Condition

## FIGURE A3-a



**Proposed Condition** 

### FIGURE A3-b



**Existing Condition** 

## FIGURE A3-c



**Proposed Condition** 

## FIGURE A3-d



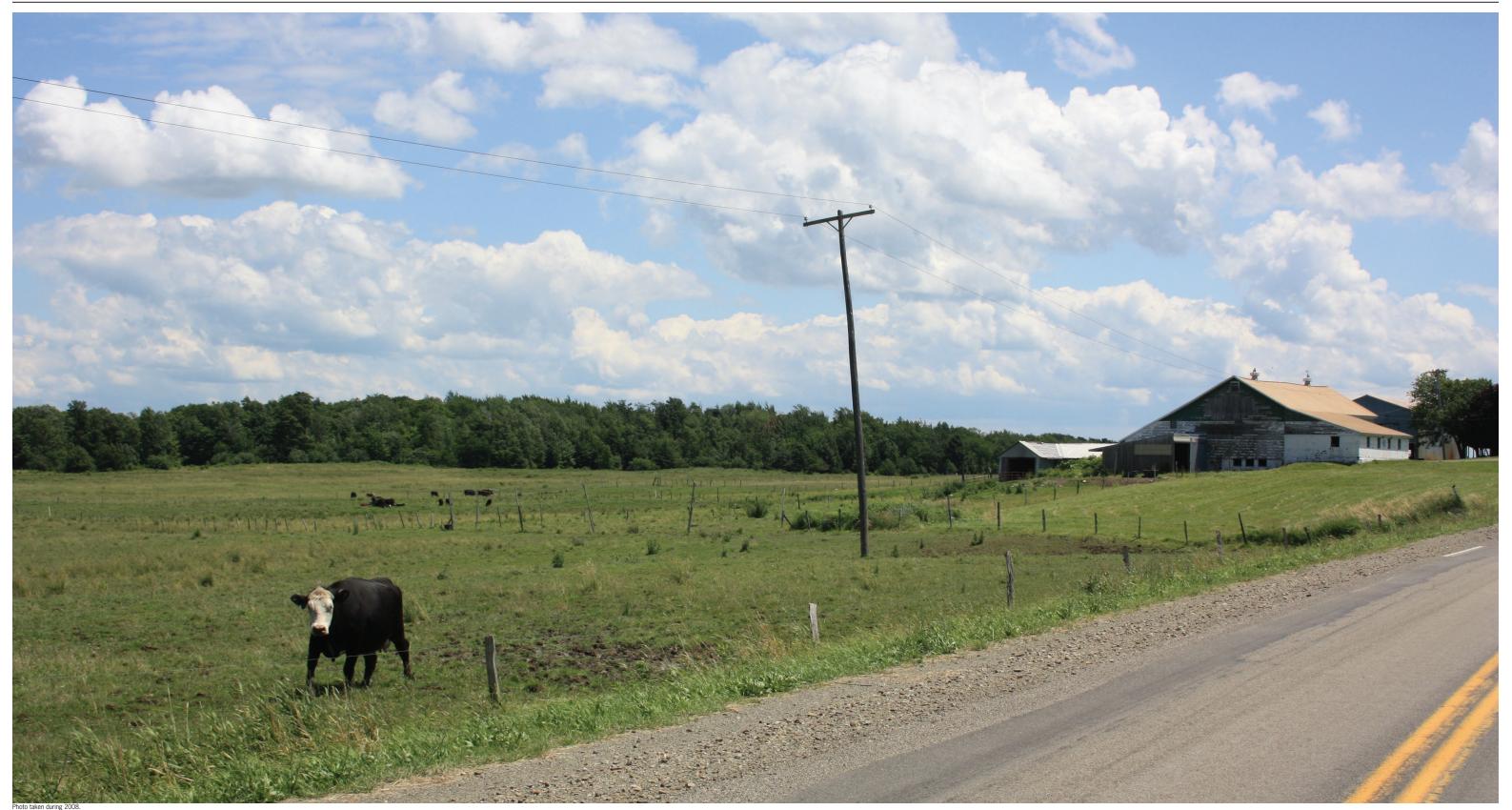
**Existing Condition** 

## FIGURE A3-e



**Proposed Condition** 

### FIGURE A3-f



**Existing Condition** 

## FIGURE A3-g



**Proposed Condition** 

### FIGURE A3-h









**Existing Condition** 









**Proposed Condition** 

### FIGURE A3-i



**Existing Condition** 

# FIGURE A3-j



**Proposed Condition** 

## FIGURE A3-k



**Existing Condition** 

### FIGURE A3-I



**Proposed Condition** 

### FIGURE A3-m



**Existing Condition** 

### FIGURE A3-n



**Proposed Condition** 

### FIGURE A3-o







**Existing Condition** 







Proposed Condition

# FIGURE A3-p



**Existing Condition** 

### FIGURE A4-a

Photo Simulation
VP# 7 - Tri-County Country Club (looking west)
Town of Hanover



**Proposed Condition** 

### FIGURE A4-b

Photo Simulation
VP# 7 - Tri-County Country Club (looking west)
Town of Hanover



**Existing Condition** 

## FIGURE A5-a



Proposed Condition

## FIGURE A5-b



**Existing Condition** 

### FIGURE A5-c



**Proposed Condition** 

### FIGURE A5-d



**Existing Condition** 

#### FIGURE A5-e



**Proposed Condition** 

### FIGURE A5-f







**Existing Condition** 







Proposed Condition

# FIGURE A5-g



**Existing Condition** 

#### FIGURE A6-a

Photo Simulation
VP#13 - NYS Thruway I-90 (looking south)
Town of Hanover



**Proposed Condition** 

#### FIGURE A6-b

Photo Simulation
VP#13 - NYS Thruway I-90 (looking south)
Town of Hanover



**Existing Condition** 

### FIGURE A7-a



**Proposed Condition** 

### FIGURE A7-b



**Existing Condition** 

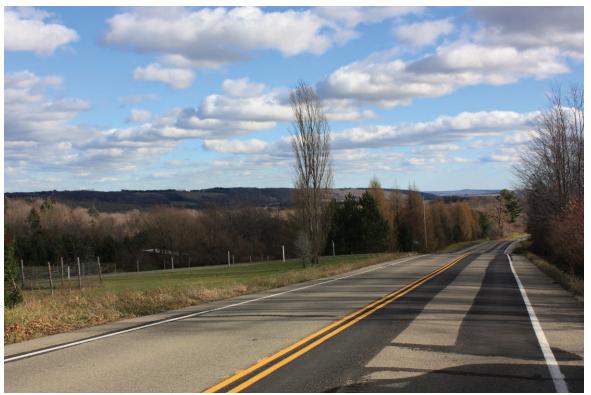
## FIGURE A7-c



**Proposed Condition** 

## FIGURE A7-d





**Existing Condition** 





**Proposed Condition** 

## FIGURE A7-e



Existing Condition

## FIGURE A8-a

Photo Simulation
VP# 36 - Boutwell Hill State Forest and Overland Trail (looking northeast)
Town of Arkwright



**Proposed Condition** 

### FIGURE A8-b

Photo Simulation
VP# 36 - Boutwell Hill State Forest and Overland Trail (looking northeast)
Town of Arkwright



**Existing Condition** 

## FIGURE A9-a

Photo Simulation
VP# 38 - Canadaway Creek WMA (looking northeast)
Town of Arkwright



**Proposed Condition** 

### FIGURE A9-b

Photo Simulation
VP# 38 - Canadaway Creek WMA (looking northeast)
Town of Arkwright



**Existing Condition** 

#### FIGURE A9-c

Photo Simulation
VP# 38 - Canadaway Creek WMA (looking northeast)
Town of Arkwright



**Proposed Condition** 

#### FIGURE A9-d

Photo Simulation
VP# 38 - Canadaway Creek WMA (looking northeast)
Town of Arkwright



**Existing Condition** 



**Proposed Condition** 

#### FIGURE A9-e

Photo Simulation
VP# 38 - Canadaway Creek WMA (looking northeast)
Town of Arkwright



**Existing Condition** 

#### FIGURE A10-a

Photo Simulation
VP# 42 - Hamlet of Hamlet (looking northwest)
Town of Villenova



**Proposed Condition** 

#### FIGURE A10-b

Photo Simulation
VP# 42 - Hamlet of Hamlet (looking northwest)
Town of Villenova



**Existing Condition** 

#### FIGURE A11-a



**Proposed Condition** 

#### FIGURE A11-b



**Existing Condition** 

#### FIGURE A11-c



**Proposed Condition** 

#### FIGURE A11-d





**Existing Condition** 





**Proposed Condition** 

#### FIGURE A11-e



Existing Condition

#### FIGURE A12-a



**Proposed Condition** 

#### FIGURE A12-b



Existing Condition

#### FIGURE A13-a

Photo Simulation
VP# 49 - Pine Valley Central Schools (looking north)
Town of Cherry Creek



**Proposed Condition** 

#### FIGURE A13-b

Photo Simulation
VP# 49 - Pine Valley Central Schools (looking north)
Town of Cherry Creek



**Existing Condition** 

#### FIGURE A14-a

Photo Simulation
VP# 53 - Village of South Dayton/Hamlet of Skunks Center (looking northwest)
Village of South Dayton



**Proposed Condition** 

#### FIGURE A14-b

Photo Simulation
VP# 53 - Village of South Dayton/Hamlet of Skunks Center (looking northwest)
Village of South Dayton



**Existing Condition** 

#### FIGURE A15-a



**Proposed Condition** 

#### FIGURE A15-b



**Existing Condition** 

#### FIGURE A15-c



**Proposed Condition** 

#### FIGURE A15-d



**Existing Condition** 

#### FIGURE A15-e



**Proposed Condition** 

#### FIGURE A15-f



**Existing Condition** 

#### FIGUREA 15-g



**Proposed Condition** 

#### FIGURE A15-h









**Existing Condition** 









Proposed Condition

#### FIGURE A15-i



Photo taken during 2008.

Existing Condition

#### FIGURE A16-a



**Proposed Condition** 

#### FIGURE A16-b



Photo taken during 2008.

Existing Condition

#### FIGURE A16-c



**Proposed Condition** 

#### FIGURE A16-d





**Existing Condition** 

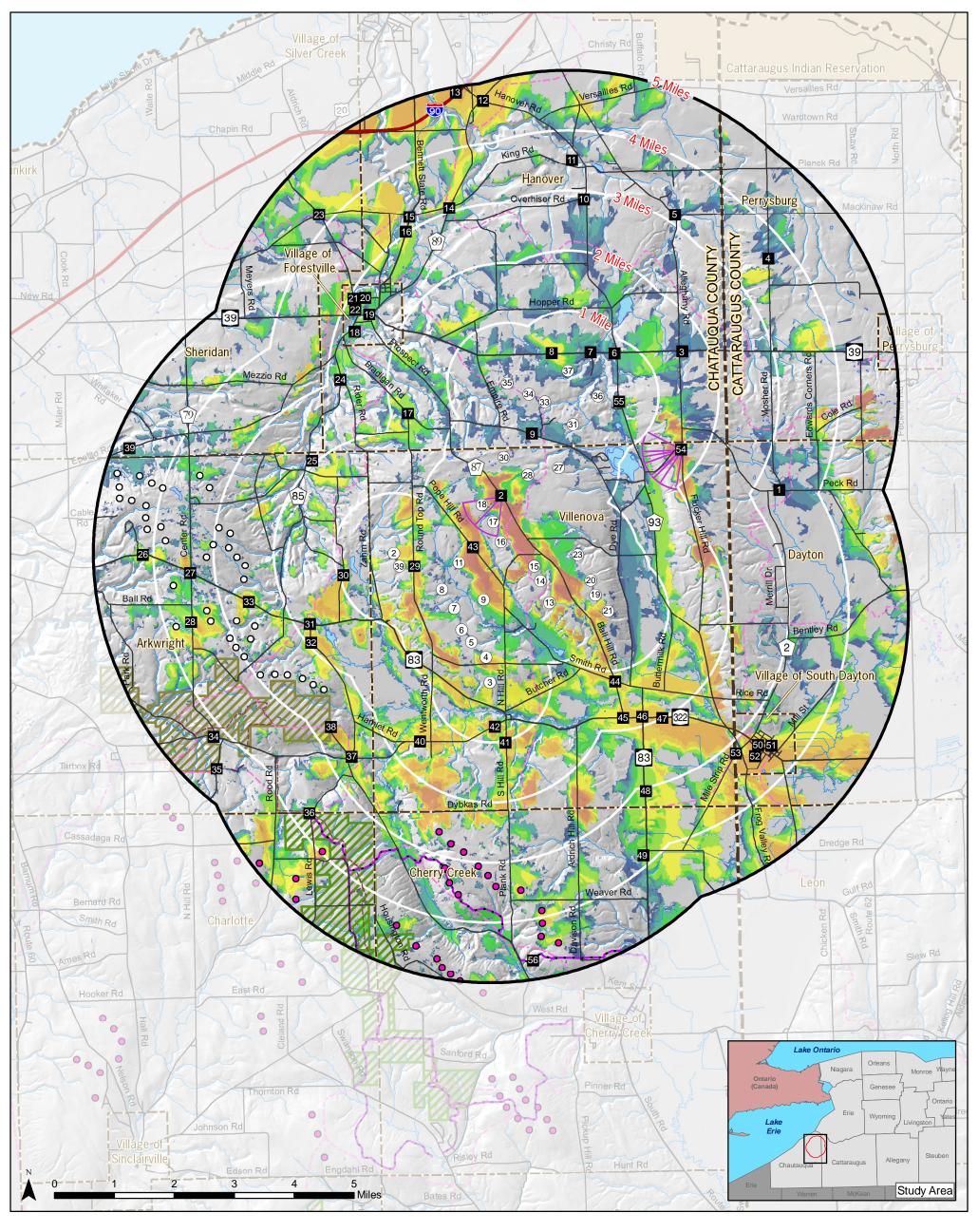




**Proposed Condition** 

#### FIGURE A16-e

## Appendix B Cumulative Viewshed and Photographic Simulations



# CUMULATIVE VEGETATED VIEWSHED\* Ball Hill Wind Project, Arkwright Summit Wind Farm, and Cassadaga Wind Project

 $^*\mbox{Assumes}$  40 foot (12.192 m) vegetation height in areas considered forested by the 2011 National Land Cover Dataset

#### Figure B1 July 2016

Turbine locations, pads, access roads, transmission line ROWs, and collector line ROWs reflect June 2, 2016 layout.

#### **KEY** Number of Turbines Visible 1) Proposed Wind Turbine 1 - 5 6 - 10 Cassadaga Wind Turbine 11 - 15 Arkwright Summit Wind Turbine 16 - 20 Potential Sensitive Resource 21 - 30 31 - 45 Earl Cardot Eastside Overland Trail 46 - 60 Equestrian Trail 61 - 75 Snowmobile Trail 76 - 90 County Boundary 91 - 110 111 - 129 Municipal Boundary Cattaraugus Indian Reservation PROJECT # 2015 - 15039.10 Copyright © 2016 Saratoga Associates. All Rights Reserved. Approximate Photo Angle Water Body This map is computer generated using data acquired by Saratoga Associates from various sources and is intended only for reference, conceptual planning and presentation purposes. This map is not intended for ad should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required. File Location: B:\2015\15039\Maps\Cumulative\VS160602\Cumulative\Veg\Viewshed.mxd **State Forest** Wildlife Management Area

### SARATOGA ASSOCIATES

Landscape Architects, Architects, Engineers, and Planners, P.C.

New York City > Saratoga Springs > Syracuse



Existing Condition

#### FIGURE B2-a



Proposed Condition - Ball Hill Windpark

#### FIGURE B2-b



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

#### FIGURE B2-c



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

#### FIGURE B2-d



Existing Condition

# FIGURE B2-e



Proposed Condition - Ball Hill Windpark

# FIGURE B2-f



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B2-g



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B2-h





**Existing Condition** 





Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B2-i

Photo Simulation VP#2 - Prospect Road Town of Villenova



**Existing Condition** 

# FIGURE B3-a



Proposed Condition - Ball Hill Wind Project

# FIGURE B3-b



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

#### FIGURE B3-c



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

#### FIGURE B3-d



**Existing Condition** 

# FIGURE B3-e



Proposed Condition - Ball Hill Wind Project

# FIGURE B3-f



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B3-g



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B3-h



**Existing Condition** 

# FIGURE B3-i



Proposed Condition - Ball Hill Wind Project

# FIGURE B3-j



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B3-k



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B3-I



**Existing Condition** 

# FIGURE B3-m



Proposed Condition - Ball Hill Wind Project

# FIGURE B3-n



Proposed Condition - Arkwright Summit Wind Farm and Cassadaga Wind Project

#### FIGURE B3-o



Proposed Condition - Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

# FIGURE B3-p









**Existing Condition** 







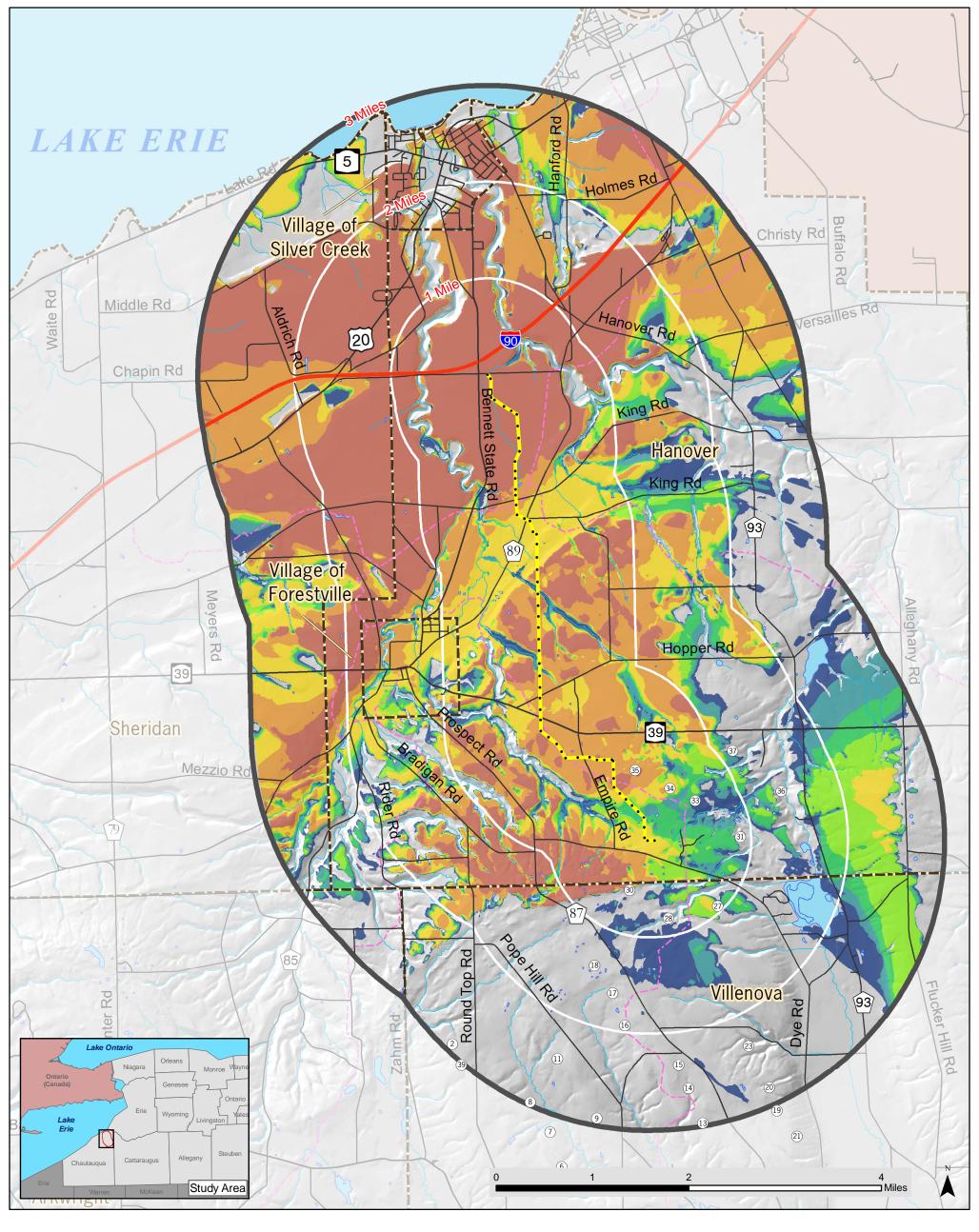


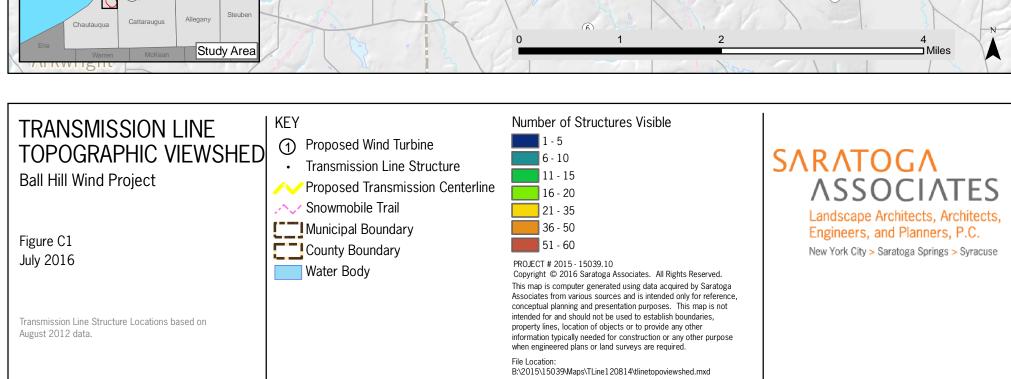
Proposed Condition- Ball Hill Wind Project, Arkwright Summit Wind Farm and Cassadaga Wind Project

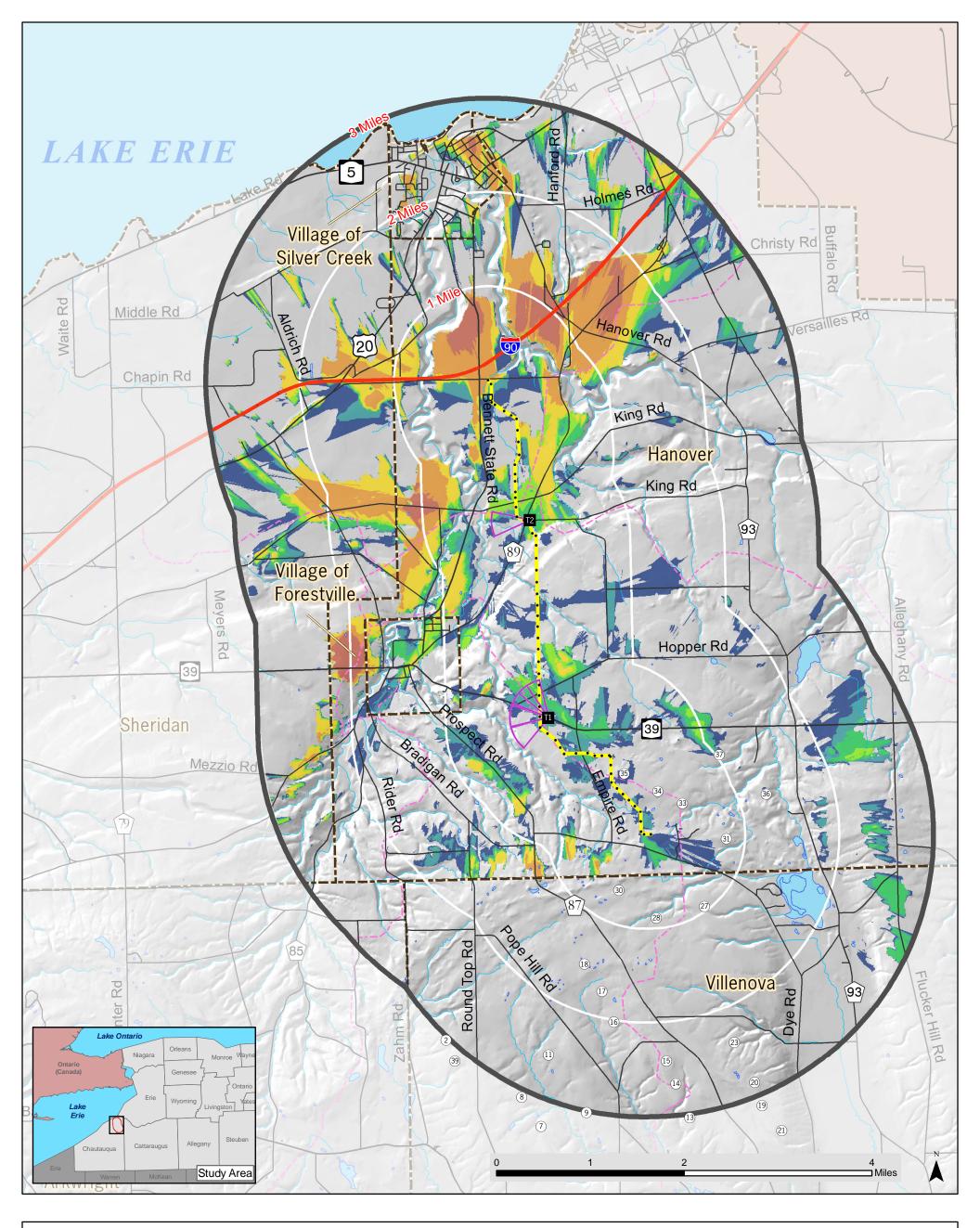
# FIGURE B3-q

Photo Simulation VP# 54 - Flucker Hill Road Town of Villenova

# Appendix C 115 kV Transmission Viewshed and Photographic Simulations







# TRANSMISSION LINE VEGETATED VIEWSHED\*

**Ball Hill Wind Project** 

\*Assumes 40 foot (12.192 m) vegetation height in areas considered forested by the 2001 National Land Cover Dataset

Figure C2 July 2016

Transmission Line Structure Locations based on August 2012 data.

# KEY

1 Proposed Wind Turbine

Transmission Line Structure

Proposed Transmission Centerline

^✓ Snowmobile Trail

Municipal Boundary
County Boundary

Water Body

Approximate Photo Angle with Photo Location ID

#### Number of Structures Visible

1 - 5 6 - 10

> 11 - 15 16 - 20

21 - 35

36 - 50

51 - 60

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This map is computer generated using data acquired by Saratoga Associates from various sources and is intended only for reference, conceptual planning and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required.

File Location: B:\2015\15039\Maps\TLine120814\tinevegviewshed.mxd

# SARATOGA ASSOCIATES

Landscape Architects, Architects, Engineers, and Planners, P.C.

New York City > Saratoga Springs > Syracuse



**Existing Condition** 

# FIGURE C3-a



**Proposed Condition** 

# FIGURE C3-b



**Existing Condition** 

# FIGURE C3-c



**Proposed Condition** 

# FIGURE C3-d



**Existing Condition** 

# FIGURE C3-e



**Proposed Condition** 

#### FIGURE C3-f



**Existing Condition** 

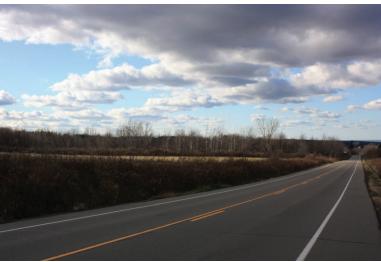
# FIGURE C3-g



**Proposed Condition** 

# FIGURE C3-h









**Existing Condition** 









**Proposed Condition** 

# FIGURE C3-i



**Existing Condition** 

# FIGURE C4-a

Photo Simulation
VP#T2 - King Road (looking west)
Town of Hanover



Proposed Condition

# FIGURE C4-b

Photo Simulation
VP#T2 - King Road (looking west)
Town of Hanover

I-2 Typical Photo of a 230-kV Substation



# Sound Level Assessment Report

# J-1 Sound Level Assessment Report

## SOUND LEVEL ASSESSMENT REPORT

# Ball Hill Wind Project Towns of Villenova & Hanover Chautauqua County, NY

#### Prepared for:

## Renewable Energy Systems Americas Inc.

11101 West 120<sup>th</sup> Avenue, Suite 400 Broomfield, CO 80021

Prepared by:



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August 30, 2016 Revised October 4, 2016

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#### 1.0 EXECUTIVE SUMMARY

Epsilon Associates, Inc. (Epsilon) has conducted a sound level assessment for Renewable Energy Systems Americas, Inc. (RES) of the Ball Hill Wind Project, a proposed wind power generation facility in Chautauqua County, New York. RES is considering up to 29 wind turbine generators comprised of Vestas V126-3.45 units with a hub height of 87 meters and a rotor diameter of 126 meters. The study references a previously completed sound-monitoring program conducted to determine existing sound levels in the vicinity of the Project, includes computer modeling to predict future sound levels when the wind turbines and the associated electrical substations are operational, and compares the operational sound levels to applicable state and local criteria.

Sound impacts associated with all 29 proposed wind turbine generators and two proposed electrical transformers were modeled at 768 discrete receptor locations, including the closest structures, using Cadna/A noise calculation software. Maximum operational sound levels at all of the nearest structures to the Project are predicted to be equal to or less than 50 dBA, in compliance with local noise limits specified by the Towns of Hanover and Villenova. Additionally, the Project is anticipated to meet the suggested noise guidelines recommended by the New York State Department of Environmental Conservation (NYSDEC) to avoid the potential for adverse noise impacts in the community.

An evaluation was also performed to assess tonality and low frequency sound with respect to Project operation. No pure tones were identified in the sound power level spectra for the Vestas V126-3.45 unit, or in the calculated received sound pressure levels at the closest structure to the Project. Low frequency sound levels at all modeled structures are also well below the recommended criteria to avoid disturbance indoors as well as any potential vibration and rattle.

#### 2.0 PROJECT OVERVIEW

Renewable Energy Systems Americas, Inc. (RES) is proposing to install twenty-nine (29) Vestas V126-3.45 wind turbines and a 5.8 mile 115kV transmission line at the proposed Ball Hill Wind Project site (the Project) located in the Towns of Hanover and Villenova in Chautauqua County, NY. Hessler Associates, Inc. (Hessler) completed a background sound level monitoring program in March 2008 to determine existing sound levels in the vicinity of the Project. Epsilon Associates, Inc. (Epsilon) has conducted computer modeling to predict future sound levels when the proposed wind turbines and associated electrical transformers would be operational. The results of this analysis and an evaluation of compliance with applicable criteria are presented herein.

#### 3.0 SOUND METRICS

There are several ways in which sound levels are measured and quantified, all of which use the logarithmic decibel (dB) scale to accommodate the wide range of sound intensities found in the environment. An interesting property of the logarithmic scale is that the sound pressure levels of two distinct sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total sound level is only a three-decibel increase (to 53 dB), not a doubling to 100 dB. Thus, every three dB change in sound level represents a doubling or halving of sound energy. A change in sound level of less than three dB is generally considered just perceptible to the human ear<sup>1</sup>.

Another property of the decibel scale is that if one source of sound is 10 dB (or more) louder than another source, then the quieter source does not contribute significantly to the overall sound level which remains the same as that of the louder source. For example, the combined sound level of a source of sound at 60 dB plus another source of sound at 47 dB is simply 60 dB.

The sound level meter used to measure noise is a standardized instrument.<sup>2</sup> It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various conditions. One network is the A-weighting network (there are also B- and C-weighting networks). The A-weighted scale (dBA) most closely approximates how the human ear responds to sound at various frequencies, and is typically used for community sound level measurements<sup>3</sup>. Sounds are frequently reported as detected with the A-weighting network of the sound level meter. A-weighted sound levels emphasize the middle frequency (*i.e.*, middle pitched – around 1,000 Hertz (Hz) sounds), and de-emphasize lower and higher frequency sounds. A-weighted sound levels are reported in decibels designated as "dBA." For reference, sound pressure levels for some common indoor and outdoor environments are shown in Figure 3-1.

Two methods exist for describing sounds in our environment that vary with time: these are exceedance levels and the equivalent level, both of which are derived from a large number of moment-to-moment A-weighted sound level measurements. Several sound level metrics that are commonly reported in community sound monitoring programs are described below.

-

Bies, David A., and Hansen, Colin H. *Engineering Noise Control: Theory and Practice*. 4th ed. New York: Spon Press, 2009. 85. Print

<sup>&</sup>lt;sup>2</sup> American National Standards Institute. "ANSI S1.4-1983: Specification for Sound Level Meters." Acoustical Society of America.

Bies, David A., and Hansen, Colin H. *Engineering Noise Control: Theory and Practice*. 4th ed. New York: Spon Press, 2009. 103. Print

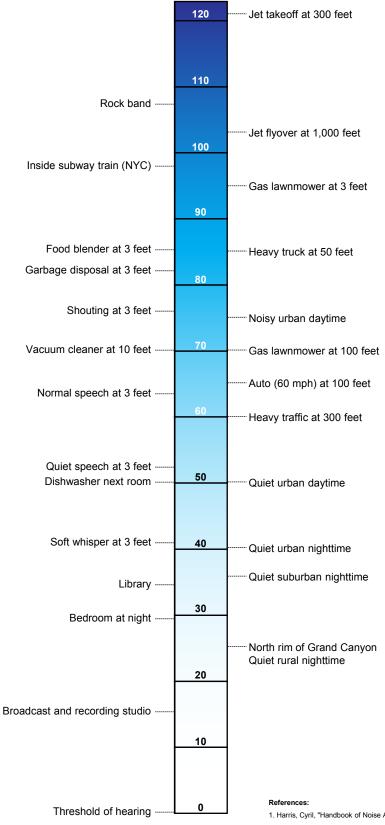
- ◆ Exceedance levels, designated Ln, where n can have a value of 0 to 100 percent, are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Ln is the sound level in dBA exceeded 90 percent of the time during the measurement period and is close to the lowest sound level observed. It is essentially the residual sound level when there are no obvious nearby intermittent noise sources. L₁₀ is the sound level in dBA exceeded 10 percent of the time during the measurement period.
- ◆ Leq, the equivalent level, is the level of a hypothetical steady sound that would have the same energy (i.e., the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated Leq and is also A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with linear mean square sound pressure values, the Leq is mostly determined by occasional loud noises, such as a passing vehicle or an aircraft flyover.

In short, by using various sound metrics it is possible to separate prevailing, steady sounds (the  $L_{90}$ ) from occasional, louder sounds ( $L_{10}$ ) in the acoustic environment or combined equivalent levels ( $L_{eq}$ ).

#### **COMMON INDOOR SOUNDS**

#### Sound Pressure Level, dBA

#### **COMMON OUTDOOR SOUNDS**



- Harris, Cyril, "Handbook of Noise Acoustical Measurements and Noise Control", p 1-10., 1998
- 2. "Controlling Noise", USAF, AFMC, AFDTC, Elgin AFB, Fact Sheet, August 1996
- 3. California Dept. of Trans., "Technical Noise Supplement", Oct, 1998



#### 4.0 NOISE REGULATIONS

Noise is officially defined as "unwanted sound". The principal feature of this definition is that there must be sound energy and that there must be someone hearing it who considers it unwanted. Noise impact is judged on two bases: the extent to which governmental regulations or guidelines may be exceeded, and the extent to which it is estimated that people may be annoyed or otherwise adversely affected by the sound. Regulatory authority for assessing and controlling noise is contained in both the State Environmental Quality Review Act (SEQRA) and specific Department program policy documents. Specific regulatory references are discussed below.

#### 4.1 Federal Regulations

There are no federal community noise regulations applicable to wind farms.

#### 4.2 New York State Regulations

Noise is an aspect of the environment under SEQRA (see 6 NYCRR 617.2(1)), and a substantial adverse change in existing noise levels can be (if not mitigated to the maximum extent practicable) among the indicators of significant adverse impacts on the environment.

#### 4.3 Local Regulations

Article XVI, Section 1606 (Zoning District and Bulk Requirements), Parts 3 through 6 of the Town of Hanover Wind Law contains a noise limit applicable to Wind Energy Conversion Systems (WECS) which requires that:

"The statistical sound pressure level generated by a WECS shall not exceed  $L_{10}-50$  dBA measured at any off site residence existing at the time of application. If the ambient sound level exceeds 48 dBA, the standard shall be ambient dBA plus 5 dBA. Independent certification shall be provided before and after construction demonstrating compliance with this requirement.

In the event audible noise due to WECS operation contains a steady pure tone, such as a whine, screech or hum, the standards for audible noise set forth in this subsection shall be reduced by five dBA. A pure tone is defined to exist if the 1/3 octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two contiguous bands by:

- ♦ 5 dB for center frequencies of 500 Hz or above
- ♦ 8 dB for center frequencies between 160 and 500 Hz
- ♦ 15 dB for center frequencies less than or equal to 125 Hz

In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level."

Section 690.12 (Setbacks for Wind Energy Conversion Systems), Parts A through D of Local Law No. 1 of 2007 for the Town of Villenova contains an identical noise limit to the Town of Hanover, as described above.

#### 4.4 NYSDEC Guidelines

The NYSDEC has published a guidance document for assessing noise impacts (NYSDEC, 2001). The guidance document states that the addition of any noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dBA. Ambient sound levels in industrial or commercial areas may exceed 65 dBA with a high end of approximately 79 dBA. In these instances, mitigation measures utilizing best management practices should be used in an effort to ensure minimum impacts.

This guidance document also states that sound level increases from 0-3 dBA should have no appreciable effect on receptors, increases from 3-6 dBA may have potential for adverse noise impact only in cases where the most sensitive of receptors are present, and increases of more than 6 dBA may require a closer analysis of impact potential depending on existing sound levels and the character of surrounding land use and receptors. An increase of 10 dBA deserves consideration of avoidance and mitigation measures in most cases.

The typical ability of an individual to perceive changes in noise levels is summarized in Table 4-1. These guidelines allow direct estimation of an individual's probable perception of a change in community noise levels.

Table 4-1 Thresholds for Sound Pressure Level Increases

Increase in Sound Pressure (dBA)	Community Reaction
0-3	No appreciable effect
3-6	Potential effect for sensitive receptors
Over 6	Closer analysis required
Source: NYSDEC, "Assessing and Mitig	gating Noise Impacts", Division of Environmental
Permits, February 2, 2001.	

4366-Report-Sound

<sup>&</sup>lt;sup>4</sup> Program Policy Assessing and Mitigating Noise Impacts issued by the New York State Department of Environmental Conservation (NYSDEC), Feb. 2001

#### 5.0 EXISTING SOUND LEVELS

Details of the existing sound level measurement methodology, measurement locations, instrumentation, and meteorological conditions can be found in §2.0 of the Environmental Sound Survey and Noble Impact Assessment Report issued by Hessler Associates, Inc. [Report No. 1813-063008-A], dated July 16, 2008 ("Hessler's Report"). A brief discussion of the measured background sound levels as a function of wind speed for use in evaluating compliance with NYSDEC noise guidelines can be found in §6.0 below.

#### 6.1 Equipment and Operating Conditions

#### 6.1.1 Vestas V126-3.45 Wind Turbines

Each of the twenty-nine (29) proposed Vestas V126-3.45 wind turbines being considered for the Ball Hill Wind Project have a rotor diameter of 126 meters and a hub height of 87 meters. Table 6-1 presents the manufacturer-provided broadband sound power level, PWL, as a function of wind speed for the Vestas unit used as input to the model. Under peak sound-producing operating conditions, each turbine has an A-weighted sound power level of 107.3 dBA plus an uncertainty factor of 2.0 dBA, as provided by the manufacturer. Octave-band sound power levels, as calculated from one-third octave band data, are presented in Table 6-2 for hub height wind speeds of 11 m/s, corresponding to the maximum A-weighted sound power level output. This represents the operating condition for which compliance with the Town of Hanover and Town of Villenova noise limit of 50 dBA shall be evaluated.

Table 6-1 Vestas V126-3.45 Broadband Sound Power Level (dBA) as a Function of Wind Speed

		Wind Speed at Hub Height of 87m AGL (m/s)						
	4 5 6 7 8 9 10 11						11	
Turbine PWL <sup>1</sup> (dBA)	91.9	93.2	96.2	99.5	102.5	105.2	107.1	107.3

<sup>1.</sup> Does not include uncertainty factor

Table 6-2 Vestas V126-3.45 Octave-Band Sound Power Levels (dBA)

Turbine PWL <sup>1</sup> (dB) by Octave-Band Center Frequency (Hz)									
31.5 Hz 63 Hz 125 Hz 250 Hz 500 Hz 1 kHz 2 kHz 4 kHz 8 kHz									
76.2	76.2 85.9 92.6 99.0 102.4 102.9 97.8 90.0 69.4								

<sup>1.</sup> Octave-band sound power levels at hub height wind speeds of 11 m/s, not including uncertainty factor

The NYSDEC criteria discussed in §4.4 is based on an evaluation of the increase over ambient sound levels which vary both as a function of turbine output and wind speed. Critical operating conditions occur at a wind speed when the turbine sound level is highest relative to the ambient sound level. Table 6-3 below compares the relative difference between turbine output and ambient sound level based on the regression analysis provided in Figure 2.7.2 of Hessler's report which presents the measured background Leq sound level as a function of normalized wind speed at 10 meters above ground level (AGL).

It can be seen from Table 6-3 that a hub height wind speed of 10 m/s corresponds to the highest wind turbine sound power output relative to measured background sound levels, representing "critical-case" conditions in terms of an increase over ambient. For the Vestas V126-3.45 turbine model, the turbine sound power output at this wind speed is only 0.2 dBA less than the maximum output at 11 m/s.

Table 6-3 Comparison of Background SPL and Vestas V126-3.45 Turbine PWL to Determine "Critical-Case" Design Wind Speed

Wind Speed at 87m (m/s)	4	5	6	7	8	9	10	11	12	13
Wind Speed at 10m <sup>1</sup> (m/s)	2.8	3.6	4.3	5.0	5. <i>7</i>	6.4	<i>7</i> .1	7.8	8.5	9.2
Turbine PWL (dBA)	91.9	93.2	96.2	99.5	102.5	105.2	107.1	107.3	107.3	107.3
Background Leq SPL <sup>2</sup> (dBA)	39.5	40.2	41.0	41.8	42.5	43.3	44.1	44.8	45.6	46.4
Turbine PWL – Background SPL (dBA)	52.4	53.0	55.2	57.7	60.0	61.9	63.0	62.5	61.7	60.9

<sup>1.</sup> Normalized using logarithmic profile described in IEC Standard 61400-11, Equation (7)

#### 6.1.2 Transformers

A 5.8 mile 115kV transmission line will connect the wind turbines to the electrical grid. This transmission line will have a substation at either end. The interconnection substation at the northern end of the transmission line ("northern substation") will have one 230 MVA transformer, while the collection substation ("southern substation") will have one 120 MVA transformer. The two transformers were included in the model assuming the sound power level inputs presented in Table 6-4 below, as calculated based on their respective MVA ratings.

Table 6-4 Transformer Sound Power Levels<sup>1</sup> (dBA)

MVA	dBA	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
120	100	5 <i>7</i>	76	88	91	96	93	89	84	<i>7</i> 5
230	102	59	78	90	93	98	95	91	86	77

Based on MVA rating of 120 or 230 MVA, as calculated using the methodology described in Table 4.5 of
the Edison Electric Institute's "Electric Power Plant Environmental Noise Guide (Volume I, 2nd Ed., 1984).
Sound levels for the 230 MVA transformer are 2 dB lower than estimated by the EEI method. This
reduction will be achieved by either specifying quieter equipment or installation of a sound wall.

#### 6.2 Modeling Methodology

Sound impacts associated with the proposed wind turbine generators and proposed substation transformers were predicted using Cadna/A noise calculation software

<sup>2.</sup> Calculated using regression line equation provided in Figure 2.7.2 of Hessler's report

(DataKustik Corporation, 2015). This software, which implements the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation), offers a refined set of computations accounting for local topography, ground attenuation, drop-off with distance, barrier shielding, and atmospheric absorption of sound from multiple sound sources.

Inputs and significant parameters employed in the model are described below:

- Project Layout: A project layout comprised of a total of 29 proposed wind turbine locations and two proposed transformer locations was provided by RES along with a shapefile of the Project property boundary for use as input in the model.
- Sensitive Receptors: A shapefile of 768 receptors, including the closest structures to the Project, was provided by RES and used as input to the model. All receptors were modeled with a height of 1.5 meters AGL to mimic the ears of a typical standing observer.
- ◆ Terrain Elevation: Elevation contours for the modeling domain with 3 meter resolution were directly imported into Cadna/A which allowed for consideration of terrain shielding where appropriate. These contours were generated from elevation information derived from the National Elevation Database (NED) developed by the U.S. Geological Survey.
- ♦ Source Sound Levels & Controls: Manufacturer-provided octave-band sound power levels for the Vestas V126-3.45 MW units, presented above in §6.1.1 were used as input in the model.
- ♦ *Meteorological Conditions:* A temperature of 10°C (50°F) and a relative humidity of 70% was assumed in the model.
- *Ground Attenuation:* Spectral ground absorption was calculated using a G-factor of 0.5 to represent a moderately reflective surface.

Several modeling assumptions inherent in the ISO 9613-2 calculation methodology, or selected as conditional inputs by the user, were implemented in the Cadna/A model to ensure conservative results (i.e., higher sound levels), and are described below:

- Modeled source sound power level inputs represent acoustic emissions measured in accordance with IEC 61400-11 corresponding to maximum sound power output, plus an additional manufacturer-provided uncertainty factor of 2 dBA for the wind turbines.
- ◆ All modeled sources were assumed to be operating simultaneously and at the design wind speed corresponding to maximum sound power emissions.

- Predicted sound levels were computed with the assumption that each receptor was always located directly downwind from every turbine simultaneously. While a physical impossibility, this provides conservative results and is required by the ISO 9613-2 standard.
- As per ISO 9613-2, the model assumed favorable conditions for sound propagation, corresponding to a moderate, well-developed ground-based temperature inversion, as might occur on a calm, clear night.
- A mixture of hard and porous ground was assumed for the surrounding Project area to represent a surface that is partially reflective, a conservative assumption for much of the year when the ground would be covered in vegetation.
- ◆ Meteorological conditions assumed in the model (T = 10°C/RH = 70%) were selected to minimize atmospheric attenuation in the 500 Hz and 1 kHz octave-bands where the human ear is most sensitive.
- ◆ No additional attenuation due to tree shielding, air turbulence, or wind shadow effects was considered in the model.

Sound levels due to the operation of all 29 wind turbines and the two transformers were modeled at each of the 768 discrete receptor locations, including the closest structures to the Project. In addition, sound levels were modeled across a large grid of receptor points, spaced 100 meters apart, to create sound level isopleths across the entire Project area.

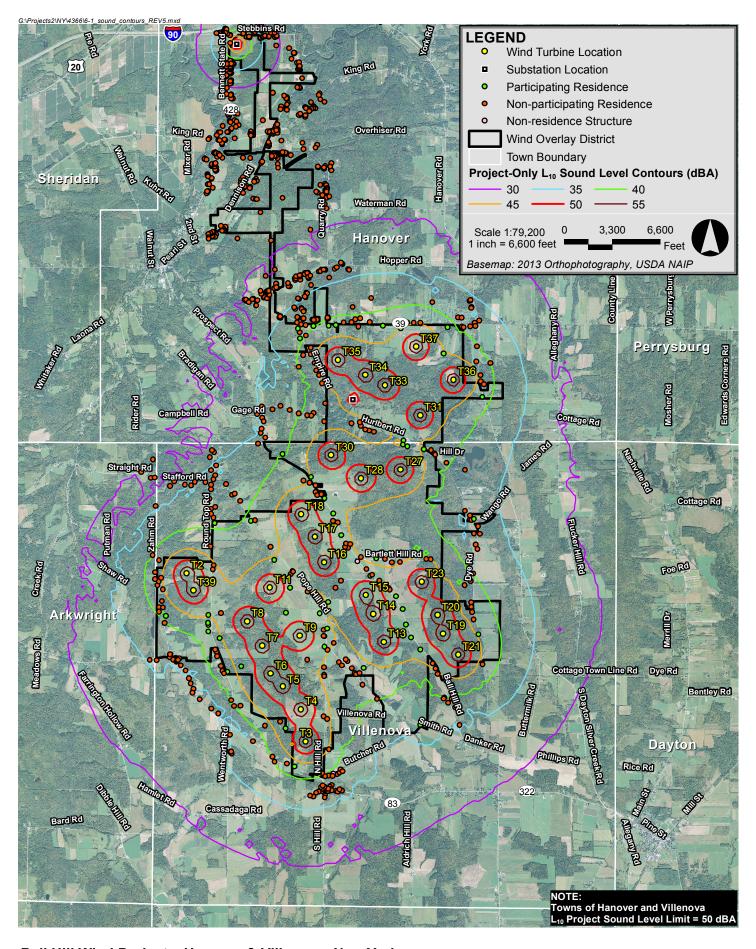
#### 6.3 Modeling Sound Level Results

Modeling results for the Vestas V126-3.45 turbine, representing maximum Project-only L<sub>10</sub> sound levels, are illustrated in Figure 6-1 as iso-dBA contour lines overlaid on aerial imagery of the Project site. Predicted L<sub>10</sub> sound levels, ranging from 20 to 49 dBA, and L<sub>eq</sub> sound levels, ranging from 19 to 48 dBA, at the closest structures to the Project are presented in tabular form in Table A-1 of Appendix A at all 768 discrete modeling receptors. These predicted sound levels which contain a wind turbine manufacturer-provided uncertainty factor of 2 dBA are "Project-only" and do not include any contributions from existing background sound sources.

The calculated maximum L<sub>10</sub> values shown in Figure 6-1 and presented in Table A-1 include an adjustment of 1 dBA added to the modeled maximum L<sub>eq</sub> turbine sound levels. This allows for the approximate conversion of L<sub>eq</sub> to L<sub>10</sub> sound levels used for evaluating compliance with the local noise limits, and is based on empirical data from several Epsilon Associates, Inc. measurement programs where wind turbines are the primary noise source.



<sup>&</sup>lt;sup>5</sup> RSG et al, "Massachusetts Study on Wind Turbine Acoustics," Massachusetts Clean Energy Center and Massachusetts Department of Environmental Protection, 2016.



Ball Hill Wind Project Hanover & Villenova, New York



#### 7.0 EVALUATION OF SOUND LEVELS

#### 7.1 Local Regulations

As presented in Table A-1 of Appendix A and illustrated in Figure 6-1, predicted L<sub>10</sub> sound levels from the Project under conditions of maximum wind turbine sound output (corresponding to a hub height wind speed of 11 m/s) are less than or equal to the 50 dBA limit specified by the Towns of Hanover and Villenova at all receptors representing the closest structures to the Project.

With regard to "pure tones", as defined in §4.3, an evaluation of the maximum one-third octave-band sound power levels for the Vestas V126-3.45 model, provided by the turbine manufacturer, is presented in Table 7-1. This analysis indicates that even under conditions of maximum turbine sound power output, corresponding to hub height wind speeds of 11 m/s, no pure tones shall be emitted.

Table 7-1 Tonal Analysis: Vestas V126-3.45 Sound Power Level Emissions

One-Third Octave-band Center Frequency (Hz)	Sound Power Level <sup>1</sup> (dB)	Average Sound Power Level of Contiguous Bands (dB)	Difference between Sound Power Level and Contiguous Average <sup>2</sup> (dB)	Tonal Limit (dB)	Meets Tonal Limit? <sup>3</sup>
25	114.3	-	-	-	-
32	108.6	111.4	-3	15	Yes
40	108.5	108.4	0	15	Yes
50	108.1	107.9	0	15	Yes
63	107.3	106.8	0	15	Yes
80	105.5	106.0	0	15	Yes
100	104.6	105.1	0	15	Yes
125	104.6	103.4	1	15	Yes
160	102.1	103.3	-1	8	Yes
200	102.0	102.1	0	8	Yes
250	102.1	102.5	0	8	Yes
315	103.0	101.8	1	8	Yes
400	101.5	101.9	0	8	Yes
500	100.7	101.0	0	5	Yes
630	100.4	99.8	1	5	Yes
800	98.8	99.5	-1	5	Yes
1000	98.5	98.0	1	5	Yes
1250	97.1	95.9	1	5	Yes
1600	93.3	94.6	-1	5	Yes
2000	92.1	91.5	1	5	Yes
2500	89.7	89.2	1	5	Yes
3150	86.3	87.4	-1	5	Yes
4000	85.0	81.4	4	5	Yes
5000	76.5	76.8	0	5	Yes
6300	68.6	69.1	0	5	Yes

Table 7-1 Tonal Analysis: Vestas V126-3.45 Sound Power Level Emissions (Continued)

One-Third Octave- Center Frequenc (Hz)		Average Sound Power Level of Contiguous Bands (dB)	Difference between Sound Power Level and Contiguous Average <sup>2</sup> (dB)	Tonal Limit (dB)	Meets Tonal Limit? <sup>3</sup>
0000	616	63.9	2	E	Yes
8000	61.6	03.9	-2	)	165

- 1. One-third octave-band sound power level for Vestas V126-3.45 turbine at hub height wind speeds of 11m/s
- 2. Rounded to the nearest whole number decibel
- 3. Compliance evaluation of "pure tone" criteria described in §4.3

Additionally, one-third octave-band received sound pressure levels were calculated at the closest structure (receptor #177) to a turbine (T15), accounting for geometric divergence and atmospheric absorption, at a distance of approximately 1,150 feet (350 meters). Results presented in Table 7-2 show that received sound pressure levels due to the wind turbines are not expected to result in any pure tones, as defined by the Towns of Hanover and Villenova.

Table 7-2 Tonal Analysis: Vestas V126-3.45 Received Sound Pressure Levels

One-Third Octave-band Center Frequency (Hz)	Received Sound Pressure Level <sup>1</sup> (dB)	Average Sound Pressure Level of Contiguous Bands (dB)	Difference between Sound Pressure Level and Contiguous Average <sup>2</sup> (dB)	Tonal Limit (dB)	Meets Tonal Limit? <sup>3</sup>
25	55.2	-	-	-	-
32	49.5	52.3	-3	15	Yes
40	49.4	49.2	0	15	Yes
50	49.0	48.8	0	15	Yes
63	48.2	47.7	1	15	Yes
80	46.4	46.8	0	15	Yes
100	45.4	45.9	0	15	Yes
125	45.4	44.1	1	15	Yes
160	42.8	44.0	-1	8	Yes
200	42.6	42.7	0	8	Yes
250	42.6	43.0	0	8	Yes
315	43.4	42.2	1	8	Yes
400	41.7	42.0	0	8	Yes
500	40.7	40.9	0	5	Yes
630	40.2	39.5	1	5	Yes
800	38.4	39.0	-1	5	Yes
1000	37.8	37.2	1	5	Yes
1250	36.0	34.7	1	5	Yes
1600	31.6	32.9	-1	5	Yes

Table 7-2 Tonal Analysis: Vestas V126-3.45 Received Sound Pressure Levels (Continued)

One-Third Octave-band Center Frequency (Hz)	Received Sound Pressure Level <sup>1</sup> (dB)	Average Sound Pressure Level of Contiguous Bands (dB)	Difference between Sound Pressure Level and Contiguous Average <sup>2</sup> (dB)	Tonal Limit (dB)	Meets Tonal Limit? <sup>3</sup>
2000	29.8	29.1	1	5	Yes
2500	26.7	25.6	1	5	Yes
3150	21.3	21.8	0	5	Yes
4000	16.9	12.7	4	5	Yes
5000	4.1	8.4	-4	5	Yes
6300	0.0	2.1	-2	5	Yes
8000	0.0	0.0	0	5	Yes
10000	0.0	-	-	-	-

- 1. Calculated sound pressure level due to a single turbine at a distance of ~1,150 feet (receptor #177), based on Vestas V126-3.45 one-third octave-band sound power levels for hub height wind speeds of 11 m/s
- 2. Rounded to the nearest whole number decibel
- 3. Compliance evaluation of "pure tone" criteria described in §4.3

Since no one-third octave-band data has been provided for the substation equipment, a tonal analysis for the proposed transformers has not been conducted. However, as part of the project design, Ball Hill Wind will specify a custom built transformer, and will include a specification that no prominent discrete tone will be created. This unit will be tested for sound after it is built.

#### 7.2 NYSDEC Criteria

The predicted L<sub>eq</sub> sound levels at the nearest structures presented in Table A-1 of Appendix A were compared to the existing ambient L<sub>eq</sub> sound levels with respect to the NYSDEC criteria discussed in §4.4. As shown in Table 6-3, the calculated background sound level for the Project area at the "critical-case" hub height wind speed of 10 m/s is 44.1 dBA. In order for the Project to meet the suggested 6 dBA cumulative increase threshold recommended in the NYSDEC guidance document, L<sub>eq</sub> sound levels from the Project should remain at or below 48.8 dBA. That is to say, a Project level of 48.8 dBA added to a background level of 44.1 dBA would result in a combined level of 50.1 dBA, which is 6 dBA above background, when rounded to the nearest whole decibel.

Maximum L<sub>eq</sub> sound levels from the Project at all of the nearest structures are predicted to be no greater than 48.8 dBA even under conditions of maximum turbine sound power output. Additionally, future sound levels combining the Project with the existing background are anticipated to remain less than or equal to 50 dBA, well below the suggested 65 dBA threshold recommended in the NYSDEC guidance document.

#### 7.3 Low Frequency Sound

Table 7-3 compares predicted maximum Project-only L<sub>10</sub> sound levels in the 32, 63 and 125 Hz octave-bands to the equivalent outdoor sound pressure levels corresponding to the NC-30 noise criteria curve recommended for bedrooms and to levels associated with moderately perceptible vibration and rattle." Results indicate that of the ten structures of greatest potential Project impact, predicted sound levels are well below both relevant criteria, indicating that no low-frequency sound impacts are expected.

Table 7-3 Predicted Worst-Case Low Frequency Sound Levels

	S	ound Pressure Level (d	B)
Modeling Receptor ID	31.5 Hz	63 Hz	125 Hz
	(dB)	(dB)	(dB)
177	62	58	51
376	49	54	52
178	61	57	50
179	61	57	50
180	61	57	50
151	61	57	50
175	61	57	50
176	61	57	50
174	61	57	50
172	61	57	50
NC-30 Equivalent Outdoor Sound Pressure Levels	74	66	57
Equivalent Outdoor Sound Pressure Levels for Moderately Perceptible Vibration & Rattle	71	79	NA

Another metric commonly used to assess low frequency noise is the "C-weighted" sound level. For the Vestas V126-3.45 turbine, the maximum C-weighted sound level at any of the modeling receptors representing the closest structures to the Project is predicted to be less than or equal to 63 dBC. For context, ANSI Standard B133.8 "Gas Turbine Installation"

O'Neal, Robert D., Hellweg Jr., Robert D., Lampeter, Richard M. "Low Frequency Noise and Infrasound from Wind Turbines." Noise Control Engineering Journal 59.2 (2011): 139. Print.

Sound Emissions" describes a threshold of 75 to 80 dBC as the approximate level at which complaints and the perception of vibrations due to airborne sound may occur.

#### 7.4 Construction Noise

A qualitative discussion of construction noise related to the proposed Ball Hill Wind Project can be found in §3.9 of Hessler's report.

#### 8.0 CONCLUSIONS

A comprehensive sound level assessment conducted for the Ball Hill Wind Project indicates that predicted sound level impacts from the 29 proposed Vestas V126-3.45 wind turbine generators and two proposed electrical transformers are expected to meet the Town of Hanover and Town of Villenova noise limit at each of the closest structures to the Project. Additionally, the Project is anticipated to meet the suggested criteria recommended in the NYSDEC guidance document for avoiding the potential for adverse community noise impacts. No pure tones were identified in the sound power level spectra, nor in the calculated received sound pressure levels at the closest structure for the turbine model under consideration. Low frequency sound levels at the closest structures to the Project are also predicted to be well below the recommended criteria to avoid disturbance, vibration, and rattle indoors.

Due to the nature of wind turbine noise and the relative background sound levels in the area, noise from the project is likely to be audible at times at some of the closest residences. However, conservative modeling assumptions were made to account for the occasional occurrence of conditions which may favor propagation of sound from the Project or increase the perceptibility of turbine noise. A vast majority of the time, nominal sound levels from the project are likely to be significantly less than those predicted in this analysis, which are based on worst-case conditions. Project impacts are anticipated to meet state guidelines for minimizing adverse impacts as well as all local noise limits applicable to the Project.

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Vestas V126-3.45 Sound Level Modeling Results

**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

	NAD 1983 State Pla FIPS		L10 Sound Level	Leg Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
1	302835	265921	46	45
2	302817	265099	43	42
3	305211	265779	43	42
4	303337	270719	37	36
5	306582	273125	45	44
6	306448	273126	45	44
7	306310	273130	44	43
8	306063	273131	43	42
9	305523	273141	41	40
10	304592	271431	43	42
11	304524	271857	44	43
12	304464	272023	45	44
13	304408	272125	45	44
14	304370	272276	45	44
15	304291	272464	43	42
16	304288	272601	43	42
17	304129	272449	41	40
18	304063	272798	39	38
19	304054	272920	39	38
20	304025	273005	38	37
21	304089	273088	38	37
22	304345	273055	40	39
23	304667	273065	42	41
24	304815	273077	42	41
25	305292	273044	42	41
26	305322	273216	41	40
27	305800	273064	42	41
28	306179	273013	45	44
29	307071	272480	46	45
30	306588	264701	37	36
31	307892	265960	44	43
32	307805	266595	45	44
33	307706	266908	43	42
34	307670	267064	44	43
35	307651	267168	42	41
36	307650	267265	41	40
37	307520	267624	42	41
38	307696	267868	40	39
39	307640	267712	41	40
40	307788	268380	37	36
41	307746	268479	37	36
42	307714	268704	37	36

**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Receptor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
43	307627	269003	37	36
44	307655	268993	36	35
45	307626	269084	36	35
46	307132	270187	41	40
47	301451	266094	36	35
48	301466	266093	36	35
49	301483	266092	36	35
50	301500	266093	36	35
51	301516	266092	36	35
52	301532	266092	36	35
53	301570	265944	36	35
54	301671	265836	36	35
55	301738	265672	35	34
56	301780	265566	35	34
57	301829	265450	35	34
58	301965	265234	35	34
59	302204	265039	34	33
60	302353	264933	35	34
61	303080	264353	38	37
62	303951	263822	43	42
63	303790	263883	42	41
64 65	303484 304671	264028 264182	40 44	39 43
66	301336	266118	36	35
67	301338	266177	36	35
68	301228	266832	40	39
69	301114	267071	41	40
70	301114	267164	41	40
71	301191	267536	45	44
72	301079	267623	43	42
73	301106	267708	44	43
74	301041	269283	35	34
75	302266	270414	34	33
76	302218	270455	33	32
77	302179	270309	33	32
78	302198	270031	35	34
79	302304	270136	35	34
80	302288	269923	36	35
81	302252	269847	36	35
82	303188	270587	37	36
83	303244	270812	37	36
84	303257	270903	36	35
85	303267	271364	36	35

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Receptor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level	
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)	
	(m)	(m)			
86	303270	271133	36	35	
87	303307	271057	36	35	
88	306880	270386	43	42	
89	305683	265239	40	39	
90	305379	265538	42	41	
91	304567	265903	45	44	
92	304571	265747	44	43	
93	302312	266233	43	42	
94	302200	269222	38	37	
95	306160	268107	45	44	
96	303487	271309	37	36	
97	303655	271379	38	37	
98	303849	271296	39	38	
99	304038	271224	40	39	
100	304347	271236	42	41	
101	304214	271187	41	40	
102	304301	271181	41	41	
103	304573	271057	43	42	
104	305144	271018	44	43	
105	305337	270967	44	44	
106 107	305319	271039 270659	45 46	44	
107	306239 306314	270535	46	45 45	
109	306655	270333	45	44	
110	305237	265757	43	42	
111	305314	265779	43	42	
112	305395	265887	44	43	
113	304880	266010	44	43	
114	304939	265943	43	42	
115	305060	266030	44	43	
116	305021	266071	44	43	
117	304560	266685	46	45	
118	304631	266714	46	45	
119	304643	266268	45	44	
120	304582	266553	46	45	
121	304580	266336	46	45	
122	304221	266066	47	46	
123	304573	265716	44	43	
124	304562	264878	47	46	
125	304636	264824	46	45	
126	303764	264620	48	47	
127	302619	265214	42	41	
128	302550	265807	43	42	

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Pacantor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level	
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)	
	(m)	(m)			
129	302409	265930	43	42	
130	302326	266139	43	42	
131	302285	266277	43	42	
132	302379	266514	45	44	
133	302143	266794	44	43	
134	302407	267041	46	45	
135	302262	268044	45	44	
136	302189	268440	43	42	
137	302250	269039	39	38	
138	302199	269120	38	37	
139	302286	269264	38	37	
140	302199	269635	37	36	
141	302202	269733	36	35	
142	302517	269746	37	36	
143	302640	269518	38	37	
144	302698	269540	38	37	
145	302808	269389	39	38	
146	303038	268970	41	40	
147	303444	268430	44	43	
148	303530	268156	46	45	
149	303872	267853	47	46	
150	303911	267922	47	46	
151	303855	267569	48	47	
152	304478	267032	46	45	
153	304653	267271	45	44	
154	304810	267574	47	46	
155	304925	267717	47	46	
156	306809	268168	45	44	
157	306715	268173	45	44	
158	306154	268298	43	42	
159	305986	268102	44	43	
160	305847	268175	44	43	
161	305666	268187	44	43	
162	307410	264695	36	35	
163	307313	265066	38	37	
164	307087	265268	40	39	
165	307165	265160	39	38	
166	307242	265245	40	39	
167	306947	265758	45	44	
168	306907	265874	46	45	
169	306846	265982	46	45	
170	306587	266276	47	46	
171	306392	266522	47	46	

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Recentor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level (dBA)	
Receptor ID	X [Easting]	Y [Northing]	(dBA)		
	(m)	(m)			
172	306280	266803	48	47	
173	306214	267120	48	47	
174	306072	267387	48	47	
175	305920	267565	48	47	
176	305950	267530	48	47	
177	305730	267653	49	48	
178	305830	267632	48	47	
179	305729	267720	48	47	
180	305540	267818	48	47	
181	305461	267962	46	45	
182	305346	268213	45	44	
183	305077	268412	46	45	
184	305007	268430	47	46	
185	305030	268499	46	45	
186	305116	268483	45	44	
187	304928	268671	47	46	
188	304793	268945	47	46	
189	304852	268940	46	45	
190	304762	269125	46	45	
191	304137	269816	45	44	
192	304268	269771	45	44	
193	304391	269573	46	45	
194	304424	269508	46	45	
195	304578	269443	46	45	
196	304511	269528	46	45	
197	304389	269720	45	44	
198	304296	269893	45	44	
199	303701	270372	40	39	
200	304983	273128	42	41	
201	305140	273136	41	40	
202	305222	273197	41	40	
203	307157	273030	41	40	
204	307459	273045	40	39	
205	307496	273029	39	38	
206	307631	273047	39	38	
207	307725	273122	38	37	
208	307739	273054	38	37	
209	307820	273167	37	36	
210	307770	272626	40	39	
211	308054	272278	40	39	
212	307760	272313	43	42	
213	307851	271897	43	42	
214	307919	271835	42	41	

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Pacantor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
215	307525	270039	38	37
216	306902	270361	42	41
217	305613	270835	44	43
218	305510	270866	44	43
219	305433	270887	44	43
220	303164	271210	35	34
221	304756	268970	47	46
222	307127	265624	44	43
223	305147	265883	43	42
224	304777	266410	45	44
225	303534	263922	40	39
226	302441	265831	43	42
227	305267	268124	46	45
228	302146	266999	45	44
229	302684	265087	41	40
230	303648	264766	47	46
231	303329	264680	44	43
232	303767	267050	47	46
233	300989	270263	29	28
234	300939	269870	29	28
235	300734	269991	29	28
236	301022	269877	29	28
237	300982	268255	41	40
238	301111	268150	43	42
239	301024	267891	43	42
240	301156	267779	45	44
241	301028	267753	43	42
242	301174	267287	43	42
243	301193	267155	41	40
244	301253	266981	41	40
245	301059	266053	36	35
246	300915	266057	35	34
247	301423	266076	36	35
248	301411	266064	36	35
249	301474	266013	36	35
250	301487	266028	36	35
251	301498	266042	36	35
252	301505	266053	36	35
253	301809	265370	34	33
254	302594	264485	35	34
255	302638	264095	36	35
256	302599	264129	35	34
257	302623	264141	36	35

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Receptor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
258	302474	265774	43	42
259	302146	266655	44	43
260	302141	266834	44	43
261	302241	267952	46	45
262	302140	268685	41	40
263	302277	268929	39	38
264	302169	269437	37	36
265	302088	269783	36	35
266	301866	269792	35	34
267	301782	269714	35	34
268	301654	269728	35	34
269	301431	269805	33	32
270	301343	269705	30	29
271	303123	268986	42	41
272	303921	267910	47	46
273	304227	267491	46	45
274	304561	266556	47	46
275	304942	263321	36	35
276	304823	263316	37	36
277	304725	263437	37	36
278 279	304669	263313 263271	37 37	36 36
280	304602 304593	263271	37	36
281	304584	263172	36	35
282	304488	263322	38	37
283	304544	263298	37	36
284	304696	263398	37	36
285	304686	263355	37	36
286	304728	263326	37	36
287	304851	263295	36	35
288	304895	263345	36	35
289	304593	263315	37	36
290	304617	263316	37	36
291	304645	263313	37	36
292	304581	263360	38	37
293	304627	263358	37	36
294	304653	263358	37	36
295	304537	263360	38	37
296	304453	263302	37	36
297	304406	263272	37	36
298	304345	263191	37	36
299	304276	263213	37	36
300	304583	263402	38	37

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Receptor ID		ane New York West 3103	L10 Sound Level	Leq Sound Level	
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)	
	(m)	(m)			
301	304509	263395	38	37	
302	304542	263426	38	37	
303	304661	263637	39	38	
304	304864	263672	39	38	
305	304841	263664	39	38	
306	304892	263698	38 39	37 38	
307 308	304917 304758	263762 263678	39	38	
309	304749	263627	39	38	
310	304954	263720	38	37	
311	304594	263625	40	39	
312	304523	263682	41	40	
313	307076	265245	40	39	
314	307835	268700	36	35	
315	307798	268862	36	35	
316	305581	267840	47	46	
317	304039	272195	41	40	
318	304193	272856	40	39	
319	304005	273128	37	36	
320	304187	273074	39	38	
321	307847	272022	43	42	
322	307885	271567	42	41	
323	307710	269011	36	35	
324	307523	269182	36	35	
325	306815	270457	43	42	
326	306226	270568	46	45	
327	303952	278773	27	27	
328	303934	278769	27	27	
329	303935	278785	27	27	
330	304005	278574	27	26	
331 332	304041 303890	278582 278654	26 28	26 27	
333	303403	279128	33	33	
334	303832	278880	28	28	
335	303275	279101	35	35	
336	303091	279223	37	37	
337	303100	279250	36	36	
338	303538	279105	31	31	
339	302881	279231	40	40	
340	303566	278929	31	31	
341	302951	279115	41	41	
342	302998	279106	40	40	
343	303006	279100	40	40	

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

D ( ID		ane New York West 3103	L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
344	302998	279118	40	40
345	303097	279223	37	37
346	303057	279270	32	32
347	303071	279258	37	37
348	303110	279185	37	37
349	303122	279219	36	36
350	303233	279088	35	35
351	303251	279094	35	35
352	303238	279099	35	35
353	303282	279118	35	35
354	303301	279125	34	34
355	303346	279129	33	33
356	303333	279140	34	34
357	303414	279115	33	33
358	303254	279332	33	33
359	303253	279352	33	33
360	303253	279279	34	34
361	303260	279244	34	34
362	303418	279128	32	32
363	303458	279204	27	27
364	303577	279117	31	30
365	303574	279138	31	30
366	303531	279202	26	26
367	302890	279200	41	41
368	302619	278608	38	38
369	302618	278611	38	38
370	302600	278617	38	38
371	302536	278563	37	37
372	302490	278574	36	36
373	302425	278783	39	39
374	302879	279189	41	41
376	302604	278985	47	47
377	302593	279152	42	42
378	302598	279152	42	42
379	302596	279146	42	42
380	302495	279286	38	38
381	302508	279284	38	38
382	302514	279263	38	38 38
383	302527	279271	38	
384 385	302545	279181 279197	41 39	41 39
385	302502	279197	40	40
386	302470 302439	279144	40	40

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

	NAD 1983 State Pla FIPS	ane New York West 3103	L10 Sound Level	Leg Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	-	(m) (m)		, ,
388	302444	279126	39	39
389	302424	279132	39	39
390	302411	279141	38	38
391	302435	279216	38	38
392	302419	279197	38	38
393	302394	279207	37	37
394	302375	279201	37	37
395	302330	279194	36	36
396	302314	279193	36	36
397	302660	277826	28	28
398	302622	277825	28	28
399	302622	277912	29	29
400	302611	277896	29	28
401	302528	277916	29	28
402	302621	278357	34	34
403	302623	278150	31	31
404	302599	278137	31	31
405	302621	278208	32	32
406	302600	278189	31	31
407	302601	278340	33	33
408	302611	278359	34	34
409	302594	278377	34	34
410	302613	278425	35	35
411	302592	278441	35	35
412	302617	278450	35	35
413	302630	278469	36	36
414	302625	278479	36	36
415	302600	278486	36	36
416	302674	278547	37	37
417	302664	278554	37	37
418	302608	278545	37	37
419	302624	278556	37	37
420	302416	278043	29	29
421	302457	278037	29	29
422	302532	278046	30	30
423	302461	278204	31	31
424	302437	278232	31	31
425	302435	278240 31		31
426	302491	278276	32	32
427	302525	278289	32	32
428	302519	278290	32	32
429	302523	278305	33	33
430	302482	278396	34	34

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

<b>.</b>		ane New York West 3103	L10 Sound Level	Leg Sound Leve
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
431	302512	278421	34	34
432	302509	278476	35	35
433	302519	278494	35	35
434	302531	278548	36	36
435	303814	277735	25	25
436	303778	277598	25	25
437	303688	277646	25	25
438	303670	277655	26	25
439	303656	277599	25	25
440	303789	277581	23	22
441	303798	277696	25	25
442	303795	277810	26	25
443	303785	277852	26	26
444	303772	277832	26	26
445	303734	277884	26	26
446	303497	277946	27	27
447	303492	277948	27	27
448	304581	277748	23	22
449	304491	277803	23	22
450	304389	277614	21	20
451	304353	277657	21	21
452	304343	277644	20	20
453	304340	277620	20	20
454	304302	277600	21	20
455	304255	277573	23	23
456	304298	277736	24	24
457	304480	277933	24	24
458	304456	277901	24	24
459	304298	277747	25	24
460	304220	277620	20	19
461	304171	277641	23	22
462	304185	277629	22	22
463	304193	277614	24	23
464	304114	278250	25	25
465	304062	278044	25	25
466	304047	278062	25	25
467	304010	278061	26	25
468	304025	278433	26	26
469	304064	278417	26	26
470	304058	278432	26	26
470	304038	278455	26	26
	ı 304040	Z/04JJ	۷۵	
471	304045	278488	26	26

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

		ane New York West 3103	L10 Sound Level	Law Caumal Layral
Receptor ID	X [Easting]	Y [Northing]	(dBA)	Leq Sound Level (dBA)
	(m)	(m)	(45) (	(45)
474	304053	278499	26	26
475	303871	276634	22	21
476	304260	277555	23	23
477	304114	276890	22	21
478	304426	276850	22	21
479	304391	276793	22	21
480	304139	276763	22	21
481	304174	277440	21	20
482	304066	277477	24	23
483	304038	277478	24	23
484	304072	277506	24	23
485	304177	277467	23	23
486	303284	277367	26	25
487	302870	276586	22	21
488	303593	276574	22	21
489	303774	276667	22	21
490	303778	276677	22	21
491	303758	276693	22	21
492	303703	276700	22	21
493	303023	276577	23	22
494	303543	276674	22	22
495	303569	276654	22	21
496	303577	276637	22	21
497	303562	276614	22	21
498	303533	276627	22	21
499	303475	276619	22	21
500	303414	276817	22	22
501	303420	276831	22	22
502	303391	276833	22	22
503	303402	276867	22	22
504	303417	276872	22	22
505	303405	276903	22	22
506	303677	276940	22	22
507	303569	277166	23	23
508	303574	277167	23	23
509	303039	277134	25	25
510	303026	277080	25	24
511	303041	277068	25	24
512	303039	277049	25	24
513	303385	277133	24	24
514	303436	277123	24	24
515	303494	277078	23	23
516	303505	277077	23	23

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

		ane New York West 3103	L10 Sound Level	Leg Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)	(	(4.2.4)
517	303535	277098	23	23
518	303514	277141	24	23
519	303602	277112	23	23
520	303585	277102	23	23
521	303592	277177	23	23
522	303592	277165	23	23
523	303566	277158	23	23
524	303559	277257	24	24
525	303590	277285	24	24
526	302437	276861	22	22
527	302444	276583	24	24
528	302329	276605	24	23
529	302269	276682	24	23
530	302354	276951	23	22
531	302775	277268	25	25
532	302447	277249	23	23
533	302385	277112	25	24
534	302359	277114	25	24
535	302317	277052	25	24
536	302574	277464	26	26
537	302585	277491	26	26
538	302555	277494	26	26
539	302567	277548	26	26
540	302581	277522	26	26
541	302589	277345	24	23
542	302607	277328	23	23
543	302710	277501	26	26
544	302761	277502	26	26
545	302696	277368	26	25
546	302739	277344	26	25
547	302724	277233	25	25
548	302616	277181	20	20
549	302632	277198	21	20
550	302695	276984	25	24
551	302561	277113	20	20
552	302544	277123	20	20
553	302393	277115	23	23
554	302492	276944	21	20
555	302483	276963	21	21
556	302426	276888	22	22
557	302378	276946	23	22
558	302175	276994	25	24
559	302143	276966	24	24

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

		ane New York West 3103	L10 Sound Level	Leg Sound Level	
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)	
	(m)	(m)	( ,	(4.2.4)	
560	302069	276570	23	22	
561	302290	276698	24	23	
562	302306	276680	24	23	
563	302357	276664	24	23	
564	302380	276640	24	23	
565	302123	275860	23	22	
566	302107	275843	23	22	
567	302304	276378	24	23	
568	302316	276317	24	23	
569	302068	276554	23	22	
570	302102	276544	23	22	
571	302242	275955	24	23	
572	302128	276238	24	23	
573	302206	276138	24	23	
574	302299	276305	24	23	
575	302286	276332	24	23	
576	302213	276401	24	23	
577	302211	276412	24	23	
578	302213	276429	24	23	
579	302221	276447	24	23	
580	302281	276395	24	23	
581	302278	276448	24	23	
582	302294	276468	24	23	
583	302672	275736	22	21	
584	302830	276122	22	21	
585	302826	276059	22	21	
586	302213	276156	24	23	
587	302134	276216	24	23	
588	302137	276190	24	23	
589	302132	276027	24	23	
590	302163	276027	24	23	
591	302144	275889	24	23	
592	302119	275877	23	22	
593	302702	275709	22	21	
594	303087	275724	23	22	
595	303138	275715	23	22	
596	302923	276004	22	21	
597	303047	276313	22	21	
598	303156	275712	23	22	
599	302873	275849	22	21	
600	303704	275741	27	26	
601	302872	276178	22	21	
602	303602	276452	22	21	

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

		ane New York West 3103	L10 Sound Level	lan Caund Laval
Receptor ID	X [Easting]	Y [Northing]	(dBA)	Leq Sound Level (dBA)
	(m)	(m)	(42) (	(42)
603	303608	276369	22	21
604	303250	276479	22	21
605	303273	276502	22	21
606	303143	276144	22	21
607	303160	276093	22	21
608	303112	276107	22	21
609	303105	276084	22	21
610	303022	275973	22	21
611	303026	275955	22	21
612	303011	275949	22	21
613	302940	276007	22	21
614	302891	275962	22	21
615	302866	276041	22	21
616	302880	276073	22	21
617	302901	275980	22	21
618	304564	275585	28	28
619	304709	276334	27	26
620	304721	276467	26	26
621	304717	276314	27	26
622	304698	276396	27	26
623	304592	276412	26	26
624	304568	276352	27	26
625	304568	276378	27	26
626	304447	276374	26	25
627	304436	276397	26	25
628	304594	276036	27	27
629	304610	276009	28	27
630	304630	275944	28	27
631	304622	275922	28	27
632	304595	275900	28	27
633	304596	275886	28	27
634	304593	275781	28	27
635	304583	275785	28	27
636	304620	275871	28	27
637	304494	276013	27	26
638	304433	275853	27	26
639	304408	275874	27	26
640	304535	275796 28		27
641	304583	275611	28	27
642	304619	275749	28	27
643	304681	275775	28	27
644	304284	275074	30	29
645	304621	275515	29	28

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

	NAD 1983 State Pla FIPS	ane New York West	L10 Sound Level	lan Caumal Laural
Receptor ID	X [Easting]	Y [Northing]	(dBA)	Leq Sound Level (dBA)
	(m)	(m)	(42) (	(42)
646	304543	275188	30	29
647	303460	274849	28	27
648	303237	275436	27	26
649	302229	275008	23	22
650	302756	274888	27	26
651	302500	275138	23	22
652	302463	275086	23	22
653	302459	275095	23	22
654	302473	275057	23	22
655	302469	275046	23	22
656	302432	275049	23	22
657	302408	275159	23	22
658	302260	274966	23	22
659	302309	274975	23	22
660	302277	274948	23	22
661	302289	274924	23	22
662	302237	274924	23	22
663	302218	274937	23	22
664	302241	275031	22	22
665	302192	274991	22	22
666	302185	275005	22	22
667	302162	274974	22	22
668	302148	274978	22	22
669	302150	274913	23	22
670	302154	274882	23	22
671	303589	273856	33	32
672	303084	273630	31	30
673	303539	274238	31	30
674	303344	274105	31	30
675	303566	273944	32	31
676	303563	273943	32	31
677	303143	273583	32	31
678	302979	273579	31	30
679	302935	273579	31	30
680	302903	273610	31	30
681	302937	273604	31	30
682	303062	273617	31	30
683	303174	273595	32	31
684	303252	273734	32	31
685	303240	273795	32	31
686	303309	273650	32	31
687	303323	273659	32	31
688	303372	273636	33	32

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

		ane New York West 3103	L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
689	303408	273711	32	31
690	303426	273712	32	31
691	303360	273776	32	31
692	303371	273784	32	31
693	303379	273778	32	31
694	303400	273801	32	31
695	303410	273792	32	31
696	303530	273846	32	31
697	303564	273866	32	31
698	303847	273887	33	32
699	303825	273893	33	32
700	303812	273958	33	32
701	304296	273918	34	33
702	304200	273757	35	34
703	304214	273744	35	34
704	304183	273653	35	34
705	304164	273671	35	34
706	304044	273623	35	34
707	304022	273633	35	34
708	304793	274253	34	33
709	304598	274231	33	32
710	304596	274236	33	32
711	304512	274234	33	32
712	304678	274071	34	33
713	303961	274013	33	32
714	303955	274055	33	32
715	303976	274046	33	32
716	303986	274097	33	32
717	304070	274025	33	32
718	304060	274087	33	32
719	304074	274125	33	32
720	304060	274118	33	32
721	304169	274172	33	32
722	304163	274138	33	32
723	304229	274173	33	32
724	304217	274163	33	32
725	304244	274057	34	33
726	304237	274082 33		32
727	304287	274112 33		32
728	304462	274112 33		32
729	304490	274204	33	32
730	304561	274239	33	32
731	304838	274286	34	33

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**Table A-1**Predicted Sound Level Modeling Results
Vestas V126-3.45

Receptor ID	NAD 1983 State Plane New York W FIPS 3103		L10 Sound Level	Leq Sound Level
Receptor ID	X [Easting]	Y [Northing]	(dBA)	(dBA)
	(m)	(m)		
732	305074	274244	34	33
733	305560	273641	38	37
734	305097	274231	34	33
735	304962	274353	33	32
736	304938	274369	33	32
737	304924	274382	33	32
738	307620	273580	36	35
739	307632	273587	36	35
740	307635	273601	36	35
741	307656	273453	36	35
742	307654	273429	37	36
743	307379	273236	39	38
744	307447	273233	39	38
745	306837	273553	39	38
746	305172	273449	39	38
747	304420	273191 39		38
748	303963	273412	36	35
749	304145	273388	37	36
750	304648	273235	40	39
751	304655	273215	40	39
752	304640	273211	40	39
753	304640	273231	40	39
754	303943	273445	35	34
755	304097	273432	36	35
756	304103	273413	36	35
757	304139	273360	37	36
758	304031	273230	37	36
759	304012	273245	37	36
760	304133	273206	38	37
761	304136	273216	38	37
762	304324	273193	39	38
763	304354	273184	39	38
764	303636	273239	35	34
765	302990	273552	31	30
766	303145	273489	32	31
767	303149	273489	32	31
768	303655	273231	35	34
769	303649	273255	35	34

J-2 Technical Memo from Epsilon Associates, Inc.



#### 11-16-16 Response to NYS DPS 03 14 16 comments.docx

November 16, 2016

Epsilon Ref. 4366

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Subject: Response to SDEIS Comments – NYS DPS letter, March 14, 2016

**Ball Hill Wind Project** 

#### Dear Mark:

As per your request, Epsilon Associates, Inc. (Epsilon) is pleased to provide these responses to the noise-related comments of the NY State Department of Public Service (DPS). The DPS comments are contained in a letter dated March 14, 2016 and focused on the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed Ball Hill Wind Project in Chautaugua County, New York.

The responses are organized according to the 12 questions and/or comments found in Appendix A of the March 14 letter.

**Comment 1:** Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Confirm whether electrical power for the proposed transformer is 1 MVA. Explain if sound emissions for 240 kV transformer are expected to be different than those estimated for a 120 kV transformer.

**Response 1:** There was a typographical error in footnote 1 to Table 6-7 (page 6-3) in Appendix O of the SDEIS. It should have read:

"Based on standard NEMA TR.1 Table 0-1 for one 154 MVA, 120 kV utility scale transformer with 5 dB noise reduction by octave band."

Since the sound level study for the SDEIS was submitted in the fall of 2015, additional design and capacity information has been developed for the project.

Mr. Mark H. Lyons Renewable Energy Systems Americas Inc. November 16, 2016

Thus the 154 MVA rating has been updated. A 5.7 mile 115kV transmission line will connect the wind turbines to the electrical grid. This transmission line will have a substation at either end. The interconnection substation at the northern end of the transmission line ("northern substation") will have one 230 MVA transformer, while the collection substation ("southern substation") will have one 120 MVA transformer.

Initial sound power level calculations were made for each transformer using the methodology described in Section 4.2.5 of the Edison Electric Institute's (EEI) "Electric Power Plant Environmental Noise Guide (Volume I, 2nd Ed., 1984). Sound levels for the 230 MVA transformer are 2 dB lower than estimated by the EEI method. This reduction will be achieved by either specifying quieter equipment or installation of a sound wall.

**Comment 2:** Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Provide version and year of publication of NEMA Standard used for sound power determination. Specify if the standard corresponds to the most recent version.

**Response 2:** As noted in Response 1 above, the methodology used to calculate sound power from the transformers as taken from EEI Electric Power Plant Environmental Noise Guide. However, that methodology is based on the NEMA sound level ratings procedure.

For example, Table 1 of the NEMA standard NEMA TR 1-2013 "Transformers, Step Voltage Regulators and Reactors" contains sound level data for power transformers. According to this table, a transformer with secondary cooling (worst-case for sound levels) will have a sound pressure level at 1 foot from the reference surface of 80 dBA (120 MVA) and 83 dBA (230 MVA). These are identical to the ratings using the EEI Guide technique. The 2013 version of NEMA TR 1 is the most recent version available.

**Comment 3:** Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Provide estimated NEMA rating for proposed transformer.

- As noted in Response 1 above, the NEMA rating for the interconnection substation transformer is 230 MVA, and the NEMA rating for the collection substation transformer is 120 MVA.
- Comment 4: Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Provide justification for the 5 dB noise reduction at all octave bands.
- The sound level data proposed for the 154 MVA transformer in the Response 4: fall of 2015 is no longer applicable. Therefore, the 5 dB noise reduction at all octave bands is no longer relevant.
- Comment 5: Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Provide estimated dimensions and envelope area applicable to sound power estimates, if available.
- The methodology in the EEI Guide provides a technique to convert NEMA sound pressure levels to sound power levels based only on the MVA rating. No dimensional information about the transformer is thus required. This is the methodology used for the Ball Hill Wind project.
- Comment 6: Section 6.1.3 includes sound power levels (dBA) for one MVA, 120 kV utility transformer with 5 dB noise reduction by octave band: Provide clear derivation of sound power levels estimates or alternatively provide sound test including Sound Power Levels for proposed transformer from the Manufacturer.
- Response 6: According to RES, each and every transformer is a custom build, so there are no cut sheets available for them. Sound power levels are not something that is shown on any cut sheets. The project will specify what the permissible sound levels are and then the suppliers will design a transformer accordingly. Once the unit is built, it will be tested for sound. This is done by measuring the one-third octave band sound pressure levels, and from the sound pressure and the physical size of the transformer, calculate the sound power levels. Note that this will only be done once a unit is purchased, designed, constructed, and tested, so no details in this regard are available at this stage in permitting. However, the unit will be specified to achieve a result of "not tonal."

A derivation of the sound power levels used in the latest sound study report<sup>1</sup> are shown below as described in Table 4.5 of the EEI Guide. For a standard transformer:

NEMA sound rating 
$$\sim 55 + 12 \log MVA$$
 (dBA)

The A-weighted sound power level Lw is:

$$L_w = NEMA$$
 sound rating + 10 log S

Where

$$10 \log S = 14 + 2.5 \log MVA$$

The following adjustments are made to the NEMA sound rating for the nine standard octave bands:

Hz	31	63	125	250	500	1000	2000	4000	8000
dB	-3	+3	+5	0	0	-6	-11	-16	-23

Sound power calculations for the 120 MVA transformer are presented in Table 6-1a and 6-1b:

Sound Level Assessment Report, Ball Hill Wind Project, prepared for Renewable Energy Systems Americas, Inc. by Epsilon Associates, Inc., August 30, 2016, revised October 4, 2016.

120 MVA Transformer Sound Power Levels (dBA) Table 6-1a

MVA Rating	120	MVA	
NEMA Sound Rating	80	dBA	NEMA = 55 + 12xLog10(MVA)
10xLog(S)	19.2	dBA	10xLog(S) = 14 + 2.5xLog(MVA)
Lw	99.1	dBA	Lw = NEMA + 10xLog(S)

Table 6-1b 120 MVA Transformer Sound Power Levels

Octave Band (Hz)	Overall	31.5	63	125	250	500	1k	2k	4k	8k
EEI corrections (dB)		-3	3	5	0	0	-6	-11	-16	-23
Lw spectrum *(dB)	108.2	96	102	104	99	99	93	88	83	76
A-wt correction		-39.4	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1
L <sub>w</sub> spectrum (dBA)	99.5	57	76	88	91	96	93	89	84	75

Sound power calculations for the 230 MVA transformer are presented in Table 6-2a and 6-2b:

Table 6-2a 230 MVA Transformer Sound Power Levels (dBA)

MVA Rating	230	MVA	
NEMA Sound Rating	83	dBA	NEMA = 55 + 12xLog10(MVA)
10xLog(S)	19.9	dBA	10xLog(S) = 14 + 2.5xLog(MVA)
Lw	103.2	dBA	Lw = NEMA + 10xLog(S)

Table 6-2b 230 MVA Transformer Sound Power Levels

Octave Band (Hz)	Overall	31.5	63	125	250	500	1k	2k	4k	8k
EEI corrections (dB)		-3	3	5	0	0	-6	-11	-16	-23
Lw spectrum *(dB)	112.3	100	106	108	103	103	97	92	87	80
A-wt correction		-39.4	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1
Lw spectrum (dBA)	103.6	61	80	92	95	100	97	93	88	79

**Comment 7:** Sound Level Assessment Report doesn't include an evaluation of tonality for proposed substation noise sources: Provide full text of local laws and any section applicable to noise emissions from the substation including any noise reductions to be applied on any noise limits should a tone, as defined by local regulation, be present.

**Response 7:** The Town of Hanover, Article XVI Wind Energy Conversion Systems (WECS), Section 1606 "Zoning District and Bulk Requirements", subparagraphs 3 through 6, contain applicable noise emission limits. Subparagraph 4 has text applicable to a tone:

"In the event audible noise due to WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in subparagraph 3 of this subsection shall be reduced by 5 dBA. A pure tone is defined to exist if the 1/3 octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two contiguous 1/3 octave bands by 5 dBA for center frequencies of 500 Hz and above, by 8 dBA for center frequencies between 160 Hz and 400 Hz, or by 15 dBA for center frequencies less than or equal to 125 Hz."

Section 690.12 (Setbacks for Wind Energy Conversion Systems), Parts A through D of Local Law No. 1 of 2007 for the Town of Villenova contains identical language to the Town of Hanover for a tone (section 690.12.B).

The full text of the local laws applicable to WECS in each town, are found in Attachments A and B, respectively, appended hereto.

**Comment 8:** Sound Level Assessment Report doesn't include an evaluation of tonality for proposed substation noise sources: Report measured fractional band ambient noise levels (L90) in the vicinity of proposed substation.

**Response 8:** Existing condition sound level data were measured at six locations around the site from March 26 to April 8, 2008.<sup>2</sup> No fractional band sound level data were measured for this program. In any event, it is not critical to know the current fractional bands around the proposed substation sites since the transformers will be designed to not be tonal in nature.

**Comment 9:** Sound Level Assessment Report doesn't include an evaluation of tonality for proposed substation noise sources: Provide assessment of tonality at the most potentially impacted noise sensitive receptors. Specify if prominent tones are expected to be present at those locations.

**Response 9:** As described in Response 6 above, each and every transformer is a custom build. The project will specify what the permissible sound levels are and

Environmental Sound Survey and Noise Impact Assessment, Noble Ball Hill Windpark, prepared for Noble Environmental Power by Hessler Associates, Inc. July 16, 2008.

then the suppliers will design a transformer accordingly. Therefore, no one-third octave band sound level data are available for the transformers proposed for Ball Hill wind.

Comment 10: Figures 6-1 and 6-2 show the 50 dBA noise contour line very close to adjacent noise sensitive receptors: Provide expanded figures to show in better detail, proposed noise sources within the substation site, site property boundaries, and adjacent noise sensitive receptors.

The attached Figure 10-1A and Figure 10-1B are zoomed-in Response 10: from Figure 6-1 in the most recent sound level assessment report cited earlier in this response (rev. October 4, 2016). Figure 10-1A is the interconnection substation located at the northern edge of the Wind Overlay District, and Figure 10-1B is the collection substation located in the center of the project north of Hurlbert Road.

Comment 11: Figures 6-1 and 6-2 show the 50 dBA noise contour line very close to adjacent noise sensitive receptors: Specify any increase in ambient levels based upon existing L90 ambient noise levels and forecasted ambient levels from the substation at the most impacted sound sensitive receptors including and excluding noise levels from the closest proposed wind turbines.

Response 11: The nearest ambient sound level monitor to the collection substation was "Monitor 5" located near #9830 Dye Road just south of the Villanova/Hanover town line. "Monitor 5" is approximately 1.25 miles from the substation transformer. As seen in Figure 2.5.1 in the July 16, 2008 monitoring study ("Hessler Report"), the existing L90 ambient sound level is not a single number but varied by more than 30 dBA (~25 dBA to ~58 dBA) over the course of two weeks. For worst-case sound level impacts from the wind farm, wind speeds will be at 7 m/s at 10 meter reference height (10 m/s at hub height of 87 meters AGL). The existing L90 ambient at a 7m/s wind speed in the area is 34 dBA (Table 2.7.1 in Hessler Report).

Table 11-1 below summarizes the most impacted sensitive receptors around the collection substation as shown in Figure 10-1B, with and without contributions from the wind turbines. The nearest receptor to the transformer is ID #106 at 1660 feet. It should be pointed out that comparing a project Leg sound level to an ambient L90 sound level is not reasonable. As discussed in the October 4, 2016 sound study, the Leg background for a 7 m/s case is 44 dBA, or 10 dBA higher than the L90.

Table 11-1 Collection Substation Sound Levels (dBA)

Receptor ID	Existing L90 Ambient (dBA)	Project only (Wind Turbines	Substation only (Leq, dBA)
	/ (IIIblefit (db/t)	+ Substation)	(Leq, ab/t)
		(Leq, dBA)	
106	34	44	34
105	34	44	32
10	34	42	32
103	34	42	30
104	34	43	28
219	34	43	25
218	34	43	25
217	34	43	24

There was no ambient sound level monitor near the interconnection substation. However, the NY State Thruway (Interstate 90) is less than 1,200 feet away from the nearest residence. With an average daily traffic of 25,000 vehicles on this section of I-90, the L90 ambient sound levels will be significantly higher than those measured within the wind farm as reported in Table 11-1 above. The project sound levels modeled at all residences near the interconnection substation are due exclusively to the transformer.

Comment 12: Figures 6-1 and 6-2 show the 50 dBA noise contour line very close to adjacent noise sensitive receptors: Estimate potential for annoyance and complaints from noise emissions at the closest noise sensitive receptors including any corrections for tonality, if applicable. Briefly explain and provide justification for the use of selected methodology for assessment of community noise reaction.

**Response 12:** The Modified Composite Noise Rating (CNR) methodology will be used to estimate the potential for annoyance and complaints from the project at the closest sensitive receptors. The Modified CNR method is a widely-accepted, published procedure using a set of curves to rate the annoyance of outdoor noise.<sup>3</sup> It has also been used in NYS for evaluation of sound level impacts, particularly from power projects over the years.

Electric Power Plant Environmental Noise Guide, Volume I, Edison Electric Institute, prepared by Bolt, Beranek and Newman, Inc., revised 1984.

Mr. Mark H. Lyons Renewable Energy Systems Americas Inc. November 16, 2016

The basic premise is that octave band sound levels at a noise-sensitive receptor from the project of interest are plotted on a graph of noise level rank curves. The curves are labeled "a" to "m" and the noise level rank is given by the highest area into which the measured spectrum protrudes in any octave band. Corrections, or adjustments, are then applied to the noise level rank to obtain the CNR rating. These corrections take into account background noise, temporal and spectral character of the sound, and any previous exposure of the community to this type of noise. The CNR is then evaluated against a graph to obtain the "average expected response from a normal community."

A Modified CNR evaluation was done for the two highest sound levels in the sound study. The first is receptor ID #177 which is located on Ball Hill Road northeast of turbine T15. Sound levels at this location are exclusively from the wind turbines with no contribution from the substations. The second location is receptor ID #376 which is located on Bennett State Road due west of the interconnection substation. Sound levels at this location are exclusively from the interconnection substation with no contribution from the wind turbines.

Figures 12-1 and 12-2 display the noise level rank of receptor IDs #177 and #376 respectively. These ranks are "e" and "d" respectively. Although actual octave band background L90 data are not available, the technique in Table 2-4 of the Hoover & Keith "Noise Control for Buildings and Manufacturing Plants" contains a discussion of the Modified CNR method, and provides an estimated background correction based on general land-use and vehicular traffic in the area. Receptor #176 is within 300 feet of an intermittent light traffic road, while receptor #376 is within 1200 feet of the NY State Thruway (I-90). The character (tonality) of the sound from the substation at #376 was assumed to be "not tonal" as per the response to question 6 above. In regard to step 5 "previous exposure/attitude", the area around #177 is largely agricultural and thus has been subject to farm machinery noise for many years, the local farmers are supportive of the project, and there are many operating wind turbines in the vicinity of these towns so they are not completely unique. The area around #376 does not have an existing substation so it was corrected for "no prior exposure" to this type of source.

Table 12-1 summarizes the noise rank and adjustments at each location. The results of this analysis show that receptors along Ball Hill Road (ID #177) will have a CNR of "D" and thus have "sporadic complaints." The residence near the interconnection substation (#376) will have a CNR of "C" and thus be between "No reaction, though noise is generally noticeable" and "sporadic complaints."

Table 12-1 Modified CNR Adjustments

Step No.	Aspect	Rank or	Rank or
		Correction	Correction
		ID #177	ID #376
1	Source sound level	е	d
2	Background	0	-1
3a	Time of day	0	0
3b	Seasonality	0	0
3c	Intermittency	0	0
4	Character of sound	0	0
5	Previous exposure/attitude	-1	0
6	Composite Noise Rating	D	С

If you have any questions on this matter, please feel free to call me at (978) 461-6236, or e-mail me at roneal@epsilonassociates.com.

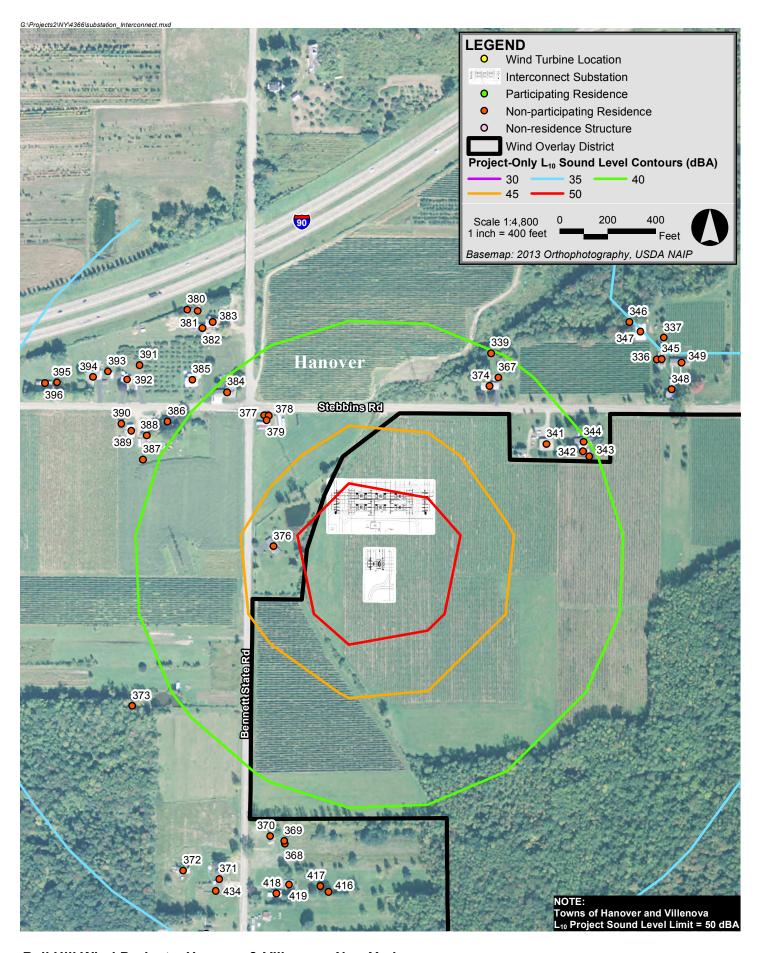
Sincerely,

EPSILON ASSOCIATES, INC.

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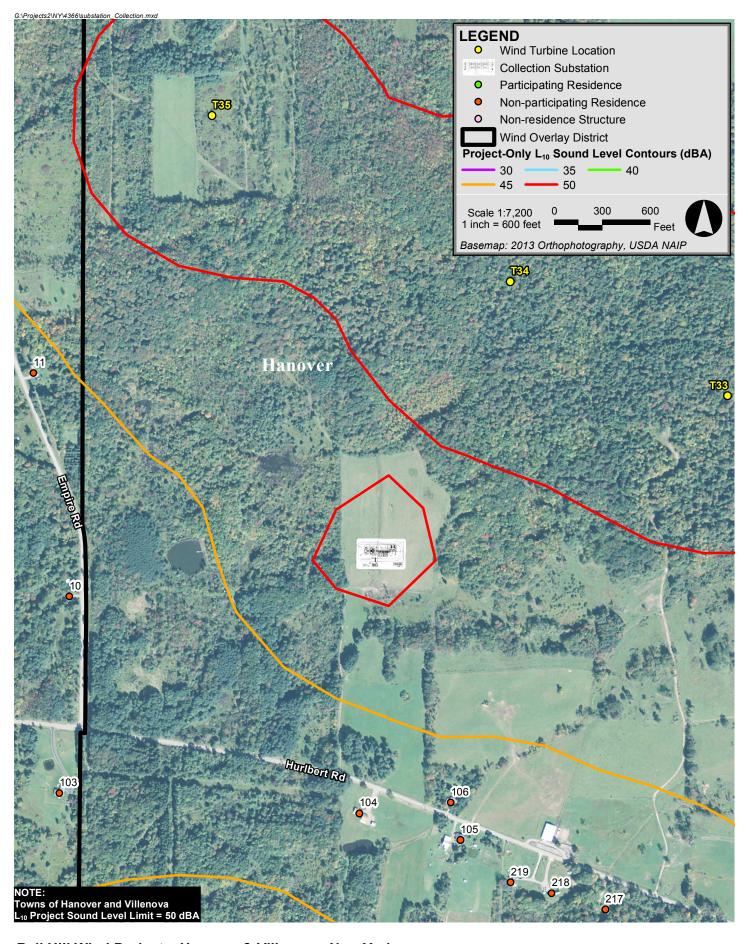
Robert D. O'Neal, CCM, INCE Bd. Cert.

Principal



Ball Hill Wind Project Hanover & Villenova, New York





Ball Hill Wind Project Hanover & Villenova, New York



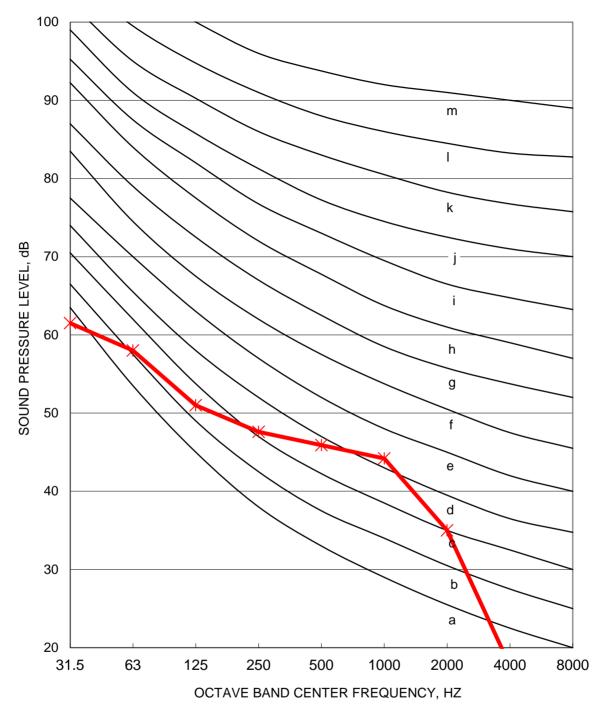


Figure 12-1. Noise Level Rank Curves for Modified CNR Rating Sytem -- Receptor 177

The modeled octave band sound pressure levels of the noise to be evaluated are plotted on the grid. The highest zone into which the spectrum protrudes is designated as the noise level rank.

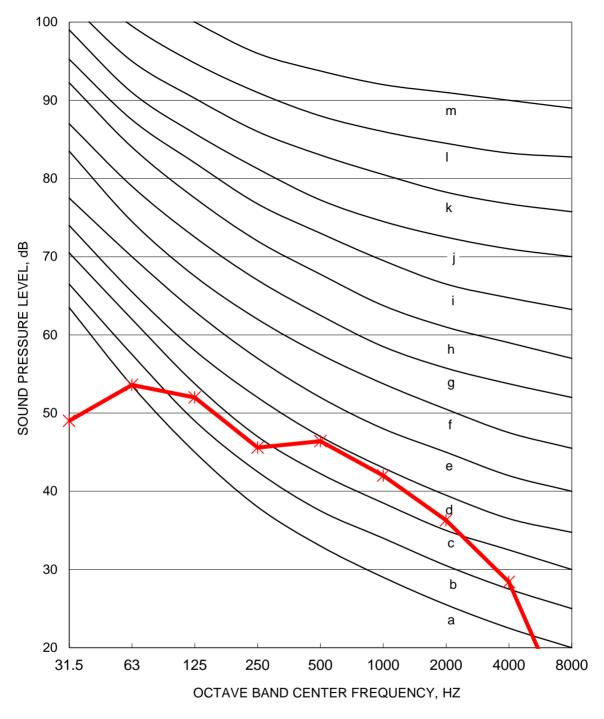


Figure 12-2. Noise Level Rank Curves for Modified CNR Rating Sytem -- Receptor 376

The modeled octave band sound pressure levels of the noise to be evaluated are plotted on the grid. The highest zone into which the spectrum protrudes is designated as the noise level rank.

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Town of Hanover Local Laws for WECS

### Town of Hanover

#### **Article XVI**

Wind Energy Conversion Systems: (WECS)

## SECTION 1601 - Legislative-Intent

The Town of Hanover recognizes the increased demand for converting wind energy into electrical energy. The intent of this local law is to regulate wind energy (WECS) in the Town of Hanover. The intent of this local law is to accommodate the necessary infrastructure for the provision of utility scale and Small WECS wind-powered electricity generation in facilities so that they may be developed in a manner hereby deemed to be compatible with the general health, welfare and safety of the residents of the Town of Hanover. Furthermore, to address the visual, aesthetic and land use compatibility aspects of wind energy conversion systems. (WECS)

## SECTION 1601 .1- Authority

The Town Board of the Town of Hanover enacts this Local Law under the authority granted by:

- 1. Article IX of the New York State Constitution, § 2(c)(6) and (10).
- 2. New York Statute of Local Governments, § 10(1) and (7).
- 3. New York Municipal Home Rule Law, § 10(1)(i) and (ii) and § 10(1)(a)(6), (11),(12), and (14).
- 4. New York Town Law § 130(1)(Building Code), (3)(Electrical Code), (5)(Fire Prevention), (7)(Use of streets and highways), (7-a)(Location of Driveways), (11)(Peace, good order and safety), (15)(Promotion of public welfare), (15-a)(Excavated Lands), (16)(Unsafe buildings), (19)(Trespass), and (25)(Building lines).
- 5. New York Town Law § 64(17-a)(protection of aesthetic interests) and (23)(General powers).

#### SECTION 1602 - Definitions

Accessory, Facility, or Equipment: Any structure other than a WECS, related to the use and purpose of deriving energy from such towers, located at the tower facility.

Agricultural Or Farm Operations: means the land and on-farm buildings, equipment, manure processing and handling facilities, and practices which contribute to the production, preparation, and marketing of crops, livestock, and livestock products as a utility scale enterprise, including a "utility scale horse boarding operation" as defined in subdivision thirteen of New York Agriculture and Markets Law § 301 and "timber processing," as defined in subdivision fourteen of New York Agriculture and Markets

Law § 301. Such farm operation may consist of one or more parcels of owned or rented land, which parcels may be contiguous or noncontiguous to each other.

**EAF**: Environmental Assessment Form used in the implementation of the SEQRA as that term is defined in Part 617 of Title 6 of the New York Codes, Rules and Regulations.

**EIS**: Environmental Impact Statement used in the implementation of the SEQRA as that term is defined in Part 617 of Title 6 of the New York Codes, Rules and Regulations.

<u>Nacelle:</u> The portion of the wind turbine that connects the rotor to the support tower and houses the generator, gearbox, drive train and braking system.

Residence: Shall mean any dwelling suitable for habitation existing in the Town of Hanover on the date an application is received including seasonal homes, hotels, hospitals, motels, dormitories, sanitariums, nursing homes, senior housing, schools or other buildings used for educational purposes. A residence may be part of a multi-dwelling or multi-purpose building, but shall not include correctional institutions.

<u>SEORA:</u> The New York State Environmental Quality Review Act and its implementing regulations in Title VI of the New York Code of Rules and Regulations, Part 617.

<u>Site:</u> The parcel or parcels of land where a WECS is to be placed. The site can be publicly or privately owned by an individual or a group of individuals controlling single or adjacent properties. Where multiple lots are in joint ownership, the combined lots shall be considered as one for purposes of applying set back requirements. Any property that has a **WECS**, or has entered an agreement for said facility or a set back agreement, shall not be considered off-site.

<u>Siting Agency:</u> The applicant, person or persons who are applying to site a utility scale wind energy-deriving tower facility.

<u>Small WECS</u>: A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than ten (10) kilowatts, and which is intended to primarily reduce consumption of utility power at that location.

Sound Pressure Level: Means that level which is equaled or exceeded a stated percentage of time. L 10-50 dBA indicates that at any hour of the day 50 dBA can be equaled or exceeded only ten (10%) percent of the time, or for six (6) minutes. The measurement of the sound pressure level can be done according to the international standard for acoustic noise measurement techniques for wind generators (IEC 61400-11), or other accepted procedures.

**SWPPP**: Stormwater Management Pollution Prevention Plan, as required by New York State Department of Environmental Conservation regulations.

**Total Height:** The height of the tower and the furthest vertical extension of the WECS.

Utility Scale: Means a WECS other than a Small WECS.

Wind energy conversion systems (WECS): Shall mean any mechanism designed for the purpose of converting, wind energy into electrical energy.

<u>Wind Energy Facility:</u> Any wind energy conversion system, Small WECS, or wind measurement tower, including all related infrastructure, electrical lines and substations, access roads, and other accessory structures and appurtances.

<u>Wind Measurement Tower:</u> A tower used for the measurement of meteorological data such as temperature, wind speed, and wind direction.

<u>Wind Overlay Zoning District</u>: A district which encompasses one or more underlying zones and that establishes requirements for Wind Energy Facilities.

## **SECTION 1603 Permits**

- A. No Wind Energy Facility shall be constructed, reconstructed, modified, or operated in the Town of Hanover except in compliance with this Local Law.
- B. No **WECS** shall be constructed, reconstructed, modified, or operated in the Town of Hanover except in a Wind Energy Overlay District with a Special Use Permit approved pursuant to this Local Law.
- C. No Wind Measurement Tower shall be constructed, reconstructed, modified, or operated in the Town of Hanover except pursuant to a Special Use Permit issued pursuant to this Local Law.
- D. No Small Wind Energy Conversion System shall be constructed, reconstructed, modified, or operated in the Town of Hanover except pursuant to a Special Use Permit issued pursuant to this Local Law.
- E. This Local Law shall apply to all areas of the Town of Hanover.
- F. Exemptions. No permit or other approval shall be required under this Article for WECS utilized solely for agricultural operations in a state or county agricultural district, as long as the facility is set back at least one and a half times its Total Height from a property line, and does not exceed 120 feet in height. Towers over 120 feet in Total Height utilized solely for agricultural operations in a state or county agricultural district shall apply for a Special Use Permit in accordance with this Local Law, but shall not require a height variance. Prior to the construction of a WECS under this exemption, the property owner or a designated agent shall submit a sketch plan or building permit application to the Town to demonstrate compliance with the setback requirements.
- G. Transfer. No transfer of any Wind Energy Facility or Special Use Permit, nor sale of the entity owning such facility including the sale of more than 30% of the stock of such entity (not counting sales of shares on a public exchange), will occur without prior approval of the Town, which approval shall be granted upon written acceptance of the transferee of the obligations of the transferor under this Section, and the transferee's

demonstration, in the sole discretion of the Town Board, that it can meet the technical and financial obligations of the transferor. No transfer shall eliminate the liability of the transferor nor of any other party under this Section unless the entire interest of the transferor in all facilities in the Town is transferred and there are no outstanding obligations or violations.

- H. Notwithstanding the requirements of this Section, replacement in kind or modification of a Wind Energy Facility may occur without Town Board approval when (1) there will be no increase in Total Height; (2) no change in the location of the WECS; (3) no additional lighting or change in facility color; (4) no increase in noise produced by the WECS, and (5) the WECS is not currently in violation of any permit condition or provision of this Local Law.
- I. The Town shall require any applicant to enter into an escrow agreement to pay the engineering and legal costs of any application review, including the review required by SEQRA.

### **SECTION 1604 Procedure**

- Applications for siting WECS facilities shall be submitted to the Hanover Code Enforcement officer. Applications shall be made by the owner of the property or his/her duly authorized representative, who shall attend the meeting of the Town Board to discuss the application. Any application deemed incomplete by the code enforcement officer or the Town Board shall be returned to the applicant and the Town or its Officer or Board shall undertake no action.
- 2. The Town Board may refer the application to the Planning Board for recommendations, which shall be reported by the Planning Board to Town Board within forty-five (45) days of said referral.
- 3. Public Hearing: After reviewing the site plan and recommendations, if any, from other involved Town or County Agencies, the Town Board shall hold a Public Hearing, which Public Hearing shall be held within sixty-two (62) days from the day the application is received by the Town Board. Notices of the Public Hearing shall be mailed to adjacent property owners within five hundred (500) feet from the property line boundaries of the proposed Wind Energy Overlay District and published in the Town's official newspaper, one time, not less then ten (10) nor more than twenty (20) days before said hearing. But where any hearing is adjourned by the Town Board to hear additional comments, no further publication or mailing shall be required.
- 4. The applicant shall prepare and mail the notice of public hearing prepared by the Town, and shall submit an affidavit of service to the Town Clerk. The assessment roll of the Town shall be used to determine mailing addresses.
- 5. The public hearing may be combined with public hearings on any environmental impact statement or requested waivers.

- 6. **Final Special Use permit and Site Plan:** A final site plan for the Special Use Permit application shall substantially conform to the site plan that has been approved, and may incorporate any revisions or other features recommended by the Town of Hanover Planning Board.
- 7. Town of Hanover Town Board Action: Within sixty-two (62) days from the date of the public hearing, the Hanover Town Board shall render a decision of approval, conditional approval or disapproval. This time period may be extended by mutual consent of the applicant and the Board. The decision of the Hanover Town Board shall be filed in the Office of the Town Clerk within five (5) business days after such decision is rendered, and a copy thereof mailed to the applicant.
- 8. Conditions attached to the Issuance of Special Use Permits:

  The Town of Hanover Town Board shall have the authority to impose reasonable conditions and restrictions as are directly related to and incidental to proposed special use permit. Upon its granting of said special use permit, any such conditions must be met in connection with the issuance of permits
- 9. **Reimbursable Costs:** Costs incurred by the Hanover Town and Planning Boards for consultation fees or other extraordinary expense in connection with the review of a proposed special use permit shall be charged to the applicant.

## Section 1605 Wind Energy Conversion System Facility Permit Required

No Wind Energy Conversion System shall be sited, located, constructed, erected or modified without the issuance of a special use permit as prescribed in this article. (Reference 1603)

# Section 1606 Zoning District and Bulk Requirements

- 1. WECS Facilities may be permitted in the Wind Overlay Zoning District, which may be created in the Agricultural Residential (A-1) District, upon the issuance by the Hanover Town Board of a Special Use Permit, under this Article; all applications will require a site plan as provided herein.
- 2. Setbacks. Each WECS shall be setback as measured from the center of the WECS a minimum distance of:
  - a. 500 feet from the nearest Site boundary property line, right-of-way, easements, and power lines and 500 feet where the boundary is with state, county, town, or village —owned property.
  - b. 500 feet from the nearest public road.
  - c. 1,000 feet from the nearest off-site Residence, school, church or historic structure existing at the time of application, as measured to the exterior of such structure.

- d. 100 feet from state-identified wetlands. This distance may be adjusted to be greater at the discretion of the reviewing body, based on topography, land cover, land uses, and other factors that influence the flight patterns of resident birds.
- e. 500 feet from gas wells, electric or gas distribution lines unless waived in writing by the property owner and well owner or applicable utility owner.
- 3. Noise Limit. The statistical sound pressure level generated by a WECS shall not exceed L<sub>10</sub> 50 dBA measured at any off site Residence existing at the time of the application. If the ambient sound pressure level exceeds 48 dBA, the standard shall be ambient dBA plus 5 dBA. Independent certification shall be provided before and after construction demonstrating compliance with this requirement.
- 4. In the event audible noise due to WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in subparagraph 3 of this subsection shall be reduced by 5 dBA. A pure tone is defined to exist if the 1/3 octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two contiguous 1/3 octave bands by 5 dBA for center frequencies of 500 Hz and above, by 8 dBA for center frequencies between 160 Hz and 400 Hz, or by 15 dBA for center frequencies less than or equal to 125 Hz.
- 5. In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level. The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA, which is exceeded for more than five minutes per hour. Ambient noise levels shall be measured at the exterior of potentially affected existing residences, schools, hospitals, churches, and public libraries. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project Site are sufficient to allow Wind Turbine operation, provided that the wind velocity does not exceed 30 mph at the ambient noise measurement location.
- 6. Any noise level falling between two whole decibels shall be the lower of the two.
- 7. All applications for WECS exceeding 120 feet in height shall be treated as a Type One Action under the State Environmental Quality Review Act.

## SECTION 1607: APPLICATION REQUIREMENTS

A plan for the proposed development of a project utility scale WECS, including the proposed Wind Energy Overlay District and individual Special Use Permit applications for WECS shall show and include the following:

- A. Name of the project, the address and Section, Block and Lot number of each proposed WECS location and the boundary lines of the parcel on which the project will be located, a location map showing proposed sites location, date, North arrow and scale. Engineering and or Surveyor maps.
- B. Name and mailing address of the developer or applicant and owners of the parcels where development is proposed.
- C. Name and mailing address of all owners of record of abutting parcels, or those owners within fifteen hundred (1,500) feet of the property lines of parcel where development is proposed. The applicant may delay submitting this list until the Town Board calls for a public hearing on the application.
- D. A map prepared by a surveyor or engineer licensed in the State of New York shall be provided in the EIS showing all existing lot lines, easements and right-of-ways, and a sketch plan showing proposed road access including provisions for paving, if any, proposed transmission lines and accessory facilities and location of all existing and proposed utility systems to the facility. A map of all above and below ground utilities near the tower site that could possibly be impacted.
- E. Boundaries of the proposed Wind Energy Overlay Zoning District.
- F. A map showing existing and proposed topography at a maximum of five (5) foot contour intervals. (Applies to utility scale only)
- G. A landscape plan showing all existing natural land features, trees, forest cover, buildings and structures and all proposed changes to these features including size and type of plant material and erosion control measures. (Applies to utility scale only)
- H. State Environmental Quality review Act (SEQRA). Nothing shall prohibit the Board from requiring an environmental impact statement if deemed necessary by the Board. WECS are considered a Type 1 action and require a full Environmental Assessment Form (EAF) and a visual EAF to be completed and submitted to the town.
- I. Photography, assessing the visibility from the key viewpoints, existing tree lines and proposed elevations. Pictures shall be digitally enhanced to simulate the appearance of the "as built" above the ground site facilities as they would appear from distances within three (3) mile

radius of such WECS. No fewer than four (4) and no more than the number of proposed individual WECS plus three (3) color photos.

Pictures shall be no smaller than 8"x10". This requirement may be waived for Small WECS.

- J. Documentation of the proposed intent and capacity of energy generation as well as a justification for the height of any WECS.
- K. Justification for any clearing required. (Applies to utility scale only)
- L. Preliminary report proposed by the WECS siting agency describing: (Applies to utility scale only)
  - i. Surrounding topography in relation to the capabilities for generation of electricity by wind.
  - ii. Required improvements for construction activities, including those within the public right-of-way or land controlled by the Town of Hanover.
  - iii. Proposed mitigation measures for visual impacts of the tower facility.
  - iv. Proposed safety measures to mitigate wind energyderiving tower failure.
- M. Elevation map showing the wind energy-deriving tower's height and design including a cross section of the structure and components of the nacelle; the wind energy-deriving tower's compliance with the applicable structural standards and the wind energy-deriving tower's abilities in terms of producing energy. (Applies to utility scale only)
- N. A description of the general geographic areas that would be acceptable for wind projects within the Town of Hanover: furthermore, demonstration that the proposed site is the most appropriate site within the immediate area for the location of the WECS. (May waive for Small WECS)
- O. Description of the applicant's long range plans with project market demand and long-range facility needs within the Town of Hanover. (May waive for Small WECS)
- P. Digital elevation model-based project visibility map showing the impact of visibility of the project from other locations, to a distance radius of three (3) miles from the center of the project. The base map used shall be a published topographic map showing natural and structural or built features. (To be provided in the EIS. May waive for Small WECS)
- Q. Report showing soil logs, soil profile analysis and storm water run-off calculation for the area being disturbed. (To be provided in the SWPPP and EIS. May waive for Small WECS)

- R. Plans to prevent the pollution of the surface or ground water, erosion of soil, both during and after construction, excessive run-off and flooding of the other properties as applicable. There should be preconstruction and post—construction drainage calculations for the site done by a New York State licensed engineer showing there will be no increase of run-off from the site. (To be provided in the SWPPP and EIS, May waive for Small WECS)
- S. All information regarding requirements for migratory bird flyways with documents by the EPA, NYSDEC or US Fish and Wildlife Service. (To be provided in the EIS, May waive for Small WECS)
- T. All information regarding FAA rules and regulations, additional permits necessary or any other applicable regulations from the Federal Communications Commission (FCC) and Federal Aviation Agency (FAA) for installation of conversion systems. Proof of compliance with the FCC and FAA regulations shall be submitted prior to the finalization of the EIS and issuance of a Special Use Permit by the Town Board, Town of Hanover.
- U. Blade Throw and Ice Throw Risk: Either the Application or the EIS shall evaluate the risk from Blade Throw and Ice Throw Risk.
- V. Catastrophic Tower Failure: A report from the turbine manufacturer stating:
  - i. The wind speed and conditions that the turbine is designed to withstand (including all assumptions)
  - ii. The incidence of catastrophic failures and the conditions reported at the time of failure.
- W. Noise Report: A noise report that shall at a minimum include the following: (May waive for Small WECS)
  - i. A description and map of the project's noise producing features, including the range of noise levels expected, and the tonal and frequency characteristics expected, and the basis of the expectation.
  - ii. A description and map of the noise sensitive receptors, i.e., residences, libraries, schools, places of worship and other facilities where quiet is important within two (2) miles of the proposed facility.
  - the pre-existing ambient daytime and nighttime noise regime (including seasonal variation), including but not limited to: separate measurements of low frequency and A-weighted noise levels across a range of wind speeds (including near cut-in), turbulence measurements, distance from the turbines, location of sensitive receptors relative to wind direction: and analyses at

affected sensitive receptors located two (2) miles of the proposed project site. Potential sensitive receptors at relatively less windy or quieter locations than the project should be emphasized.

- iv. A description and map showing the potential noise impacts, including estimates of expected noise impacts upon construction and operation workers, and estimates of expected noise levels at sensitive receptor locations.
- v. A description and map of the cumulative noise impacts.
- vi. A description of the projects proposed noise control features, including specific measures proposed to protect workers, and specific measures proposed to mitigate noise impacts for sensitive receptors to a level of insignificance.
- vii. Identification of any problem areas
- viii. Summary of Project Developer's proposed Noise Complaint resolution Program, including postconstruction testing.
- ix. Manufactures Noise design and field-testing data both audible (dBA) and low frequency (deep base vibration) for all proposed structures.

# Section 1608 - Standards:

The development of utility scale WECS and related structures may be permitted with approval by the Hanover Town Board, subject to the following requirements:

- A. Location: Applications for wind energy-deriving towers shall locate, erect and site towers in accordance with the following requirements:
  - 1. No WECS shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operations.
  - 2. No WECS shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antenna (including residential reception antenna) for radio, television, or wireless phone or other personnel communication systems would produce electromagnetic interference with signal transmission or reception. If it is determined that a WECS is causing electromagnetic interference, the applicant/operator shall take the necessary corrective action to eliminate this interference including

relocation or removal of the facilities, or resolution of the issue with the impacted parties. Failure to remedy electromagnetic interference is grounds for revocation of the Special Use Permit for the specific WECS or WECS causing the interference.

- 3. No individual tower facility shall be installed in any location where there is a recognized migratory flight path for birds or at a location where birds commonly congregate, unless applicant can demonstrate that the operation of the wind energy-deriving Tower will not have a significant impact on either migratory or resident birds. Conclusions of no significant impact within these recognized areas shall be the results of studies conducted over a period of a minimum of one year by expert consultants and in compliance with NYS DEC regulations, at the expense of the applicant.
- 4. WECS shall be painted a non-obtrusive (e.g. light environmental color such as white, gray or beige) color that is non reflective.
- A New York State Licensed professional engineer shall certify that the construction and installation of the conversion system meets or exceeds the manufacture's construction and installation standards. (Town Board may waive for Small WECS)

# B. Emergency Shutdown/Safety

- 1. Procedures acceptable to the Hanover Town Board for emergency shutdown of power generation unit shall be established and available with local agencies as required by the Town.
- 2. No tower or facility shall exhibit any signs or advertising. Applicant shall post an emergency telephone number so that the appropriate people may be contacted should any wind energy-deriving tower need immediate attention.
- 3. No WECS shall be permitted that lack an automatic braking, governing, or feathering system to prevent uncontrolled rotation, over speeding, and excessive pressure on the tower structure, rotor blades, and turbine components.
- 4. The safety of the design of all conversion systems shall be certified by a licensed professional engineer experienced in WECS. The standard for certification shall be good engineering practices and shall conform to New York State's officially adopted building and electrical codes.

5. The minimum distance between the ground and any part of the rotor blade shall be thirty (30) feet.

#### C. Lighting:

Lighting shall be in compliance with FAA regulations.

## D. Utility Service

All power transmission lines from the wind generation electricity facilities to non-site substations shall be underground unless specifically waived by the Town Board as part of the Special Use Permit. Where the electrical components of an installation vary from the Manufacturer's standard design or specifications, the proposed modifications shall be reviewed and certified by a N.Y.S. registered professional engineer for compliance with requirements of the national Electrical Underwriter's Code and good engineering practices.

## E. Height:

- 1. The height of any WECS shall be limited to the minimum required to provide needed energy by demonstrated demand, or need.
- 2. Small WECS shall not exceed a total of seventy-five (75) feet unless the parcel on which the WECS is to be located is ten (10) acres or more, in which case the maximum height of the tower, including the turbine and blades, shall be 120 feet.
- 3. WECS shall not exceed a total height of 420 feet including the turbine and blades.

#### E. Access Road:

Existing roadways shall be used for access to the site whenever possible. In the case of constructing roadways, they shall be constructed in a way so that they do not disrupt normal drainage patterns, and are not conspicuous to the surrounding environment.

# G. Accessory Structures/Facilities

Transmission facilities and or buildings shall be located behind ridges or vegetation to screen from visibility unless specifically waived by the Town Board as part of the Special Use Permit. Removal of trees and other vegetation on the site shall affect the minimum area and number of trees possible to minimize soil erosion.

# H. Security Provisions:

- 1. No climbing device of any kind shall be attached to the outside of a WECS. Only internal ladders with locked doors.
- 2. All towers or poles must be unclimbable by design or protected by anti-climbing devices.
- 3. A WECS is prohibited upon the roof of any structure unless the structure has been approved for installation of a conversion system by a structural engineer certified by the State of New York.

# I. Compliance with the National Electrical Code:

- 1. Building permit applications shall be accompanied by a one line drawing identifying the electrical components of the wind system to be installed in sufficient detail to allow for a determination that the manner conforms to the National Electrical Code. The application shall include a statement from a New York State licensed professional engineer indicating that the electrical system conforms to good engineering practices and complies with the National Electrical Code. The manufacturer normally supplies this certification. All equipment and materials shall be used or installed in accordance with such drawings and diagrams.
- 2. All electrical lines shall be placed in compliance with the current electrical code standards and appropriately marked and identified as specified by the Town. A visible warning sign of "High Voltage" will be placed at the base of all WECS. The letters on the sign shall be a minimum of six (6) inches in height.
- 3. The applicant shall, prior to the receipt of a building permit, demonstrate that the proposed facility meets the system reliability requirements of the New York Independent System Operator, or provide proof that it has executed an Interconnection Agreement with the New York Independent System Operator and/or the applicable Transmission owner.

# J. Insurance/Liability

The applicant, owner, lessee or assignee shall maintain a current insurance policy which will cover installation and operation of the **WECS** at all times. As part of the application review process, the Town of Hanover may require proof that the applicant is carrying sufficient liability, workers compensation, etc, during installation and operations of proposed facility. Limits for said policy shall be set according to the size and scope of each project.

#### K. Abatement:

- 1. Any WECS which has not been generating energy for a period of one (1) year shall be removed from the premises to a place of safe and legal disposal. Any and all structures, guy cables, guy anchors and or enclosures accessory to such WECS shall also be removed. The site shall be restored to as natural a condition as possible. Such removal shall be completed within six (6) months after 1 year of non-use of such WECS. The permittee is responsible for removal.
- 2. Bond/Security: All successful applicants shall furnish and file with the Town Clerk a performance bond to be payable to the Town and in an amount to be determined by the Town for the purpose of covering damage to any Town property during the construction, maintenance, operation or removal of the WECS facility.
- 3. Decommissioning Security. In addition, all successful applicants shall furnish and file with the Town Clerk a bond or other security for the purpose of paying for the removal of and de-commissioning of the WECS facilities in the event that such WECS facilities are no longer in use and require removal under this article and upon failure of the then-owner or operator to remove same in accordance with this article (such bond or other security, a "Decommissioning Bond"). The Decommissioning Bond shall remain valid and enforceable during the entire time the facility is permitted to operate and for an additional period of two years thereafter and as may be necessary to ensure the de-commissioning and removal of the WECS in the event the owner/operator fails to do so as required by this article. The Decommissioning Bond may consist of a letter of credit from a State of New York-licensed financial institution. All costs of the financial security shall be borne by the applicant.
  - 4. **Decommissioning Plan**: The applicant shall submit a decommissioning plan, which shall include: 1) the anticipated life of the WECS; 2) the estimated decommissioning costs in current dollars; 3) how said estimate was determined; 4) the method of ensuring that funds will be available for decommissioning and restoration; (5) the method, such by annual re-estimate by a licensed engineer, that the decommissioning cost will be kept current; and 6) the manner in which the WECS will be decommissioned and the Site restored, which shall include removal of all structures and debris to a depth of three feet, restoration of the soil, and restoration of vegetation (consistent and compatible with surrounding vegetation), less any fencing or residual minor improvements requested by the landowner. The Plan shall include the Decommissioning Bond required by this Section.

5. If removal of towers and appurtenant facilities is required and applicant, permit holder, or successors fails to remove the towers and appurtenant facilities from the property within one hundred twenty (120) days from the date of notification by the Town Board, the Board shall contract for such removal and pay for removal from the Bond.

# L. Right of Entry and Inspection:

Upon notice to the applicant, the Code Enforcement Officer or any duly authorized agent of the Town shall be allowed to enter on the property and make such inspections as deemed necessary during the construction and assembly of the WECS, and to ensure compliance with permit conditions.

#### M. Fees

Applications, permits, and inspection fees for WECS applicants under this article shall be as established by the Town Board of the Town of Hanover by Town Board Resolutions, as from time to time enacted.

# SECTION 1609 – WECS FACILITIES MAINTENANCE

The Town Code Enforcement Officer and/or Building Inspector or outside consultant designated by the Town Board are empowered to enforce these regulations.

- 1. The sufficiency of the bond for removal shall be confirmed at least every year by an analysis of the cost of removal and property restoration performed by a licensed New York State professional Engineer with results to be communicated to the Town. If the bond amount in force is not sufficient to cover the cost of the removal, it shall be increased within thirty (30) days to cover such amount.
- 2. The Facility shall be inspected at least every two (2) years for structural Integrity by a New York licensed professional engineer and a copy of the inspection report submitted to the Town.
- 3. All WECS shall be maintained in good order and repair and all such work shall comply with all applicable code requirements of any governmental body issuing such rules and/or regulations.
- 4. No outside storage of vehicles, materials or waste shall be allowed except for the limited periods when the facility is undergoing construction, repair or maintenance.

# SECTION 1610 - EXEMPTIONS

Notwithstanding the requirements of this Section, replacement in kind or modification of a Wind Energy Facility may occur without Town Board approval when (1) there will be no increase in Total Height; (2) no change in the location of the WECS; (3) no additional lighting or change in facility color; (4) no increase in noise produced by the WECS, and (5) the WECS is not currently in violation of any permit condition or provision of this Local Law

# SECTION 1611 – PURPOSE AND INTENT—SMALL WIND ENERGY CONVERSION SYSTEM

- 1. The purpose of this section is to provide standards for Small WECS designed for home, farm, and Small WECS use on the same parcel, and that are primarily used to reduce consumption of utility power at that location and not for sale off-premises.
- 2. Applications for Small WECS energy permits shall include:
  - a) Name, address, telephone number of the applicant. If the applicant will be represented by an agent, name, address, and telephone number of the agent, as well as an original signature.
  - b) Name, address, telephone number of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner (i) confirming that the property owner is familiar with the proposed applications and (ii) authorizing the submission of the application.
  - c) Address of each proposed tower location, including Tax Map section, block and lot number.
  - d) Evidence that the proposed tower height does not exceed the height recommended by the manufacturer or distributor of the system.
  - e) A line drawing of the electrical components of the system in sufficient detail to allow for a determination that the manner of installation conforms to the Uniform Fire Prevention and Building Code.
  - f) Sufficient information demonstrating that the system will be used primarily to reduce consumption of electricity at that location.
  - g) Written evidence that the electric utility service provider that serves the proposed Site has been informed of the applicant's intent to install an interconnected customer-owned electricity generator, unless the applicant does not plan, and so states in the application, to connect the system to the electricity grid.
  - h) A visual analysis of the Small WECS as installed, which may include a computerized photographic simulation, demonstrating the visual impacts from nearby strategic vantage points. The visual analysis shall also indicate the color treatment of the system's components and any visual screening incorporated into the project that is intended to lessen the system's visual prominence.
- 3. <u>Development Standards</u>. All Small wind energy systems shall comply with the following standards. Additionally, such systems shall also comply with all the requirements established by other sections of this Article that are not in conflict with the requirements contained in this section.

- a) A system shall be located on a lot a minimum of one acre in size, however, this requirement can be met by multiple owners submitting a joint application.
- b) Only one small wind energy system tower per legal lot shall be allowed, unless there are multiple applicants, in which their joint lots shall be treated as one lot for the purposes of this section.
- c) Small WECS shall be used primarily to reduce the on-site consumption of electricity.
  - d) Tower heights may be allowed as follows:
    - (i.) See Section 1608 E (2).
    - (ii.) The allowed height shall be reduced if necessary to comply with all applicable Federal Aviation Requirements, including Subpart B (commencing with Section 77.11) of Part 77 of Title 14 of the Code of Federal Regulations regarding installations close to airports.
  - e) The maximum turbine power output is limited to 10 KW.
  - f) The system's tower and blades shall be painted a non-reflective, unobtrusive color that blends the system and its components into the surrounding landscape to the greatest extent possible and incorporate non-reflective surfaces to minimize any visual disruption.
  - g) The system shall be designed and located in such a manner to minimize adverse visual impacts from public viewing areas.
  - h) Exterior lighting on any structure associated with the system shall not be allowed except that which is specifically required by the Federal Aviation Administration.
  - i) All on-site electrical wires associated with the system shall be installed underground except for "tie-ins" to a public utility company and public utility company transmission poles, towers and lines. This standard may be modified by the decision-maker if the project terrain is determined to be unsuitable due to reasons of excessive grading, biological impacts, or similar factors.
  - j) The system shall be operated such that no disruptive electromagnetic interference is caused. If it has been demonstrated that a system is causing harmful interference, the system operator shall promptly mitigate the harmful interference or cease operation of the system.
  - k) At least one sign shall be posted on the tower at a height of five feet warning of electrical shock or high voltage and harm from revolving machinery. No brand names, logo or advertising shall be placed or painted on the tower, rotor, generator or tail vane where it would be visible from the ground, except that a system or tower's manufacturer's logo may be displayed on a system generator housing in an unobtrusive manner.
  - l) Anchor points for any guy wires for a system tower shall be located within the property that the system is located on and not on or across any above-ground electric transmission or distribution lines. The point of attachment for the guy wires shall be enclosed by a fence six feet high or sheathed in bright orange or yellow covering from three to eight feet above the ground.
  - m) Construction of on-site access roadways shall be minimized. Temporary access roads utilized for initial installation shall be re-graded and re-vegetated to the pre-existing natural condition after completion of installation.

- n) To prevent harmful wind turbulence from existing structures, the minimum height of the lowest part of any horizontal axis wind turbine blade shall be at least 30 feet above the highest structure or tree within a 250 foot radius. Modification of this standard may be made when the applicant demonstrates that a lower height will not jeopardize the safety of the wind turbine structure.
- o) All small wind energy system tower structures shall be designed and constructed to be in compliance with pertinent provisions of the Uniform Fire Prevention and Building Code.
- p) All Small WECS shall be equipped with manual and automatic over-speed controls. The conformance of rotor and over-speed control design and fabrication with good engineering practices shall be certified by the manufacturer.
- 5. Standards. A Small WECS shall comply with the following standards:
  - a) Setback requirements. A Small WECS shall not be located closer to a property line than one and a half times the total height of the facility.
  - b) Noise. Except during short-term events, including utility outages and severe wind storms, a Small WECS shall be designed, installed, and operated so that noise generated by the system shall not exceed the 50 decibels (dBA) as measured at the closest neighboring inhabited dwelling.
- 6. Abandonment of Use. A Small WECS which is not used for twelve (12) successive months shall be deemed abandoned and shall be dismantled and removed from the property at the expense of the property owner. Failure to abide by and faithfully comply with this section or with any and all conditions that may be attached to the granting of any building permit shall constitute grounds for the revocation of the permit by the Town.
  - All Small WECS shall be maintained in good condition and in accordance with all requirements of this section.
- 7. A Small **WECS** shall be permitted only in Zoning District (A-1), Agricultural Residential.

# SECTION 1612 – WIND MEASUREMENT TOWERS

- 1. <u>Wind Site Assessment</u>. The Town Board acknowledges that prior to construction of a WECS, a wind site assessment is conducted to determine the wind speeds and the feasibility of using particular sites. Installation of Wind Measurement Towers, also known as an emometer ("MET") towers, shall be permitted on the issuance of a Special Use Permit in accordance with this section.
  - 2. Applications for Wind Measurement Towers.
  - A. An application for a Wind Measurement Tower shall include:
    - a) Name, address, telephone number of the applicant. If the applicant is represented by an agent, the application shall include the name,

- address, and telephone number of the agent as well as an original signature of the applicant authorizing the representation.
- b) Name, address, telephone number of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner (i) confirming that the property owner is familiar with the proposed applications and (ii) authorizing the submission of the application.
- c) Address of each proposed tower location, including Tax Map section, block and lot number.
- d) Proposed Development Plan and Map.
- e) Decommissioning Plan: The applicant shall submit a decommissioning plan, which shall include: 1) the anticipated life of the Wind Measurement Tower; 2) the estimated decommissioning costs in current dollars; 3) how said estimate was determined; 4) the method of ensuring that funds will be available for decommissioning and restoration; (5) the method, such by annual re-estimate by a licensed engineer, that the decommissioning cost will be kept current; and 6) the manner in which the Wind Measurement Tower will be decommissioned and the Site restored, which shall include removal of all structures and debris to a depth of three feet, restoration of the soil, and restoration of vegetation (consistent and compatible with surrounding vegetation), less any fencing or residual minor improvements requested by the landowner. The Plan shall include the Decommissioning Bond required by this Section.
- f. **Decommissioning Security**. The applicant, or successors, shall continuously maintain a fund or bond payable to the Town for the removal of non-functional towers and appurtenant facilities in an amount to be determined by the Town for the period of the of the life of the facility. This fund may consist of a letter of credit from a State of New York-licensed financial institution. All costs of the financial security shall be borne by the applicant.

# 3. Standards for Wind Measurement Towers.

- A. The distance between a Wind Measurement Tower and the property line shall be at least one and a half times the total height of the tower. Sites can include more than one piece of property and the requirement shall apply to the combined properties. Exceptions for neighboring property are also allowed with the consent of those property owners.
- B. Special Use Permits for Wind Measurement Towers may be issued for a period of up to two years. Permits shall be renewable upon application to the Town Board in accordance with the procedure of § 1-20.

# SECTION 1613 – VIOLATIONS/PENALTIES

This article is adopted pursuant to the zoning and planning powers granted to the Town under Town Law of the State of New York and other applicable law, rule and regulation. In the event of any violation of this article or permit issued hereunder, the Town may

seek enforcement under any available authority, including but not limited to Town Law, Section 268, as from time to time amended.

Any applicant upon receipt of a Special Use Permit for a Wind Energy Conversion System Facility that substantially does not meet any of the requirements and/or conditions of that permit, shall have its permit revoked and the WECS Facility removed within one hundred twenty (120) days of notification by the Town of such violation. Nothing herein shall limit or prohibit the Town from seeking equitable or injunctive relief for a violation of this article in any court of competent jurisdiction.

# **SECTION 1614 – HOST COMMUNITY AGREEMENT**

Nothing in this Article shall be read as limiting the ability of the Town to enter into Host Community Agreements with any applicant to compensate the Town for expenses or impacts on the community.

# **SECTION 1615 - TAX EXEMPTION**

The Town hereby exercises its right to opt out of the Tax Exemption provisions of Real Property Tax Law Section 487, pursuant to the authority granted by paragraph 8 of that law.

#### SECTION 1616 - SEVERABILITY

Should any provision of this Local Law be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of this Local Law as a whole or any part thereof other than the part so decided to be unconstitutional or invalid.

## SECTION 1617 - MISCELLANEOUS

The amendments in this local law shall apply to any and all applications pending at the time of enactment for which final permits have not been issued.

## SECTION 1618 - REPEALER

That the enactment of this local law shall act as a repealer of Local Law No. 4 of 2006 previously enacted by the Town Board of the Town of Hanover providing for wind energy conversion systems. That in the event of any conflict in local law, ordinance, rule or regulation having to do with wind energy conversion systems and wind energy facilities, the provisions of this Local Law shall prevail.

#### **SECTION 1619 – EFFECTIVE DATE**

This local law shall be effective upon its filing with the Secretary of State in accordance with the Municipal Home Rule Law.

Effective Date:		

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Town of Villenova Local Laws for WECS

#### Local Law No. 1 of 2007

# A LOCAL LAW GOVERNING WIND ENERGY FACILITIES IN THE TOWN OF VILLENOVA

Be it hereby enacted by the Town Board of the Town of Villenova as follows:

**Section 1: Title** 

This Local Law shall be known as the "Wind Energy Facilities Law of the Town of Villenova."

**Section 2:** Section 401(C) of the Town of Villenova Zoning Law - Uses by Special Use Permit in the Agricultural - Residential (AR1) District, is amended to replace

Windmills - private in accordance with Section 617

to read

Wind Energy Facilities in accordance with Article VI-A

**Section 3:** Section 402(C) of the Town of Villenova Zoning Law - Uses by Special Use Permit in the Transition (T) District, is amended to replace

Windmills - private in accordance with Section 617

to read

Wind Energy Facilities in accordance with Article VI-A.

Section 4: Section 403(C) of the Town of Villenova Zoning Law - Uses by Special Use Permit in the Industrial Park (IP) District, is amended to replace

Windmills - private in accordance with Section 617

to read

Wind Energy Facilities in accordance with Article VI-A

Section 5: Sections 617.00 through and including Section 617.13 of the Town of Villenova Zoning Law are hereby repealed.

**Section 6:** Section 617, "Commercial Towers/Windmills" of the Town of Villenova Zoning Law is hereby amended as follows:

- a. The Title of Section 617 shall be "Commercial Towers."
- b. The first sentence of Section 617 shall read in its entirety as follows "Commercial Towers in districts where allowed shall be subject to the following conditions:"
- c. The first sentence of Section 617(A) shall read in its entirety as follows "Towers shall be removed from surrounding residential structures sufficiently so as to not cause a nuisance due to appearance or other factors."

# Section 7: Article VI-A is hereby added to the Town of Villenova Zoning Law to read in its entirety as follows:

#### **Article VI-A**

#### WIND ENERGY FACILITIES

#### § 690.00. Purpose.

The Town Board of the Town of Villenova adopts this Article to promote the effective and efficient use of the Town's wind energy resource through wind energy conversion systems (WECS), and to regulate the placement of such systems so that the public health, safety, and welfare will not be jeopardized.

# § 690.01. Authority.

A. The Town Board of the Town of Villenova adopts this Article under the authority granted by:

Article IX of the New York State Constitution,  $\S 2(c)(6)$  and (10).

New York Statute of Local Governments, § 10 (1), (6), and (7).

New York Municipal Home Rule Law, § 10 (1)(i) and (ii) and § 10 (1)(a)(6), (11), (12), and (14).

The supersession authority of New York Municipal Home Rule Law, § 10 (2)(d)(3).

New York Town Law, Article 16 (Zoning).

New York Town Law § 130(1)(Building Code), (3)(Electrical Code), (5)(Fire Prevention), (7)(Use of streets and highways), (7-a)(Location of Driveways), (11)(Peace, good order and safety), (15)(Promotion of public welfare), (15-a)(Excavated Lands), (16)(Unsafe buildings), (19)(Trespass), and (25)(Building lines).

New York Town Law § 64(17-a)(protection of aesthetic interests) and (23)(General powers).

# **§ 690.02.** Findings.

- A. The Town Board of the Town of Villenova finds and declares that
- 1. Wind energy is an abundant, renewable, and nonpolluting energy resource of the Town and its conversion to electricity may reduce dependence on nonrenewable energy sources and decrease the air and water pollution that results from the use of conventional energy sources.
- 2. The generation of electricity from properly sited wind turbines, including small systems, can be cost effective, and in many cases existing power distribution systems can be used to transmit electricity from wind-generating stations to utilities or other users, or on-site consumption can be reduced.
- 3. Regulation of the siting and installation of wind turbines is necessary for the purpose of protecting the health, safety, and welfare of neighboring property owners and the general public.
- 4. Wind Energy Facilities represent significant potential aesthetic impacts because of their large size, lighting, and shadow flicker effects.
- 5. If not properly regulated, installation of Wind Energy Facilities can create drainage problems through erosion and lack of sediment control for facility sites and access roads, and harm farmlands through improper construction methods.
- 6. Wind Energy Facilities may present a risk to bird and bat populations if not properly sited.
- 7. If not properly sited, Wind Energy Facilities may present risks to the property values of adjoining property owners.
- 8. Wind Energy Facilities are significant sources of noise, which, if unregulated, can negatively impact adjoining properties.
- 9. Construction of Wind Energy Facilities can create traffic problems and damage local roads.
- 10. Wind Energy Facilities can cause electromagnetic interference issues with various types of communications.

#### § 690.03. Definitions.

- A. As used in this Article, the following terms shall have the meanings indicated:
- 1. AGRICULTURAL OR FARM OPERATIONS means the land and on-farm buildings, equipment, manure processing and handling facilities, and practices which contribute to the

production, preparation, and marketing of crops, livestock, and livestock products as a commercial enterprise, including a commercial horse boarding operation," as defined in New York Agriculture and Markets Law § 301 and "timber processing," as defined in subdivision fourteen of New York Agriculture and Markets Law § 301. Such farm operation may consist of one or more parcels of owned or rented land, which parcels may be contiguous or noncontiguous to each other.

- 2. EAF Environmental Assessment Form used in the implementation of the SEQRA as that term is defined in Part 617 of Title 6 of the New York Codes, Rules and Regulations.
- 3. RESIDENCE means any dwelling suitable for habitation existing in the Town of Villenova on the date SEQRA for the specific application is completed, including seasonal homes, hotels, hospitals, motels, dormitories, sanitariums, nursing homes, senior housing, schools or other buildings used for educational purposes. A residence may be part of a multidwelling or multipurpose building, but shall not include correctional institutions or a hunting cabin.
- 4. SEQRA the New York State Environmental Quality Review Act and its implementing regulations in Title 6 of the New York Codes, Rules and Regulations, Part 617.
- 5. SOUND PRESSURE LEVEL means the level which is equaled or exceeded a stated percentage of time. An L<sub>10</sub> 50 dBA indicates that in any hour of the day 50 dBA can be equaled or exceeded only 10% of the time, or for 6 minutes. The measurement of the sound pressure level can be done according to the International Standard for Acoustic Noise Measurement Techniques for Wind Generators (IEC 61400-11), or other accepted procedures.
- 6. SMALL WIND ENERGY CONVERSION SYSTEM ("Small WECS") A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-Site consumption of utility power.
- 7. SITE The parcel(s) of land where the Wind Energy Facility is to be placed. The Site could be publicly or privately owned by an individual or a group of individuals controlling single or adjacent properties. Where multiple lots are in joint ownership, the combined lots shall be considered as one for purposes of applying setback requirements. Any property which has a Wind Energy Facility or has entered an agreement for said Facility or a setback agreement and received the required variance shall not be considered off-site.
- 8. TOTAL HEIGHT The height of the tower and the furthest vertical extension of the WECS.
- 9. WIND ENERGY CONVERSION SYSTEM ("WECS") A machine that converts the kinetic energy in the wind into a usable form (commonly known as a "wind turbine" or "windmill").

- 10. WIND ENERGY FACILITY Any Wind Energy Conversion System, including Small Wind Energy Conversion Systems, or Wind Measurement Tower, including all related infrastructure, electrical lines and substations, access roads, and accessory structures.
- 11. WIND MEASUREMENT TOWER a tower used for the measurement of meteorological data such as temperature, wind speed, and wind direction.
- 12. WIND OVERLAY DISTRICT a district which encompasses part or parts of one or more underlying districts and that establishes requirements for Wind Energy Facilities.

## § 690.04. Permits and Rezoning Required.

- A. No Wind Energy Facility shall be constructed, reconstructed, modified, or operated in the Town of Villenova except in compliance with this Article.
- B. No WECS including Small WECS shall be constructed, reconstructed, modified, or operated in the Town of Villenova except in a Wind Overlay District, pursuant to an application for rezoning and for special use permit approved pursuant to this Article.
- C. No Wind Measurement Tower shall be constructed, reconstructed, modified, or operated in the Town of Villenova except pursuant to a Special Use Permit issued pursuant to this Article, except as allowed by subdivision H of this Section.
- D. Notwithstanding any other provision of this Zoning Local Law, Special Use Permits for Wind Energy Facilities shall be issued by the Town Board.
- E. Exemptions. No permit or other approval shall be required under this Article for WECS utilized solely for agricultural operations in a state or county agricultural district, as long as the facility is set back at least one and a half times its Total Height from a property line, and does not exceed 120 feet in height. Towers over 120 feet in Total Height utilized solely for agricultural operations in a state or county agricultural district shall apply for a special use permit in accordance with this Local Law, but shall not require a height variance. Prior to the construction of a WECS under this exemption, the property owner or a designated agent shall submit a sketch plan or building permit application to the Town to demonstrate compliance with the setback requirements.
- F. This Article shall apply to all areas of the Town of Villenova.
- G. Transfer. No transfer of any Wind Energy Facility or Special Use Permit, nor sale of the entity owning such facility including the sale of more than 30% of the stock of such entity (not counting sales of shares on a public exchange), will occur without prior approval of the Town, which approval shall be granted upon written acceptance of the transferee of the obligations of the transferor under this Article, and the transferee's demonstration, in the sole discretion of the Town Board, that it can meet the technical and financial obligations of the transferor. No transfer shall eliminate the liability of the transferor nor of any other party under this Article

unless the entire interest of the transferor in all facilities in the Town is transferred and there no outstanding obligations or violations.

H. Notwithstanding the requirements of this Article, replacement in kind or modification of a Wind Energy Facility may occur without Town Board approval when (1) there will be no increase in Total Height; (2) no change in the location of the WECS; (3) no additional lighting or change in facility color; and (4) no increase in noise produced by the WECS.

## § 690.05. Applicability.

- A. The requirements of this Article shall apply to all Wind Energy Facilities proposed, operated, modified, or constructed after the effective date of this Article.
- B. Wind Energy Facilities for which a required permit has been properly issued and upon which construction has commenced prior to the effective date of this Article, shall not be required to meet the requirements of this Article; provided, however, that
- 1. Any such preexisting Wind Energy Facility which does not provide energy for a continuous period of twelve (12) months shall meet the requirements of this Article prior to recommencing production of energy.
- 2. No modification or alteration to an existing Wind Energy Facility shall be allowed without full compliance with this Article.
- 3. Any Wind Measurement Tower existing on the effective date of this Article shall be removed no later than twenty-four (24) months after said effective date, unless a Special Use Permit for said Wind Energy Facility is obtained.
- C. Wind Energy Facilities may be either principal or accessory uses. A different existing use or an existing structure on the same Site shall not preclude the installation of a Wind Energy Facility or a part of such facility on such Site. Wind Energy Facilities constructed and installed in accordance with this Article shall not be deemed expansions of a nonconforming use or structure.

## § 690.06. Wind Overlay District Rules.

- A. Wind Overlay District may be created in the Agricultural-Residential (AR1) District, the T-Transitional Use District, and the Industrial Park (IP) District only.
- B. Initial requests for Wind Overlay Districts shall be submitted with applications for WECS Special Use Permits. No Wind Overlay District may be initially created without specific requests for WECSs.

C. Once a Wind Overlay District has been created, new WECSs or accessory structures or facilities may be added in that District by grant of a Special Use Permit pursuant to the requirements of this Article.

# § 690.07. Applications for Wind Energy Conversion Systems and Wind Overlay District.

- A. A joint application for creation of a Wind Overlay District and Special Use Permit for individual WECS shall include the following:
- 1. Name, address, and telephone number of the applicant. If the applicant is represented by an agent, the application shall include the name, address, and telephone number of the agent as well as an original signature of the applicant authorizing the representation.
- 2. Name and address of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner (i) confirming that the property owner is familiar with the proposed applications and (ii) authorizing the submission of the application.
- 3. Address, or other property identification, of each proposed tower location, including Tax Map section, block, and lot number.
- 4. A description of the project, including the number and maximum rated capacity of each WECS.
- 5. A plot plan prepared by a licensed surveyor or engineer drawn in sufficient detail to clearly describe the following.
  - (a) Property lines and physical dimensions of the Site.
- (b) Location, approximate dimensions, and types of major existing structures, including all residences, and uses on Site, public roads, and adjoining properties within five hundred (500) feet of the boundaries of the proposed Wind Overlay District.
  - (c) Location and elevation of each proposed WECS.
- (d) Location of all above ground utility lines on the Site or within one radius of the Total Height of the WECS, transformers, power lines, interconnection point with transmission lines, and other ancillary facilities or structures.
- (e) Location and size of structures above 35 feet within a five-hundred-foot radius of the proposed WECS. For purposes of this requirement, electrical transmission and distribution lines, antennas, and slender or open lattice towers are not considered structures.

- (f) The zoning designation of the subject and adjacent properties as set forth on the official Town Zoning Map.
  - (g) Proposed boundaries of the Wind Overlay District.
- (h) To demonstrate compliance with the setback requirements of this Article, circles drawn around each proposed tower location equal to:
  - (i) One and a half times the tower height radius.
  - (ii) Five-hundred foot radius.
  - (iii) One-thousand two-hundred foot radius.
- (i) Location of residential structures within one thousand two hundred feet of each proposed tower. The distance from the center of the tower to any off-site residence within one thousand feet shall be noted.
- (j) All proposed facilities, including access roads, electrical lines, substations, storage or maintenance units, and fencing.
- 6. Vertical drawing of the WECS showing Total Height, turbine dimensions, tower and turbine colors, ladders, distance between ground and lowest point of any blade, location of climbing pegs, and access doors. One drawing may be submitted for each WECS of the same type and Total Height.
- 7. Landscaping Plan depicting vegetation describing the area to be cleared and the specimens proposed to be added, identified by species and size of specimen at installation and their locations.
- 8. Lighting Plan showing any FAA-required lighting and other proposed lighting. The application should include a copy of the determination by the Federal Aviation Administration to establish required markings and/or lights for the structure, but if such determination is not available at the time of the application, no building permit for any lighted facility may be issued until such determination is submitted.
- 9. List of property owners, with their mailing addresses, within 500 feet of the boundaries of the proposed Wind Overlay District. The applicant may delay submitting this list until the Town Board calls for a public hearing on the application.
- 10. Decommissioning Plan: The applicant shall submit a decommissioning plan, which shall include: 1) the anticipated life of the WECS; 2) the estimated decommissioning costs in current dollars; 3) how said estimate was determined; 4) the method of ensuring that funds will be available for decommissioning and restoration; 5) the method, such by annual reestimate by a licensed engineer, that the decommissioning cost will be kept current; and 6) the

manner in which the WECS will be decommissioned and the Site restored, which shall include removal of all structures and debris to a depth of three feet, restoration of the soil, and restoration of vegetation (consistent and compatible with surrounding vegetation), less any fencing or residual minor improvements requested by the landowner. The Plan shall include the Decommissioning Bond required by this Article.

- 11. Complaint Resolution: The application will include a complaint resolution process to address complaints from nearby residents. The process may use an independent mediator or arbitrator and include a time limit for acting on a complaint.
- 12. An application shall include information relating to the construction/installation of the wind energy conversion facility as follows:
- (a) A construction schedule describing commencement and completion dates; and
- (b) A description of the routes to be used by construction and delivery vehicles, the gross weights and heights of those loaded vehicles.
  - 13. Completed Part 1 of the Full EAF.
- 14. Applications for Special Use Permits for Wind Measurement Towers subject to this Article may be jointly submitted with the WECS.
- 15. For each proposed WECS, include make, model, picture, and manufacturer's specifications, including noise decibels data. Include Manufacturers' Material Safety Data Sheet documentation for the type and quantity of all materials used in the operation of all equipment including, but not limited to, all lubricants, and coolants.
- 16. If the applicant agrees in writing in the application that the proposed WECS may have a significant adverse impact on the environment, the Town Board shall issue a positive declaration of environmental significance.
- 17. If a positive declaration of environmental significance is determined by the SEQRA lead agency, the following information shall be included in the Draft Environmental Impact Statement ("DEIS") prepared for a Wind Energy Facility. Otherwise, the following studies shall be submitted with the application:
- (a) <u>Shadow Flicker</u>: The applicant shall conduct a study on potential shadow flicker. The study shall identify locations where shadow flicker may be caused by the WECSs and the expected durations of the flicker at these locations. The study shall identify areas where shadow flicker may interfere with residences and describe measures that shall be taken to eliminate or mitigate the problems.

- (b) <u>Visual Impact</u>: Applications shall include a visual impact study of the proposed WECS as installed, which may include a computerized photographic simulation, demonstrating any visual impacts from strategic vantage points. Color photographs of the proposed Site from at least two locations accurately depicting the existing conditions shall be included. The visual analysis shall also indicate the color treatment of the system's components and any visual screening incorporated into the project that is intended to lessen the system's visual prominence.
- (c) A fire protection and emergency response plan, created in consultation with the fire department(s) having jurisdiction over the proposed Wind Overlay District.
- (d) <u>Noise Analysis</u>: a noise analysis by a competent acoustical consultant documenting the noise levels associated with the proposed WECS. The study shall document noise levels at property lines and at the nearest residence not on the Site (if access to the nearest residence is not available, the Town Board may modify this requirement). The noise analysis shall provide pre-existing ambient noise levels and include low frequency noise.
- (e) Property value analysis prepared by a licensed appraiser in accordance with industry standards, regarding the potential impact of values of properties adjoining WECS Sites, including properties across public roads from the Site.
- (f) An assessment of potential electromagnetic interference with microwave, radio, television, personal communication systems, and other wireless communication.
- 18. Tower design information sufficient to demonstrate compliance with wind-loading requirements.
  - 19. Analysis of potential ice-throwing and damage from blade throw impacts.
- 20. A statement, signed under penalty of perjury, that the information contained in the application is true and accurate.

## § 690.08. Application Review Process.

- A. Applicants may request a pre-application meeting with the Town Board, or with any consultants retained by the Town Board for application review
- B. Six copies of the application shall be submitted to the Town Clerk. Payment of all application fees shall be made at the time of application submission. If any variances are requested, variance application fees shall be paid at the time of the receipt of the application.
- C. Town staff or Town-designated consultants shall, within 30 days of receipt, or such longer time if agreed to by the applicant, determine if all information required under this Article is included in the application.

- D. If the application is deemed incomplete, the Town Board or its designated reviewer shall provide the applicant with a written statement listing the missing information. No refund of application fees shall be made, but no additional fees shall be required upon submittal of the additional information unless the number of WECSs proposed is increased.
- E. Upon submission of a complete application, including the grant of any application waiver by the Town Board, the Town Clerk shall transmit the application to the Town Board. The applicant shall post the completed application and any accepted environmental impact statements on the Internet. The application shall be referred to the Planning Board in accordance with this Local Law.
- F. The Town Board shall hold at least one public hearing on the application. Notice shall be given by first class mail to property owners within 500 feet of the boundaries of the proposed Wind Overlay District, and published in the Town's official newspaper, no less than ten nor more than twenty days before any hearing, but, where any hearing is adjourned by the Town Board to hear additional comments, no further publication or mailing shall be required. The applicant shall prepare and mail the Notice of Public Hearing prepared by the Town, and shall submit an affidavit of service. The assessment roll of the Town shall be used to determine mailing addresses.
- G. The public hearing may be combined with public hearings on any Environmental Impact Statement or requested variances.
- H. Notice of the project shall also be given, when applicable, to (1) the Chautauqua County Planning Board, if required by General Municipal Law §§ 239-1 and 239-m, and (2) to adjoining Towns under Town Law § 264.
- I. SEQRA Review. Applications for WECS are deemed Type I projects under SEQRA. The Town shall conduct its SEQRA review in conjunction with other agencies, and the record of review by said agencies shall be part of the record of the Town's proceedings. The Town may require an escrow agreement for the engineering and legal review of the applications and any environmental impact statements before commencing its review. At the completion of the SEQRA review process, if a positive declaration of environmental significance has been issued and an environmental impact statement prepared, the Town shall issue a Statement of Findings, which Statement may also serve as the Town's decision on the applications.
- J. Upon receipt of the report of the recommendation of the County Planning Board (where applicable), and the report of the recommendation of the Town Planning Board (where applicable), the holding of the public hearing, and the completion of the SEQRA process, the Town Board may approve, approve with conditions, or deny the applications, in accordance with the standards in this Article.

#### § 690.09. Standards for WECS.

- A. The following standards shall apply to all WECS and related infrastructure, unless specifically waived by the Town Board as part of a permit.
- 1. All power transmission lines from the tower to any building or other structure shall be located underground to the maximum extent practicable.
- 2. No television, radio, or other communication antennas may be affixed or otherwise made part of any WECS, except pursuant to the telecommunications provisions of the Town Zoning Code. Applications may be jointly submitted for WECS and telecommunications facilities.
- 3. No advertising signs are allowed on any part of the Wind Energy Facility, including fencing and support structures.
- 4. Lighting of tower. No tower shall be lit except to comply with FAA requirements. Minimum security lighting for ground level facilities shall be allowed as approved on the Site plan. Security lighting shall be designed to minimize light pollution, including the use of light hoods, low glare fixtures, and directing lights at the ground.
- 5. All applicants shall use measures to reduce the visual impact of WECSs to the extent possible. WECSs shall use tubular towers. All structures in a project shall be finished in a single, non-reflective matte finished color or a camouflage scheme. Individual WECSs within a Wind Overlay District shall be constructed using wind turbines whose appearance, with respect to one another, is similar within and throughout the District, to provide reasonable uniformity in overall size, geometry, and rotational speeds. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades.
  - 6. The use of guy wires is prohibited.
- 7. No WECS shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antenna for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception. No WECS shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation. If it is determined that a WECS is causing electromagnetic interference, the operator shall take the necessary corrective action to eliminate this interference including relocation or removal of the facilities, or resolution of the issue with the impacted parties. Failure to remedy electromagnetic interference is grounds for revocation of the Special Use Permit for the specific WECS or WECSs causing the interference.
- 8. All solid waste and hazardous waste and construction debris shall be removed from the Site and managed in a manner consistent with all appropriate rules and regulations.

- 9. WECSs shall be designed to minimize the impacts of land clearing and the loss of open space areas. Land protected by conservation easements shall be avoided when feasible. The use of previously developed areas will be given priority wherever possible.
- 10. WECSs shall be located in a manner that minimizes significant negative impacts on rare animal species in the vicinity, particularly bird and bat species.
- 11. WECS and related infrastructure shall be located in a manner consistent with all applicable state and Federal wetlands laws and regulations.
- 12. Storm-water run-off and erosion control shall be managed in a manner consistent with all applicable state and Federal laws and regulations.
  - 13. The maximum Total Height of any WECS shall be 420 feet.
- 14. Construction of the WECS shall be limited to the hours of 7 a.m. to 8 p.m. except for certain activities that require cooler temperatures than possible during the day, subject to approval from the Town.
- 15. Substations required to serve WECS are an Essential Public Service under this Zoning Code. Substations shall be screened from public view to the extent possible.
- 16. The Town of Villenova shall be named as an additional insured under the general liability policy of the applicant, the amount of which insurance shall be no less than an amount to be determined by the Town Board given the nature and scope of the project proposed by the applicant.
- 17. Any construction or ground disturbance involving agricultural land shall be done in according to the NYS Department of Agriculture and Markets' publication titled Guidelines for Agricultural Mitigation for Wind Power Projects.

#### § 690.10. Required Safety Measures.

- A. Each WECS shall be equipped with both manual and automatic controls to limit the rotational speed of the rotor blade so it does not exceed the design limits of the rotor.
- B. If the property owner submits a written request that fencing be required, a six-foot-high fence with a locking portal shall be required to enclose each tower or group of towers. The color and type of fencing for each WECS installation shall be determined on the basis of individual applications as safety needs dictate.
- C. Appropriate warning signs shall be posted. At least one sign shall be posted at the base of the tower warning of electrical shock or high voltage. A sign shall be posted on the entry area of fence around each tower or group of towers and any building (or on the tower or building if there is no fence), containing emergency contact information, including a local telephone number

with 24 hour, 7 day a week coverage. The Town Board may require additional signs based on safety needs.

- D. No climbing pegs or tower ladders shall be located closer than twelve (12) feet to the ground level at the base of the structure for freestanding single pole.
- E. The minimum distance between the ground and any part of the rotor or blade system shall be twenty (20) feet.
- F. WECSs shall be designed to prevent unauthorized external access to electrical and mechanical components and shall have access doors that are kept securely locked.
- G. Accurate maps of the underground facilities shall be filed with the town and with "Dig Safely New York (1-800-962-7962)" or its successor.

## § 690.11. Traffic Routes.

- A. Construction of WECS poses potential risks because of the large size construction vehicles and their impact on traffic safety and their physical impact on local roads. Construction and delivery vehicles for WECS and/or associated facilities shall use traffic routes established as part of the application review process. Factors in establishing such corridors shall include (1) minimizing traffic impacts from construction and delivery vehicles; (2) minimizing WECS related traffic during times of school bus activity; (3) minimizing wear and tear on local roads; and (4) minimizing impacts on local business operations. Permit conditions may require remediation during construction, limit WECS-related traffic to specified routes, and include a plan for disseminating traffic route information to the public, and all applicable state, county, and municipal highway authorities and superintendents whose roads are included in the WECS traffic routes plan. Notification to all applicable highway authorities and superintendents will include the number and type of vehicles and their size, their maximum gross weight, the number of round trips, and the dates and time periods of expected use of designated traffic routes.
- B. The applicant is responsible for remediation of damaged roads upon completion of the installation or maintenance of a WECS. A public improvement bond shall be posted prior to the issuance of any building permit in an amount, determined by the Town Board, sufficient to compensate the Town for any damage to local roads.
- C. If the applicant uses any seasonal use highway in the off-season, it shall be solely responsible for the maintenance of said highway including but not limited to snow plowing. No act of maintenance on a seasonal use highway by an applicant shall be considered as Town maintenance of that highway for purposes of determining the seasonal use status of the highway.

# § 690.12. Setbacks for Wind Energy Conversion Systems.

A. The statistical sound pressure level generated by a WECS shall not exceed  $L_{10}$  - 50 dBA measured at the closest exterior wall of any residence existing at the time of completing the

SEQRA review of the application. If the ambient sound pressure level exceeds 50 dBA, the standard shall be ambient dBA plus 5 dBA. Independent certification shall be provided before and after construction demonstrating compliance with this requirement.

- B. In the event audible noise due to WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in subparagraph 1) of this subsection shall be reduced by five (5) dBA. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.
- C. In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level. The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA, which is exceeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at the exterior of potentially affected existing residences. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project Site are sufficient to allow Wind Turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.
- D. Any noise level falling between two whole decibels shall be the lower of the two.
- E. Each WECS shall be setback from Site boundaries, measured from the center of the WECS, a minimum distance of:
- 1. 500 feet from the nearest Site boundary property line, except the setback shall be 500 feet where the boundary is with state, county, town, or village-owned property.
  - 2. 500 feet from the nearest public road.
- 3. 1,000 feet from the nearest off-Site residence existing at the time of application, measured from the exterior of such residence.
- 4. 100 feet from state-identified wetlands. This distance may be adjusted to be greater or lesser at the discretion of the reviewing body, based on topography, land cover, land uses, and other factors that influence the flight patterns of resident birds.
  - 5. 500 feet from gas wells, unless waived in writing by the property owner.
- F. Other Wind Energy Facility structures and improvements shall comply with the underlying zoning district regulations.

# § 690.13. Noise and Setback Easements; Variances

- A. In the event the noise levels resulting from a WECS exceed the criteria established in this Article, or a setback requirement is not met, a waiver be granted from such requirement by the Town Board in the following circumstances:
- 1. Written consent from the affected property owners has been obtained stating that they are aware of the WECS and the noise and/or setback limitations imposed by this Article, and that they wish to be part of the Site as defined herein, and that consent is granted to (1) allow noise levels to exceed the maximum limits otherwise allowed or (2) allow setbacks less than required; and
- 2. In order to advise all subsequent owners of the burdened property, the consent, in the form required for an easement, shall be recorded in the County Clerk's Office describing the benefited and burdened properties. Such easements shall be permanent and may not be revoked without the consent of the Town Board, which consent shall be granted upon either the completion of the decommissioning of the benefited WECS in accordance with this Article, or the acquisition of the burdened parcel by the owner of the benefited parcel or the WECS.
- 3. In any case where written consent is not obtained, a variance from the Zoning Board of Appeals shall be required.

# § 690.14. Creation of Wind Overlay Districts and Issuance of Special Use Permits.

- A. Upon completion of the review process, the Town Board shall, upon consideration of the standards in this Article and the record of the SEQRA review, issue a written decision setting forth the reasons for approval, conditions of approval, or disapproval.
- B. If approved, the Town Board will direct the Town Clerk to modify the Official Map to reflect the creation of the Wind Overlay Districts, and authorize Town staff to issue a Special Use Permit for each WECSs upon satisfaction of all conditions for said Permit, and direct the building inspector to issue a building permit, upon compliance with the Uniform Fire Prevention and Building Code and the other conditions of this Article.
- C. The decision of the Town Board shall be filed within five days in the office of the Town Clerk and a copy mailed to the applicant by first class mail.
- D. If any approved WECS is not substantially commenced within two years of issuance of the permit, the special use permit shall expire.

## § 690.15 Abatement.

- A. If any WECS remains non-functional or inoperative for a continuous period of 1 year, the applicant agrees that, without any further action by the Town Board, it shall remove said system at its own expense. Removal of the system shall include at least the entire above ground structure, including transmission equipment and fencing, from the property. This provision shall not apply if the applicant demonstrates to the Town that it has been making good faith efforts to restore the WECS to an operable condition, but nothing in this provision shall limit the Town's ability to order a remedial action plan after public hearing.
- B. Non-function or lack of operation may be proven by reports to the Public Service Commission, NYSERDA, or by lack of income generation. The applicant shall make available (subject to a non-disclosure agreement) to the Town Board all reports to and from the purchaser of energy from individual Wind Energy Conversion Systems, if requested necessary to prove the WECS is functioning, which reports may be redacted as necessary to protect proprietary information.
- C. <u>Decommissioning Bond or Fund.</u> The applicant, or successors, shall continuously maintain a fund or bond payable to the Town for the removal of non-functional towers and appurtenant facilities in an amount to be determined by the Town for the period of the life of the facility. This fund may consist of a letter of credit from a State of New York-licensed financial institution. All costs of the financial security shall be borne by the applicant.

## § 690.16. Limitations on Approvals; Easements on Town Property.

- A. Nothing in this Article shall be deemed to give any applicant the right to cut down surrounding trees and vegetation on any property to reduce turbulence and increase wind flow to the Wind Energy Facility. Nothing in this Article shall be deemed a guarantee against any future construction or Town approvals of future construction that may in any way impact the wind flow to any Wind Energy Facility. It shall be the sole responsibility of the Facility operator or owner to acquire any necessary wind flow or turbulence easements, or rights to remove vegetation.
- B. Pursuant to the powers granted to the Town to manage its own property, the Town may enter into noise, setback, or wind flow easements on such terms as the Town Board deems appropriate, as long as said agreements are not otherwise prohibited by state law or this Article.

#### § 690.17. Permit Revocation.

A. Testing fund. A Special Use Permit shall contain a requirement that the applicant fund periodic noise testing by a qualified independent third-party acoustical measurement consultant, which may be required as often as every two years, or more frequently upon request of the Town Board in response to complaints by neighbors. The scope of the noise testing shall be to demonstrate compliance with the terms and conditions of the Special Use Permit and this Article and shall also include an evaluation of any complaints received by the Town. The applicant shall have 90 days after written notice from the Town Board, to cure any deficiency. An extension of the 90 day period may be considered by the Town Board, but the total period may not exceed 180 days.

- B. Operation. A WECS shall be maintained in operational condition at all times, subject to reasonable maintenance and repair outages. Operational condition includes meeting all noise requirements and other permit conditions. Should a WECS become inoperable, or should any part of the WECS be damaged, or should a WECS violate a permit condition, the owner or operator shall remedy the situation within 90 days after written notice from the Town Board. The applicant shall have 90 days after written notice from the Town Board, to cure any deficiency. An extension of the 90 day period may be considered by the Town Board, but the total period may not exceed 180 days.
- C. Notwithstanding any other abatement provision under this Article, and consistent with § 690.15(A) and §690.17(B), if the WECS is not repaired or made operational or brought into permit compliance after said notice, the Town may, after a public meeting at which the operator or owner shall be given opportunity to be heard and present evidence, including a plan to come into compliance, (1) order either remedial action within a particular timeframe, or (2) order revocation of the Special Use Permit for the WECS and require the removal of the WECS within 90 days. If the WECS is not removed, the Town Board shall have the right to use the security posted as part of the Decommission Plan to remove the WECS.

#### **Wind Measurement Towers**

#### § 690.20. Wind Site Assessment.

The Town Board acknowledges that prior to construction of a WECS, a wind Site assessment is conducted to determine the wind speeds and the feasibility of using particular Sites. Installation of Wind Measurement Towers, also known as an emometer ("Met") towers, shall be permitted as Special Use in the Agricultural-Residential (AR1) Use District and the Transitional Use District.

## § 690.21. Applications for Wind Measurement Towers.

- A. An application for a Wind Measurement Tower shall include
- 1. Name, address, and telephone number of the applicant. If the applicant is represented by an agent, the application shall include the name, address, and telephone number of the agent as well as an original signature of the applicant authorizing the representation.
- 2. Name, address, and telephone number of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner (i) confirming that the property owner is familiar with the proposed applications and (ii) authorizing the submission of the application.
- 3. Address of each proposed tower Site, including Tax Map section, block, and lot number.
  - 4. Site plan

5. Decommissioning Plan, based on the criteria in this Article for WECS, including a security bond or cash for removal.

# § 690.22. Standards for Wind Measurement Towers.

- A. The distance between a Wind Measurement Tower and the property line shall be at least the Total Height of the tower. Sites can include more than one piece of property and the requirement shall apply to the combined properties. Exceptions for neighboring property are also allowed with the consent of those property owners.
- B. Special Use permits for Wind Measurement Towers may be issued by the Town Board for a period of up to two years. Permits may be renewed if the Facility is in compliance with the conditions of the Special Use Permit.

## **Small Wind Energy Conversion Systems**

## § 690.30. Purpose and Intent.

The purpose of this Article is to provide standards for small wind energy conversion systems designed for on-site home, farm, and small commercial use, and that are primarily used to reduce on-site consumption of utility power. The intent of this Article is to encourage the development of small wind energy systems and to protect the public health, safety, and community welfare.

#### § 690.31. Permitted Areas.

Small Wind energy systems may be permitted in any zoning district upon issuance of a Special Use Permit.

#### § 690.32. Applications.

- A. Applications for Small WECS special use permits shall include:
- 1. Name, address, and telephone number of the applicant. If the applicant will be represented by an agent, the name, address, and telephone number of the agent as well as an original signature of the applicant authorizing the agent to represent the applicant.
- 2. Name and address of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner (i) confirming that the property owner is familiar with the proposed applications and (ii) authorizing the submission of the application.

- 3. Address of each proposed tower Site, including Tax Map section, block, and lot number.
- 4. Evidence that the proposed tower height does not exceed the height recommended by the manufacturer or distributor of the system.
- 5. A line drawing of the electrical components of the system in sufficient detail to allow for a determination that the manner of installation conforms to the Electric Code.
- 6. Sufficient information demonstrating that the system will be used primarily to reduce on-site consumption of electricity.
- 7. Written evidence that the electric utility service provider that serves the proposed Site has been informed of the applicant's intent to install an interconnected customer-owned electricity generator, unless the applicant does not plan, and so states in the application, to connect the system to the electricity grid.
- 8. A visual analysis of the Small WECS as installed, which may include a computerized photographic simulation, demonstrating the visual impacts from nearby strategic vantage points. The visual analysis shall also indicate the color treatment of the system's components and any visual screening incorporated into the project that is intended to lessen the system's visual prominence.

#### § 690.33. Development Standards.

All small wind energy systems shall comply with the following standards. Additionally, such systems shall also comply with all the requirements established by other sections of this Article that are not in conflict with the requirements contained in this section.

- 1. A system shall be located on a lot a minimum of one acre in size, however, this requirement can be met by multiple owners submitting a joint application.
- 2. Only one small wind energy system tower per legal lot shall be allowed, unless there are multiple applicants, in which their joint lots shall be treated as one lot for purposes of this Article.
- 3. Small Wind energy systems may be used primarily to reduce the on-Site consumption of electricity.
  - 4. Tower heights may be allowed as follows:
    - (a) 65 feet or less on parcels between one and five acres.
    - (b) 120 feet or less on parcels of five or more acres.
- (c) The allowed height shall be reduced if necessary to comply with all applicable Federal Aviation Requirements, including Subpart B (commencing with Section

- 77.11) of Part 77 of Title 14 of the Code of Federal Regulations regarding installations close to airports.
  - 5. The maximum turbine power output is limited to 100 kW.
- 6. The system's tower and blades shall be painted a non-reflective, unobtrusive color that blends the system and its components into the surrounding landscape to the greatest extent possible and incorporate non-reflective surfaces to minimize any visual disruption.
- 7. The system shall be designed and located in such a manner to minimize adverse visual impacts from public viewing areas (e.g., public parks, roads, trails). To the greatest extent feasible a small wind energy system:
  - (a) Shall not project above the top of ridgelines.
- (b) If visible from public viewing areas, shall use natural landforms and existing vegetation for screening.
- (c) Shall be screened to the maximum extent feasible by natural vegetation or other means to minimize potentially significant adverse visual impacts on neighboring residential areas.
- 8. Exterior lighting on any structure associated with the system shall not be allowed except that which is specifically required by the Federal Aviation Administration.
- 9. All on-site electrical wires associated with the system shall be installed underground except for "tie- ins" to a public utility company and public utility company transmission poles, towers and lines. This standard may be modified by the decision-maker if the project terrain is determined to be unsuitable due to reasons of excessive grading, biological impacts, or similar factors.
- 10. The system shall be operated such that no disruptive electromagnetic interference is caused. If it has been demonstrated that a system is causing harmful interference, the system operator shall promptly mitigate the harmful interference or cease operation of the system.
- 11. At least one sign shall be posted on the tower at a height of five feet warning of electrical shock or high voltage and harm from revolving machinery. No brand names, logo, or advertising shall be placed or painted on the tower, rotor, generator, or tail vane where it would be visible from the ground, except that a system or tower's manufacturer's logo may be displayed on a system generator housing in an unobtrusive manner
- 12. Towers shall be constructed to provide one of the following means of access control, or other appropriate method of access:

- (a) Tower-climbing apparatus located no closer than 12 feet from the ground.
- (b) A locked anti-climb device installed on the tower.
- (c) A locked, protective fence at least six feet in height that encloses the tower.
- 13. Anchor points for any guy wires for a system tower shall be located within the property that the system is located on and not on or across any above-ground electric transmission or distribution lines. The point of attachment for the guy wires shall be enclosed by a fence six feet high or sheathed in bright orange or yellow covering from three to eight feet above the ground.
- 14. Construction of on-site access roadways shall be minimized. Temporary access roads utilized for initial installation shall be re-graded and re-vegetated to the pre-existing natural condition after completion of installation.
- 15. To prevent harmful wind turbulence from existing structures, the minimum height of the lowest part of any horizontal axis wind turbine blade shall be at least 30 feet above the highest structure or tree within a 250 foot radius. Modification of this standard may be made when the applicant demonstrates that a lower height will not jeopardize the safety of the wind turbine structure.
- 16. All small wind energy system tower structures shall be designed and constructed to be in compliance with pertinent provisions of the Uniform Building Code and National Electric Code.
- 17. All small wind energy systems shall be equipped with manual and automatic overspeed controls. The conformance of rotor and over-speed control design and fabrication with good engineering practices shall be certified by the manufacturer.

#### § 690.34. Standards.

A Small Wind Energy System shall comply with the following standards:

- 1. Setback requirements. A Small WECS shall not be located closer to a property line than one and a half times the Total Height of the facility.
- 2. Noise. Except during short-term events including utility outages and severe wind storms, a Small WECS shall be designed, installed, and operated so that noise generated by the system shall not exceed the 50 decibels (dBA), as measured at the closest neighboring inhabited dwelling.

#### § 690.35. Abandonment of Use.

- A. Small WECS which is not used for twelve (12) successive months shall be deemed abandoned and shall be dismantled and removed from the property at the expense of the property owner. Failure to abide by and faithfully comply with this section or with any and all conditions that may be attached to the granting of any building permit shall constitute grounds for the revocation of the permit by the Town.
- B. All Small WECS shall be maintained in good condition and in accordance with all requirements of this section.

#### Miscellaneous

#### § 690.40. Fees.

- A. There shall be non-refundable Application fees as follows:
  - 1. Wind Overlay Zone rezoning: \$500 per zone.
  - 2. WECS Special Use Permit: \$50 per megawatt of rated maximum capacity.
  - 3. Wind Measurement Towers: \$20 per vertical foot per tower.
  - 4. Wind Measurement Tower Special Use Permit renewals: \$200 per Wind Measurement Tower.
  - 5. The cost of all legal notices and mailings shall be assessed to the applicant.

## B. Building Permits.

- 1. The Town believes the review of building and electrical permits for Wind Energy Facilities requires specific expertise for those facilities. Accordingly, the permit fees for such facilities shall be increased by administrative costs which shall be \$100 per permit request, plus the amount charged to the Town by the outside consultant hired by the Town to review the plans and inspect the work. In the alternative, the Town and the applicant may enter into an agreement for an inspection and/or certification procedure for these unique facilities. In such case, the Town and the applicant will agree to a fee arrangement and escrow agreement to pay for the costs of the review of the plans or certifications, or to conduct inspections as agreed by the parties.
- 2. The applicant shall, prior to the receipt of a building permit, demonstrate that the proposed facility meets the system reliability requirements of the New York Independent System Operator, or provide proof that it has executed an Interconnection Agreement with the New York Independent System Operator and/or the applicable Transmission Owner.

- C. Nothing in this Article shall be read as limiting the ability of the Town to enter into Host Community agreements with any applicant to compensate the Town for expenses or impacts on the community. The Town shall require any applicant to enter into an escrow agreement to pay the engineering and legal costs of any application review, including the review required by SEQRA.
- D. The Town Board may amend these fees, by resolution after a properly noticed public hearing.

## § 690.41. Tax Exemption.

The Town hereby exercises its right to opt out of the Tax Exemption provisions of Real Property Tax Law §487, pursuant to the authority granted by paragraph 8 of that law.

#### § 690.42. Enforcement; Penalties and remedies for violations.

- A. In addition to the Code Enforcement Officer under §701, the Town Board may appoint such Town staff or outside consultants as it sees fit to enforce this Article.
- B. Any person owning, controlling, or managing any building, structure, or land who shall undertake a wind energy conversion facility or wind monitoring tower in violation of this Article or in noncompliance with the terms and conditions of any permit issued pursuant to this Article, or any order of the enforcement officer, and any person who shall assist in so doing, shall be guilty of an offense and subject to a fine of not more than \$350 or to imprisonment for a period of not more than fifteen days, or subject to both such fine and imprisonment for a first offense, for a Second offense (both within a period of five years), a fine not less than \$350 nor more than \$700, or imprisonment not to exceed six months, or both, and for a Third or more offense (all of which occurred within five years), a fine not less than \$700 nor more than \$1,000, or imprisonment not to exceed six months, or both. Every such person shall be deemed guilty of a separate offense for each week such violation shall continue. The Town may institute a civil proceeding to collect civil penalties in the amounts set forth herein for each violation and each week said violation continues shall be deemed a separate violation.
- C. In case of any violation or threatened violation of any of the provisions of this Article, including the terms and conditions imposed by any permit issued pursuant to this Article, in addition to other remedies and penalties herein provided, the Town may institute any appropriate action or proceeding to prevent such unlawful erection, structural alteration, reconstruction, moving, and/or use, and to restrain, correct, or abate such violation, to prevent the illegal act.

#### **Section 8:** Severability

Should any provision of this Local Law be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of this Local Law as a whole or any part thereof other than the part so decided to be unconstitutional or invalid.

## **Section 9: Effective Date**

This Local Law shall be effective upon its filing with the Secretary of State in accordance with the Municipal Home Rule Law.

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# **K** Communication Surveys

## Wind Power GeoPlanner™ AM and FM Radio Report

**Ball Hill Wind** 



Prepared on Behalf of Renewable Energy Systems Americas Inc.

September 13, 2016





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## 1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed Ball Hill Wind project in Chautaugua County, New York.

## 2. Summary of Results

## **AM Radio Analysis**

Comsearch found two database records<sup>1</sup> for AM stations within approximately 30 kilometers of the project, as shown in Table 1 and Figure 1. These records represent station WDOE, which broadcasts out of Dunkirk, New York, to the west of the project. This station is licensed separately for daytime and nighttime operations, with a higher transmit power permitted during daytime hours.

ID	Call Sign	Status <sup>2</sup>	Frequency (kHz)	Transmit ERP <sup>3</sup> (kW)	Operation Time	Latitude (NAD 27)	Longitude (NAD 27)	Required Separation Distance <sup>4</sup> (km)	Distance to Nearest Turbine (km)
1	WDOE	LIC	1410	1.0	Daytime	42.463611	-79.355833	0.21	16.35
2	WDOE	LIC	1410	0.031	Nighttime	42.463611	-79.355833	0.21	16.35

Table 1: AM Radio Stations within 30 Kilometers

Comsearch Proprietary - 1 - September 13, 2016

<sup>&</sup>lt;sup>1</sup> Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at <a href="http://www.comsearch.com/files/data\_license.pdf">http://www.comsearch.com/files/data\_license.pdf</a>.

<sup>&</sup>lt;sup>2</sup> LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

<sup>&</sup>lt;sup>3</sup> ERP = Transmit Effective Radiated Power.

<sup>&</sup>lt;sup>4</sup> The required separation distance is based on the lesser of 10 wavelengths or 3 kilometers for directional antennas and 1 wavelength for non-directional antennas.



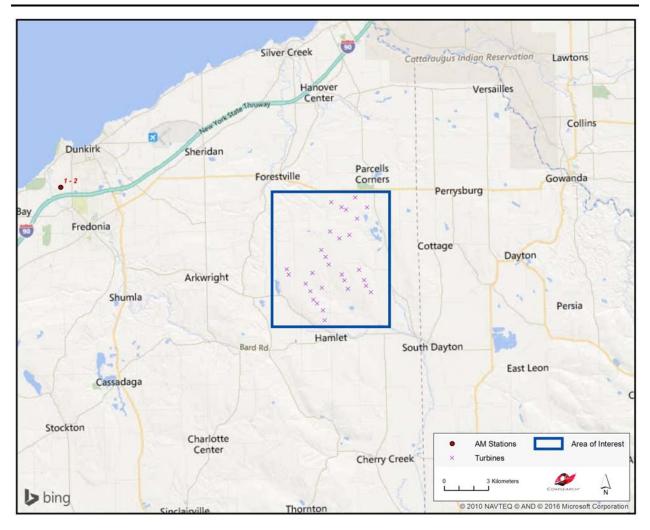


Figure 1: AM Radio Stations within 30 Kilometers



## **FM Radio Analysis**

Comsearch determined that there were twelve records for FM stations within a 30-kilometer radius of the Ball Hill Wind project, as shown in Table 2 and Figure 2. Only ten of these stations are currently licensed and operating, four of which are translator stations that operate with limited range.

ID	Call Sign	Status <sup>5</sup>	Service <sup>6</sup>	Frequency (MHz)	Transmit ERP <sup>7</sup> (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	W263CN	CP MOD	FX	100.5	0.18	42.432028	-79.277750	9.14
2	W203AW	LIC	FX	88.5	0.019	42.451667	-79.301667	11.72
3	WCVF-FM	LIC	FM	88.9	0.13	42.452222	-79.337222	14.48
4	W263CN	APP	FX	100.5	0.15	42.489000	-79.330278	15.77
5	W235BP	LIC	FX	94.9	0.2	42.367222	-79.386667	18.44
6	WBKX	LIC	FM	96.5	1.4	42.367222	-79.386667	18.44
7	WCOM-FM	LIC	FM	89.3	8.0	42.578056	-78.963056	18.48
8	WYRR	LIC	FM	88.9	0.42	42.175833	-79.317222	26.89
9	WUBJ	LIC	FM	88.1	2.7	42.179722	-79.341389	27.68
10	W220EL	LIC	FX	91.9	0.009	42.131389	-79.220278	28.29
11	W254AQ	LIC	FX	98.7	0.01	42.131389	-79.220278	28.29
12	WHUG	LIC	FM	101.9	6.0	42.131389	-79.220278	28.29

Table 2: FM Radio Stations within 30 Kilometers

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<sup>&</sup>lt;sup>5</sup> LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

<sup>&</sup>lt;sup>6</sup> FM = FM broadcast station; FX = FM translator station; FL = FM low-power station; FB = FM booster station.

<sup>&</sup>lt;sup>7</sup> ERP = Transmit Effective Radiated Power.



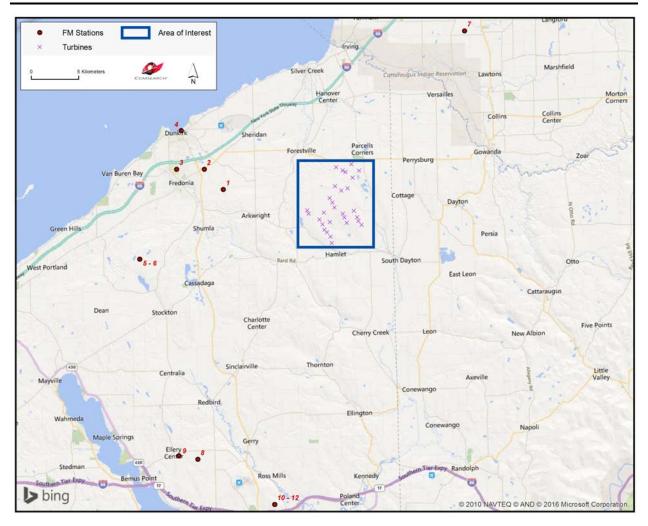


Figure 2: FM Radio Stations within 30 Kilometers



## 3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from wind turbine towers. The closest AM station to the Ball Hill Wind project, WDOE, is more than 16.3 kilometers from the nearest turbine. As there were no stations found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by wind turbines, especially when large objects, such as wind turbines, are sited in the *far field* region of the radiating FM antenna in order to avoid the risk of distorting the antenna's radiation pattern. The closest operational station to the Ball Hill Wind project, W203AW, is located more than 11.7 kilometers from the nearest turbine. At this distance, there should be adequate separation to avoid radiation pattern distortion.

## 4. Recommendations

Since no impact on the licensed and operational AM or FM broadcast stations was identified in our analysis, no recommendations or mitigation techniques are required for this project.

## 5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

Contact person: Denise Finney
Title: Account Manager
Company: Comsearch

Address: 19700 Janelia Farm Blvd., Ashburn, VA 20147 Telephone: 703-726-5650 (office) / 703-726-5595 (fax)

Email: dfinney@comsearch.com
Web site: www.comsearch.com

## Wind Power GeoPlanner™ Off-Air TV Analysis

**Ball Hill Wind** 



Prepared on Behalf of Renewable Energy Systems Americas Inc.

September 13, 2016





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## 1. Introduction

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those off-air stations whose service could potentially be affected by the proposed Ball Hill Wind project in Chautauqua County, New York. Comsearch then examined the coverage of the stations and the communities in the area that could potentially have degraded television reception due to the location of the proposed wind turbines.

## 2. Summary of Results

The proposed wind energy project area and local communities are depicted in Figure 1, below.



Figure 1: Wind Farm Project Area and Local Communities

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To begin the analysis, Comsearch compiled all off-air television stations<sup>1</sup> within 150 kilometers of the center of the project area of interest (AOI). Appendix A contains a tabular summary of these stations. A plot depicting their locations appears in Figure 2, below.



Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Project Area

TV stations at a distance of 75 kilometers or less are the most likely to provide off-air coverage to the project area and neighboring communities. These stations are listed in Tables 1 and 2, below, and a plot depicting their locations is provided in Figure 3. There are a total of twenty-four database records for stations within approximately 75 kilometers of the limits of the project AOI. Of these stations, only sixteen are currently licensed and operating, seven of which are low-power stations or translators. Translator stations are low-power stations that receive

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<sup>&</sup>lt;sup>1</sup> Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the TV station's FCC license and governed by Comsearch's data license notification and agreement located at <a href="http://www.comsearch.com/files/data\_license.pdf">http://www.comsearch.com/files/data\_license.pdf</a>.



signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna. The nine remaining records represent stations WNYB, WBBZ-TV, WKBW-TV, WIVB-TV, WGRZ, WNYO-TV, WUTV, WNLO, AND WNED-TV, which broadcast at full power.

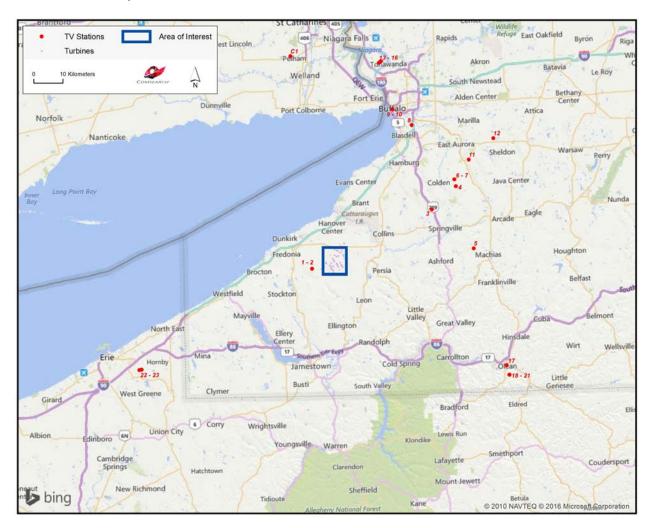


Figure 3: Plot of Off-Air TV Stations within 75 Kilometers of Project Area

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ID	Call Sign	Status	Service <sup>2</sup>	Channel	Transmit ERP <sup>3</sup> (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	WNYB	LIC	DT	26	243.0	42.393333	-79.228889	5.18
2	WNYB	APP	DT	26	450.0	42.393333	-79.228889	5.18
3	WBBZ-TV	LIC	DT	7	26.9	42.567778	-78.723333	33.94
4	WKBW-TV	LIC	DT	38	358.0	42.637444	-78.619972	44.93
5	WVTT-CD	LIC	DC	34	15.0	42.443611	-78.553056	45.24
6	WIVB-TV	LIC	DT	39	790.0	42.659167	-78.625833	45.69
7	WIVB-TV	CP	DX	39	112.0	42.659167	-78.625833	45.69
8	WDTB-LP	LIC	TX	39	16.9	42.830556	-78.798333	49.16
9	WBXZ-LP	LIC	LD	17	15.0	42.880000	-78.876667	51.15
10	WDTB-LP	CP	LD	29	15.0	42.880000	-78.876667	51.15
11	WGRZ	LIC	DT	33	480.0	42.718611	-78.563056	53.58
12	WNYO-TV	LIC	DT	49	198.0	42.782778	-78.457778	64.72
13	WUTV	LIC	DT	14	1000.0	43.025556	-78.928611	65.29
14	WBNF-CD	LIC	DC	15	15.0	43.025556	-78.928611	65.29
15	WNLO	LIC	DT	32	1000.0	43.030000	-78.920833	65.92
16	WNED-TV	LIC	DT	43	156.0	43.030000	-78.920833	65.92
17	W20AB	LIC	TX	20	12.5	42.080556	-78.430556	65.49
18	WVTT-CD	CP	DC	25	3.0	42.051111	-78.420278	68.01
19	W30BW	LIC	TX	30	5.9	42.051111	-78.419722	68.04
20	W30BW	CP	LD	30	1.0	42.051111	-78.419722	68.04
21	W20AB	CP	TX	20	0.1	42.051028	-78.419694	68.05
22	W45EC-D	CP	LD	45	15.0	42.090278	-79.943611	73.01
23	NEW	APP	LD	30	2.5	42.089361	-79.953278	73.76

Table 1: Off-Air TV Stations within 75 Kilometers of Project Area (United States)

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<sup>&</sup>lt;sup>2</sup> Definitions of service and status codes:

DT – Digital television broadcast station

DS – Digital special temporary authority (STA) LD – Low power digital television broadcast station

DC – Class A digital television broadcast station
TX – Translator station

LIC - Licensed and operational station

CP – Construction permit granted

APP – Application for construction permit, not yet operational STA – Special transmit authorization, usually granted by FCC for temporary operation

<sup>&</sup>lt;sup>3</sup> ERP = Transmit Effective Radiated Power



ID	Call Sign	Status	Class <sup>4</sup>	Channel	Transmit ERP (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Nearest Turbine (km)
C1	CKVP-DT	OP	R	42	5.0	43.051667	-79.300833	68.07

Table 2: Off-Air TV Stations within 75 Kilometers of Project Area (Canada)

## 3. Impact Assessment

The full-power digital stations WNYB, WBBZ-TV, WKBW-TV, WIVB-TV, WGRZ, WNYO-TV, WUTV, WNLO, AND WNED-TV may have their reception disrupted in and around the Ball Hill Wind project. The areas primarily affected would include TV service locations within 10 kilometers of the wind energy project that have clear line-of-sight (LOS) to a proposed wind turbine but not to the respective station. After the wind turbines are installed, communities and homes in these locations may have degraded reception of these three stations. This is due to multipath interference caused by signal scattering as TV signals are reflected by the rotating wind turbine blades and mast.

In addition, the contour of Class A station WVTT-CD overlaps with the project area. Potential disruption of this station would occur under similar LOS conditions as above.

## 4. Recommendations

While TV signals are reflected by wind turbines, which can cause multipath interference to the TV receiver, modern digital TV receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that signal scattering from wind farms will cause interference to digital TV reception.

Nevertheless, signal scattering could still impact certain areas currently served by the TV stations mentioned above, especially those that would have line-of-sight to at least one wind turbine but not to a respective station antenna. In the unlikely event that interference is observed in any of the TV service areas, it is recommended that a high-gain directional antenna be used, preferably outdoors, and oriented towards the signal origin in order to mitigate the interference.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbine facility and may be offered to those residents who can show that their off-air TV reception has been disrupted by the presence of the wind turbines after they are installed.

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Definitions of class and status codes:
 R – Regular VHF Television Broadcast Station
 OP – Licensed and operational station

Ball Hill Wind

## 5. Contact

For questions or information regarding the Off-Air TV Analysis, please contact:

Contact person: Denise Finney Title: Account Manager

Company: Comsearch

Address: 19700 Janelia Farm Blvd., Ashburn, VA 20147

Telephone: 703-726-5650 Fax: 703-726-5595

Email: dfinney@comsearch.com Web site: www.comsearch.com



## **Appendix A**

ID	Call Sign	Status	Service <sup>5</sup>	Channel	Transmit ERP <sup>6</sup> (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	WNYB	LIC	DT	26	243.0	42.393333	-79.228889	5.18
2	WNYB	APP	DT	26	450.0	42.393333	-79.228889	5.18
3	WBBZ-TV	LIC	DT	7	26.9	42.567778	-78.723333	33.94
4	WKBW-TV	LIC	DT	38	358.0	42.637444	-78.619972	44.93
5	WVTT-CD	LIC	DC	34	15.0	42.443611	-78.553056	45.24
6	WIVB-TV	LIC	DT	39	790.0	42.659167	-78.625833	45.69
7	WIVB-TV	CP	DX	39	112.0	42.659167	-78.625833	45.69
8	WDTB-LP	LIC	TX	39	16.9	42.830556	-78.798333	49.16
9	WBXZ-LP	LIC	LD	17	15.0	42.880000	-78.876667	51.15
10	WDTB-LP	CP	LD	29	15.0	42.880000	-78.876667	51.15
11	WGRZ	LIC	DT	33	480.0	42.718611	-78.563056	53.58
12	WNYO-TV	LIC	DT	49	198.0	42.782778	-78.457778	64.72
13	WUTV	LIC	DT	14	1000.0	43.025556	-78.928611	65.29
14	WBNF-CD	LIC	DC	15	15.0	43.025556	-78.928611	65.29
15	WNLO	LIC	DT	32	1000.0	43.030000	-78.920833	65.92
16	WNED-TV	LIC	DT	43	156.0	43.030000	-78.920833	65.92
17	W20AB	LIC	TX	20	12.5	42.080556	-78.430556	65.49
18	WVTT-CD	CP	DC	25	3.0	42.051111	-78.420278	68.01
19	W30BW	LIC	TX	30	5.9	42.051111	-78.419722	68.04
20	W30BW	CP	LD	30	1.0	42.051111	-78.419722	68.04
21	W20AB	CP	TX	20	0.1	42.051028	-78.419694	68.05
22	W45EC-D	CP	LD	45	15.0	42.090278	-79.943611	73.01
23	NEW	APP	LD	30	2.5	42.089361	-79.953278	73.76
24	WSEE-TV	LIC	DT	16	75.0	42.064444	-80.005278	78.87
25	WICU-TV	APP	DT	12	7.8	42.063833	-80.005778	78.93
26	WSEE-TV	APP	DT	16	363.0	42.063833	-80.005778	78.93
27	WICU-TV	LIC	DT	12	5.4	42.063889	-80.005833	78.94
28	NEW	CP	LD	19	3.7	42.125194	-80.082139	81.62

 $<sup>^{\</sup>rm 5}$  Definitions of service and status codes :

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TV – Analog television broadcast station
DT – Digital television broadcast station
DS – Digital special temporary authority (STA)

LP – Low power analog television broadcast station
LD – Low power digital television broadcast station
CA – Class A analog television broadcast station
DC – Class A digital television broadcast station

TX – Translator station

LIC - Licensed and operational station

CP – Construction permit granted
CP MOD – Modification of construction permit

APP – Application for construction permit, not yet operational STA – Special transmit authorization, usually granted by FCC for temporary operation

<sup>&</sup>lt;sup>6</sup> ERP = Transmit Effective Radiated Power



ID	Call Sign	Status	Service <sup>5</sup>	Channel	Transmit ERP <sup>6</sup> (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
29	WXTM-LD	CP MOD	LD	47	6.0	42.125194	-80.082139	81.62
30	WLEP-LD	LIC	LD	43	12.0	42.039167	-80.060833	84.25
31	W48CH	LIC	TX	48	10.2	42.038889	-80.062500	84.39
32	WQLN	LIC	DT	50	300.0	42.042778	-80.065556	84.40
33	W32DH-D	LIC	LD	32	2.07	42.037778	-80.062222	84.43
34	NEW	APP	LD	34	2.0	42.037778	-80.062222	84.43
35	W36EK-D	CP	LD	36	10.0	42.037778	-80.062222	84.43
36	WXTM-LD	CP MOD	LD	47	1.6	42.037778	-80.062222	84.43
37	WFXP	LIC	DT	22	850.0	42.040278	-80.069167	84.79
38	WJET-TV	LIC	DT	24	523.0	42.040278	-80.069167	84.79
39	NEW	APP	LD	35	15.0	42.040278	-80.069167	84.79
40	WPXJ-TV	LIC	DT	23	455.0	42.895000	-78.015556	102.06
41	W17DU-D	CP	LD	17	1.0	41.482222	-78.683889	106.55
42	W19EI-D	CP	LD	19	1.0	41.482222	-78.683889	106.55
43	W21DO-D	CP	LD	21	1.0	41.482222	-78.683889	106.55
44	W28EO-D	CP	LD	28	1.0	41.482222	-78.683889	106.55
45	W16BE-D	LIC	LD	16	0.277	42.292222	-77.674167	118.16
46	W52BO	CP	LD	28	15.0	41.627778	-80.170833	119.41
47	W52BO	LIC	TX	52	5.7	41.627778	-80.170833	119.41
48	W48CH	CP	LD	48	4.0	41.905556	-80.571111	128.62
49	W45BT-D	LIC	LD	45	6.32	41.119722	-79.114444	139.88
50	WGCE-CD	LIC	DC	25	4.0	43.187222	-77.702500	140.96
51	WBGT-CD	LIC	DC	46	15.0	43.170222	-77.673167	141.85
52	WGCE-CD	APP	DC	25	15.0	43.156389	-77.608611	145.41
53	WUHF	LIC	DT	28	320.0	43.134722	-77.585278	145.76
54	WAWW-LP	LIC	TX	20	25.8	43.135278	-77.585278	145.79
55	WHSH-LP	LIC	TX	36	16.0	43.135278	-77.585278	145.79
56	WNIB-LD	LIC	LD	42	8.0	43.135278	-77.585278	145.79
57	WHAM-TV	LIC	DT	13	18.0	43.135278	-77.584167	145.87
58	WXXI-TV	LIC	DT	16	236.6	43.135278	-77.584167	145.87
59	WHEC-TV	LIC	DT	10	18.1	43.135556	-77.583889	145.91
60	WROC-TV	LIC	DT	45	1000.0	43.135556	-77.583889	145.91

Table A: Off-Air TV Stations within 150 Kilometers of Project Area (United States)



ID	Call Sign	Status	Class <sup>7</sup>	Channel	Transmit ERP (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Nearest Turbine (km)
1	CKVP-DT	OP	R	42	5.0	43.051667	-79.300833	68.13
2	CITS-DT	OP	R	36	473.0	43.207500	-79.774167	99.08
3	CHCH-DT	OP	R	15	132.0	43.207500	-79.774167	99.08
4	CHCJ-DT	OP	R	35	390.0	43.231667	-79.859167	105.13
5	CIII-DT-41	OP	R	41	100.0	43.642500	-79.387222	133.95
6	CBLT-DT(1)	AU	R	20	106.9	43.642500	-79.387222	133.95
7	CJMT-DT	OP	R	40	19.5	43.642500	-79.387222	133.95
8	CFTO-DT	OP	R	9	10.8	43.642500	-79.387222	133.95
9	CITY-DT	OP	R	44	21.0	43.642500	-79.387222	133.95
10	CFMT-DT	OP	R	47	22.2	43.642500	-79.387222	133.95
11	CBLFT-DT(1)	AU	R	25	106.2	43.642500	-79.387222	133.95
12	CICA-DT	OP	R	19	106.5	43.642500	-79.387222	133.95
13	CIII-DT	OP	R	17	165.0	43.260833	-80.443889	139.95
14	CICO-DT-28	OP	R	28	20.2	43.261389	-80.444722	140.05
15	CITY-DT-2	OP	R	31	20.0	43.046111	-80.767778	148.67

Table A-2: Off-Air TV Stations within 150 Kilometers of Project Area (Canada)

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<sup>&</sup>lt;sup>7</sup> Definitions of class and status codes:

R – Regular VHF Television Broadcast Station
C – Class C Television Broadcast Station
OP – Licensed and operational station
AU – Authorized, not yet fully operational

## Wind Power GeoPlanner™

## Land Mobile & Emergency Services Report

**Ball Hill Wind** 



Prepared on Behalf of Renewable Energy Systems Americas Inc.

**September 13, 2016** 





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## 1. Introduction

An assessment of the emergency services in the Ball Hill Wind project area was performed by Comsearch to identify potential impact from the planned turbines. We evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. We also identified all industrial and business land mobile radio (LMR) systems and commercial E911 operators within the proposed wind energy facility boundaries. This information is useful in the planning stages of the wind energy facility because the data can be used in support of facility communications needs and to evaluate any potential impact on the emergency services provided in that region. An overview of the project area, which is located in Chautauqua County, New York, appears in Figure 1.



Figure 1: Area of Interest (AOI)

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## 2. Summary of Results

Our land mobile and emergency services incumbent data<sup>1</sup> was derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. We identified both site-based licenses as well as regional area-wide licenses designated for public safety use.

### Site-Based Licenses

The site-based licenses were imported into GIS software and geographically mapped relative to the wind energy project area of interest as defined by the customer. Each site on the map was given an ID number and associated with site information in a data table. A depiction of the fixed-site licenses in and around the project area appears in Figure 2.

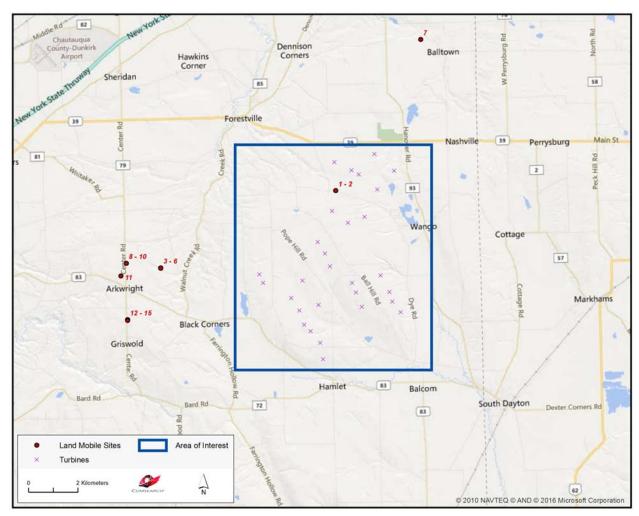


Figure 2: Land Mobile & Emergency Service Sites in Area of Interest

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Figure 2 identifies fifteen site-based licenses in and around the Ball Hill Wind project area of interest. Specific information about these sites is provided in Table 1.

ID	Call Sign	Frequency Band (MHz)	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)	Distance to Nearest Turbine (km)
1	KNRS991	800/900	NPCR, Inc.	61.0	42.440611	-79.131694	0.84
2	KNRT703	800/900	NPCR, Inc.	61.0	42.440611	-79.131694	0.84
3	WNXQ602	150-174	WCA Services Corporation	52.0	42.413667	-79.218944	4.02
4	WNXQ602	450-470	WCA Services Corporation	9.0	42.413667	-79.218944	4.02
5	WPGH563	450-470	S. St. George Enterprises, Inc.	55.0	42.413667	-79.218944	4.02
6	WQOA377	450-470	Eagle Radio	52.0	42.413667	-79.218944	4.02
7	WNXC831	450-470	National Fuel Gas Supply Corporation	34.0	42.495333	-79.088083	5.03
8	WNBK721	450-470	Harvey, Robert D	55.0	42.415611	-79.235889	5.43
9	WNMI645	450-470	Erie 2 Chautauqua Cattaraugus BOCES	55.0	42.415611	-79.235889	5.43
10	WPCP419	450-470	Carrier Coach, Inc.	55.0	42.415611	-79.235889	5.43
11	KQD357	150-174	Norfolk Southern Railway Company	13.0	42.411167	-79.238667	5.63
12	WPVX592	150-174	Chautauqua, County of	45.7	42.395056	-79.235889	5.68
13	WQVE292	150-174	Chautauqua, County of	50.3	42.395056	-79.235889	5.68
14	KEB392	150-174	Chautauqua, County of	58.0	42.394778	-79.235889	5.69
15	KEB909	25-50	Chautauqua, County of	46.0	42.394778	-79.235889	5.69

Table 1: Land Mobile & Emergency Service Sites in Area of Interest

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<sup>&</sup>lt;sup>1</sup> Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the land mobile station's FCC license and governed by Comsearch's data license notification and agreement located at <a href="http://www.comsearch.com/files/data\_license.pdf">http://www.comsearch.com/files/data\_license.pdf</a>



## **Area-Wide Licenses**

The regional area-wide licenses were compiled from FCC data sources and identified for each county in the wind energy project area. The Ball Hill Wind project is located in Chautauqua County, New York, part of Public Safety Region #55, which contains all of the counties in Western New York. The regional public safety operations are overseen by the entity listed below.

### Mr. Steven C. Sharpe

Chairperson
Director of Emergency Communications
Genesee County
165 Park Road
Batavia, NY 14020

phone: 585-345-3000 ext. 3400

fax: 585-343-9129

email: ssharpe@co.genesee.ny.us

The chairperson for Region #55 serves as the representative for all public safety entities in the area and is responsible for coordinating current and future public safety use in the wireless spectrum. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, twenty-six licenses were found for the State of New York, and eleven for the County of Chautauqua (see Table 2). These area-wide licenses are designated for mobile use only.

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	American National Red Cross	Statewide: New York	25-50, 450-470
2	Bergen Volunteer Fire Department	Statewide: New York	150-174
3	Busti, Town of	Countywide: Chautauqua	150-174
4	Busti Volunteer Fire Department, Inc.	Countywide: Chautauqua	25-50, 450-470
5	Cassadaga Valley Central School System	Countywide: Chautauqua	25-50
6	Central Islip Hauppauge Volunteer Ambulance, Inc.	Statewide: New York	150-174
7	Chautauqua, County of	Countywide: Chautauqua	25-50, 150-174, 450-470, 800/900, 2450-2500, 4940-4990
8	Chautauqua County Airport - Jamestown	Countywide: Chautauqua	150-174
9	Chautauqua County Department of Public Facilities	Countywide: Chautauqua	25-50
10	Clymer, Town of	Countywide: Chautauqua	150-174



ID	Licensee	Area of Operation	Frequency Band (MHz)
11	Dewittville Fire District	Countywide: Chautauqua	25-50
12	Erie, County of	Statewide: New York	25-50, 150-174, 421-430, 450-470
13	Frewsburg Fire District	Countywide: Chautauqua	25-50, 450-470
14	Massasauga Search and Rescue, Inc.	Statewide: New York	150-174
15	Mayville, Village of	Countywide: Chautauqua	450-470
16	National Ski Patrol System, Inc.	Statewide: New York	150-174
17	New York, City of	Statewide: New York	450-470, 800/900, 4940-4990
18	New York City Police Department	Statewide: New York	150-174
19	New York, State of	Statewide: New York	0-10, 25-50, 150-174, 220-222, 450-470, 800/900, 4940-4990
20	New York State Department of Corrections and Community Supervision	Statewide: New York	150-174, 450-470, 4940-4990
21	New York State Department of Environmental Conservation	Statewide: New York	25-50, 150-174
22	New York State Department of Health Bureau of Emergency Medical Services	Statewide: New York	25-50, 150-174, 450-470
23	New York State Department of Transportation	Statewide: New York	0-10, 4940-4990
24	New York State Division of State Police	Statewide: New York	150-174, 450-470, 800/900, 2450-2500
25	New York State Office of Emergency Management	Statewide: New York	25-50, 150-174
26	New York State Office of Parks, Recreation, and Historic Preservation	Statewide: New York	450-470
27	New York State OPRHP - Albany	Statewide: New York	150-174
28	New York State OPRHP - Long Island Region	Statewide: New York	150-174
29	New York State OPRHP - Niagara Region	Statewide: New York	150-174
30	Niagara Frontier Search and Rescue	Statewide: New York	150-174
31	Northeast Mobile Search and Rescue, Inc.	Statewide: New York	150-174
32	Northeastern Forest Fire Protection Compact	Statewide: New York	25-50, 150-174
33	Ossining, Village of	Statewide: New York	25-50, 450-470
34	Sherman Central School District	Countywide: Chautauqua	150-174
35	Triborough Bridge and Tunnel Authority	Statewide: New York	4940-4990



	ID	Licensee	Area of Operation	Frequency Band (MHz)	
	36	Western New York Search Dogs, Inc.	Statewide: New York	150-174	
I	37	Woodbury, Town of	Statewide: New York	4940-4990	

**Table 2: Regional Licenses** 

## **E911 Operators**

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. We have identified the type of service for each carrier in Chautauqua County, New York in Table 3.

Mobile Phone Carrier	Service <sup>2</sup>	
AT&T	AWS, Cellular, PCS, WCS, 700 MHz	
Blue Wireless	PCS	
Cavalier Wireless	700 MHz	
DISH Network	AWS, 700 MHz	
Northstar Wireless	AWS	
SNR Wireless	AWS	
Sprint	PCS	
T-Mobile	AWS, PCS	
Verizon	AWS, Cellular, PCS, 700 MHz	

Table 3: Mobile Phone Carriers in Area of Interest with E911 Service

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<sup>&</sup>lt;sup>2</sup> AWS: Advanced Wireless Service at 1.7/2.1 GHz

CELL: Cellular Service at 800 MHz

PCS: Personal Communication Service at 1.9 GHz WCS: Wireless Communications Service at 2.3 GHz

<sup>700</sup> MHz: Lower 700 MHz Service



## 3. Impact Assessment

The first responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications as described in this report are typically unaffected by the presence of wind turbines, and we do not anticipate any significant harmful effect to these services in the Ball Hill Wind project area. Although each of these services operates in different frequency ranges and provides different types of service including voice, video and data applications, there is commonality among these different networks in regards to the impact of wind turbines on their service. Each of these networks is designed to operate reliably in a nonline-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells. Therefore, any signal blockage caused by the wind turbines does not materially degrade the reception because the end user is likely receiving signals from multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate through wind turbines. As a result very little, if any, change in their coverage should occur when the wind turbines are installed.

When planning the wind energy turbine locations in the area of interest, a conservative approach would dictate not locating any turbines within 77.5 meters of land mobile fixed-base stations to avoid any possible impact to the communications services provided by these stations. This distance is based on FCC interference emissions from electrical devices in the land mobile frequency bands. As long as the turbines are located more than 77.5 meters from the land mobile stations, they will meet the setback distance criteria for FCC interference emissions in the land mobile bands.

## 4. Recommendations

In the event that a public safety entity believes its coverage has been compromised by the presence of the wind energy facility, it has many options to improve its signal coverage to the area through optimization of a nearby base station or even adding a repeater site. Utility towers, meteorological towers or even the turbine towers within the wind project area can serve as the platform for a base station or repeater site.



## 5. Contact

For questions or information regarding the Land Mobile & Emergency Services Report, please contact:

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Company: Comsearch

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Telephone: 703-726-5650 Fax: 703-726-5595

Email: dfinney@comsearch.com
Web site: www.comsearch.com

## Wind Power GeoPlanner™ Microwave Study

**Ball Hill Wind** 



Prepared on Behalf of Renewable Energy Systems Americas Inc.

September 16, 2016





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## 1. Introduction

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of wind turbines on licensed, proposed and applied non-federal government microwave systems

## 2. Project Overview

**Project Information** 

Name: Ball Hill Wind

County: Chautauqua

State: New York

Number of Turbines: 29

Blade Diameter: 126 meters

Hub Height: 87 meters



Figure 1: Area of Interest

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## 3. Fresnel Zone Analysis

## Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz<sup>1</sup>. First, we determined all microwave paths that intersect the area of interest<sup>2</sup> and listed them in Table 1. This path and the area of interest that encompasses the planned turbine locations are shown in Figure 2.

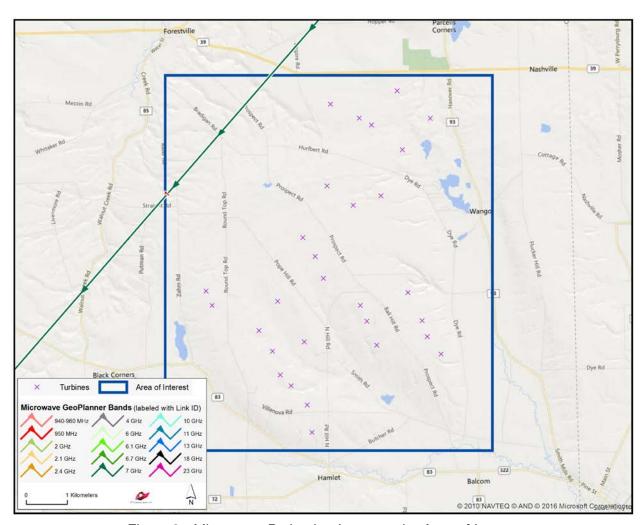


Figure 2: Microwave Paths that Intersect the Area of Interest

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<sup>&</sup>lt;sup>1</sup> Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

<sup>&</sup>lt;sup>2</sup> We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.



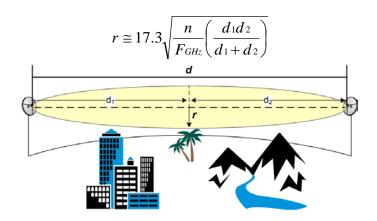
ID	Status	Callsign 1	Callsign 2	Band	Path Length (km)	Licensee
1	Licensed	WPNF351	RXONLY	7 GHz	55.63	FAITH BROADCASTING NETWORK, INC.

Table 1: Summary of Microwave Paths that Intersect the Area of Interest

(See enclosed mw\_geopl.xlsx for more information and

GP\_dict\_matrix\_description.xls for detailed field descriptions)

Next, we calculated a Fresnel Zone for this path based on the following formula:



### Where,

r = Fresnel Zone radius at a specific point in the microwave path, meters

n = Fresnel Zone number, 1

 $F_{GHz}$  = Frequency of microwave system, GHz

d<sub>1</sub> = Distance from antenna 1 to a specific point in the microwave path, kilometers
 d<sub>2</sub> = Distance from antenna 2 to a specific point in the microwave path, kilometers

In general, this is the area where the planned wind turbines should be avoided, if possible. A depiction of the Fresnel Zones for the microwave path listed can be found in Figure 3, and is also included in the enclosed shapefiles<sup>3,4</sup>.

Comsearch Proprietary - 3 - September 16, 2016

<sup>&</sup>lt;sup>3</sup> The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 17 projected coordinate system.

<sup>&</sup>lt;sup>4</sup> Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at <a href="http://www.comsearch.com/files/data\_license.pdf">http://www.comsearch.com/files/data\_license.pdf</a>.



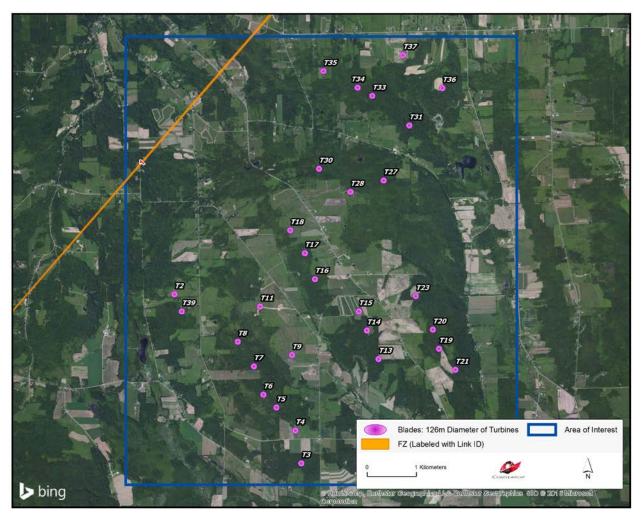


Figure 3: Microwave Paths with Fresnel Zones



### 4. Conclusion

Total Microwave Paths	Paths with Affected Fresnel Zones	Total Turbines	Turbines intersecting the Fresnel Zones
1	0	29	0

Table 2: Fresnel Zone Analysis Result

Our study identified one microwave path intersecting the Ball Hill Wind area of interest. The Fresnel Zones for this microwave path were calculated and mapped in order to assess the potential impact from the turbines. A total of 29 turbines were considered in the analysis, each with a blade diameter of 126 meters and turbine hub height of 87 meters. Of those turbines, none were found to have potential obstruction with the microwave systems in the area.

### 5. Contact

For questions or information regarding the Microwave Study, please contact:

Contact person: Denise Finney
Title: Account Manager

Company: Comsearch

Address: 19700 Janelia Farm Blvd., Ashburn, VA 20147

Telephone: 703-726-5650 Fax: 703-726-5595

Email: dfinney@comsearch.com Web site: www.comsearch.com



### Complaint Resolution Plan

### **Complaint Resolution Plan**

To minimize adverse project impacts during Project construction and operations, a system will be implemented for receiving and processing any complaints from residents that might arise concerning compliance with permits or approvals of the agreements between Ball Hill and the Towns, or Ball Hill's construction and operation of the Project. Ball Hill will use reasonable efforts to resolve any such complaint.

Prior to the commencement of construction, Ball Hill will assign a Community Relations Coordinator to be responsible for resolving any complaints as described above.

In addition, Ball Hill will undertake a mailing to all residents of the Towns notifying them of an email address, street address and local and toll-free telephone numbers where they can contact Ball Hill with any complaints, questions, or concerns. During non-business hours, the toll-free telephone number will be equipped with an automatic answering and time and date recording device.

Ball Hill will make reasonable efforts to respond to all complaints within five business days of receipt of any complaint. Ball Hill will maintain records and provide periodic reports to the Town Boards of any complaints received and responses, resolutions, and attempts to resolve such complaints for turbines or activities in the Towns of Villenova and Hanover.

If any complaint is not resolved within 30 days of its receipt, to the reasonable satisfaction of the complaining resident, such complaint may be noticed at the next Town Board meeting for discussion and guidance as the Board may determine appropriate consistent with applicable laws and agreements.

Attached to this complaint resolution plan are instructions on how to report a complaint during construction or operation of the Project, as well as Ball Hill policies and procedures with respect to complaint monitoring and reporting.

### How to Report a Complaint Regarding the Ball Hill Wind Energy, LLC Project

Should you have a concern that arises during construction or operation of the Ball Hill Wind Energy Project, please let us know. Any complaints regarding adherence to the Ball Hill Wind Energy' LLC ("Ball Hill") permits, site preparation, cleanup, restoration or otherwise can be directed to:

Attn: On site to:

Ball Hill Community Relations Coordinator

Ball Hill Wind Energy, c/o

**TBD** 

Tel: TBD Email: TBD

Or to Attn: Sean Flannery, Permitting Director

Ball Hill Wind Energy, c/o

Renewable Energy Systems Americas, Inc.

330 2<sup>nd</sup> Avenue South, Suite 820

Minneapolis, MN 55401

Tel: (612) 746-4028

Email: <u>sean.flannery@res-americas.com</u>

Upon receipt of a complaint, Ball Hill staff will request the following information from you; this information must be collected in order to allow Ball Hill to appropriately resolve the complaint:

- Your first and last name
- Your address, telephone and email
- The location of your property
- Nature of your complaint

All complaints must be recorded by our staff and maintained in a log on site.

Complaints received directly by the towns of Villenova and Hanover regarding site preparation, construction, cleanup, restoration, or operation and maintenance will be sent to Ball Hill, and the complaint will be handled according to the outlined procedure. We appreciate your cooperation and the opportunity to address your concerns.

Attached to this document are the internal procedures that Ball Hill uses to respond to and report complaints. This Complaint Procedure document will be distributed at the Town offices of Villenova and Hanover, and maintained on site at the Ball Hill Wind Project.

### Ball Hill Wind Energy, LLC Complaint Handling Procedures for Ball Hill Wind Energy Project

### A. Purpose:

The purpose of this document is to establish a uniform and timely method of documenting and responding to complaints received by Ball Hill Wind Energy, LLC ("Ball Hill") relating to its permits, construction, restoration and operation of the Ball Hill Wind Energy Project.

### **B.** Complaint Documentation and Processing:

Ball Hill will document all Complaints by maintaining a record of all applicable information concerning the Complaint. Please direct complaints to:

On site to:	Or to Ball Hill Wind Energy, LLC:
Ball Hill Community Relations Coordinator TBD	Sean Flannery 330 2 <sup>nd</sup> Avenue South, Suite 820 Minneapolis, MN 55401 612-746-4028 sean.flannery@res-americas.com

Upon receipt of a Complaint, Ball Hill will maintain a record of the following:

- a. Name of Complainant, address, phone number, and e-mail address.
- b. Precise property description or parcel identification number.
- c. Name of Ball Hill representative receiving Complaint and date of receipt.
- d. Nature of Complaint
- e. Activities undertaken to resolve the Complaint.
- f. Final disposition of the Complaint.

In maintaining records, the Ball Hill representative will:

- Determine the nature of the Complaint If the record is not a Complaint but rather a request, general comment, inquiry or question, it will be forwarded to the representative responsible for follow-up. Records of this type will not be recorded as complaints.
- 2. If the record is a Complaint, it will be handled according to the process described as follows.
  - i. A form will be completed for each Complaint received. The form is included as an attachment to this document. Information to be provided on the form will include that enumerated in Section B, items (a) through (f) of this Ball Hill document.
- 3. The Ball Hill representative will contact the appropriate project personnel to follow up with a resolution. The project personnel will process the Complaint on the same day the Complaint is received, and document the record according to the Complaint Report Form (see attached form).
- 4. The Complaint Report Log will be properly maintained and updated to include the current status of each Complaint received.

### Ball Hill Wind Energy, LLC Complaint Handling Procedures for Ball Hill Wind Energy Project

### I. Ball Hill Complaints Report Log – Distribution:

The Complaint Report Log will be circulated quarterly around the 15<sup>th</sup> of the month (March, June, September, December) to the Ball Hill contacts listed below, as well as the appropriate designee of the SEQR Lead Agency as necessary:

Ball Hill Community Relations Coordinator TBD

Sean Flannery, Permitting Director Ball Hill Wind Energy c/o Renewable Energy Systems Americas, Inc. 330 2<sup>nd</sup> Avenue South, Suite 820 Minneapolis, MN 55401

Tel: (612) 746-4028

Email: sean.flannery@res-americas.com

Mary Uchida, Counsel Renewable Energy Systems Americas, Inc. 11101 W. 120<sup>th</sup> Ave, Suite 400 Broomfield, CO 80021

Tel: (303) 439-4200

Email: mary.uchida@res-americas.com

Supervisor, Town of Villenova TBD

Supervisor, Town of Hanover TBD

### **Ball Hill Complaint Report Form**

Developed by Ball Hill Wind Energy Staff Version: 07/24/2014

Complaint Poporting

Complaint	Reporting	5								
Complaint Summary Report for (insert Month, Year)				Company Complaint Representative Contact Information:						
Project Nar Project Ow Company A Docket Nur	ner .ddress	Street City, State	Ball Hill Wind Energy Project Ball Hill Wind Energy, LLC		Name: Address: Phone Number: E-mail:	office mobile				
Complaint Log #	Call Received By	Date Received	Complainant Information: Name, Address, Phone number, E-mail address	Property/ Parcel No.	Complaint Description: Include Complaint Details	General or Substantial? Does the complaint reference a permit condition? If yes, complaint is substantial. List permit condition.	Complaint Assigned to:	Actions Taken to Resolve Complaint	Status of the Complaint: Pending or Resolved	Final Disposition of Complaint: Include Date Resolved
Current Co	mplaints fo	or the mont	h this report covers			1	1	1	T	T
Previous Co	mplaints					1		1		



### Transportation

### M-1 Transportation Site Survey

Identifier:Revision:Issue Date:AWTG-<br/>SURVEY\_BW803.2Sept. 16, 2016

**Issued By: AWTG** 

Issued to: Vestas Wind Systems A/S



### **American Transport, Inc.**

**Ball Hill Site Survey** 

The purpose of this document is to provide Vestas route survey information pertaining to the Ball Hill Wind Project.

### 1. Overview description (Purpose)

Vestas Wind Systems A/S requested American to conduct a survey for advisory and informational purposes on the Ball Hill Wind Farm from access point of to service the project.

### 2. Job Site

Project Name: Ball Hill Wind Project: 42°24'47.86"N, 79° 7'54.07"W which is East of Dunkirk & West of Gowanda in NY. The current site on Ball is a huge wide open field. There should have no problem putting an access road in to reach string roads.



### 3. Cargo

V126 3.45MW									
DESCRIPTION OF GOODS	Vestas Spec Doc#	Length (mm)	Length (ft)	Width (mm)	Width (ft)	Height (mm)	Height (ft)	WEIGHT (kg)	WEIGHT (lbs.)
Nacelle - No Base Plate	0037-6562 V03	12861	42.19	4000	13.12	3417	11.21	65579	144,577
Un-assembled Cooler top	0008-1847 V08	5000	16.40	2300	7.55	2500	8.20	2300	5,071
V126 3.45MW									
DESCRIPTION OF GOODS	Vestas Spec Doc#	Length (mm)	Length (ft)	Width (mm)	Width (ft)	Height (mm)	Height (ft)	WEIGHT (kg)	WEIGHT (lbs.)
Drive Train	0037-6569 V03	7323	24.03	3415	11.20	2865	9.40	62000	136,686
V126									
DESCRIPTION OF GOODS	Vestas Spec Doc#	Length (mm)	Length (ft)	Width (mm)	Width (ft)	Height (mm)	Height (ft)	WEIGHT (kg)	WEIGHT (lbs.)
Hub w/ Nose Cone, frame	0037-6578 V05	5465	17.93	3822	12.54	3773	12.38	32477	71,599
V126									
DESCRIPTION OF GOODS	Vestas Spec Doc#	Length (mm)	Length (ft)	Width (mm)	Width (ft)	Height (mm)	Height (ft)	WEIGHT (ton)	WEIGHT (lbs.)
62M Blade - no frame	0037-6207 V02	61661.00	202.30	4000.00	13.12	2600.00	8.53	11.90	26,235
62M Blade in CBF - Horizon	0037-6207 V02	61669.00	202.33	3981.00	13.06	3205.00	10.52	14.20	31,306
62M Blade in MBF - Vertica	0037-6207 V02	61669.00	202.33	3025.00	9.92	3921.00	12.86	14.20	31,306

V126 - 3.45MW MK3-HH87	tower								
				Outer	Outer	Outer	Outer		
				Diameter	Diameter	Diameter	Diameter		
				Bottom D-A	Bottom D-	Top D-B	Top D-B		
DESCRIPTION OF GOODS	Drawing #	Length (mm)	Length (ft)	(mm)	A (ft)	(mm)	(ft)	WEIGHT (kg)	WEIGHT (lbs
Bottom section	0059-4214	13640	44.75	3980	13.06	3685	12.09	63000	138,891
Lower Mid section	0059-4214	22400	73.49	3685	12.09	3673	12.05	61500	135,584
Upper Mid section	0059-4214	21560	70.73	3673	12.05	3665	12.02	40500	89,287
Top section	0059-4214	27000	88.58	3665	12.02	3258	10.69	37500	82,673
V136 - 3.45MW MW-MK3 F	V136 - 3.45MW M	N-MK3 HH82 to	ower						
				Outer	Outer	Outer	Outer		
				Diameter	Diameter	Diameter	Diameter		
				Bottom D-A	Bottom D-	Top D-B	Top D-B		
DESCRIPTION OF GOODS	Drawing #	Length (mm)	Length (ft)	(mm)	A (ft)	(mm)	(ft)	WEIGHT (kg)	WEIGHT (lbs.
Bottom section	0060-9044	9480	31.10	4000	13.12	3691	12.11	53000	116,845
Lower Mid section	0060-9044	17640	57.87	3691	12.11	3678	12.07	60500	133,380
Upper Mid section	0060-9044	25480	83.60	3678	12.07	3667	12.03	53000	116,845
Top section	0060-9044	27000	88.58	3667	12.03	3238	10.62	42500	93,696

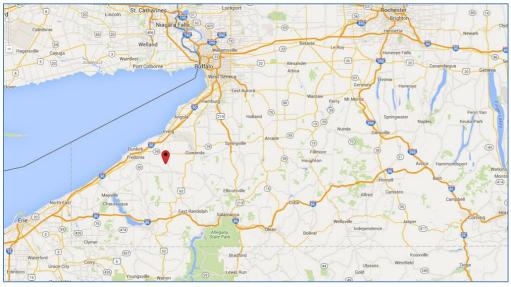
### 4. Schedule

A. Timeframe: June 2017

B. Loaded transit time to site – TBD based on Origin

### 5. Route(s)

### The route into the site would follow the straightest way in for all loads via I-86.



**ROUTE**: I-86 (from the east) to exit 12, SR 60 N -CR 50 N - US 62 N (throught a left hand turn on US 62) - SR 83 N - CR 87 N - Danker Rd (W) - Ball Hill Rd (N) to site

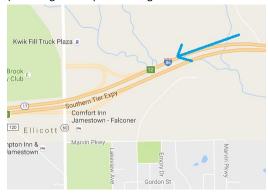
I-86 (from the west) to exit 13 to make a U turn onto I-86 east to exit 12, SR 60 N -CR 50 N - US 62 N (throught a left hand turn on US 62) - SR 83 N - CR 87 N - Danker Rd (W) - Ball Hill Rd (N) to site

### 6. Route Diagrams and Notes

### A. Photos and Diagrams – NY Wind Farm Job site:

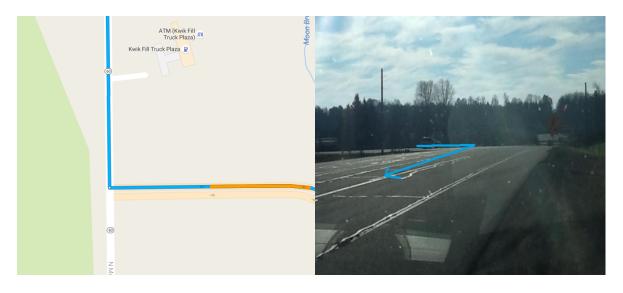
### A1. Travel to the site on I-86

(Traveling from a point of origins either EAST or WEST – West direction will require a U turn at exit 13)



Take I-86 East to SR 60 N - Take Exit 12 from I-86

### A2. Turn Right onto SR 60 N



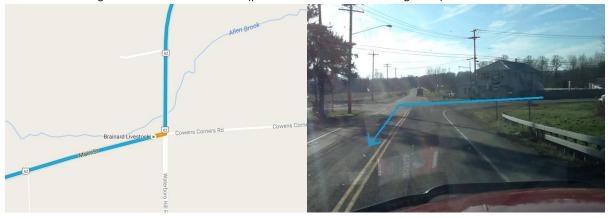
### A3. Continue through Jog in road from SR 60 N onto CR 50 N $\,$



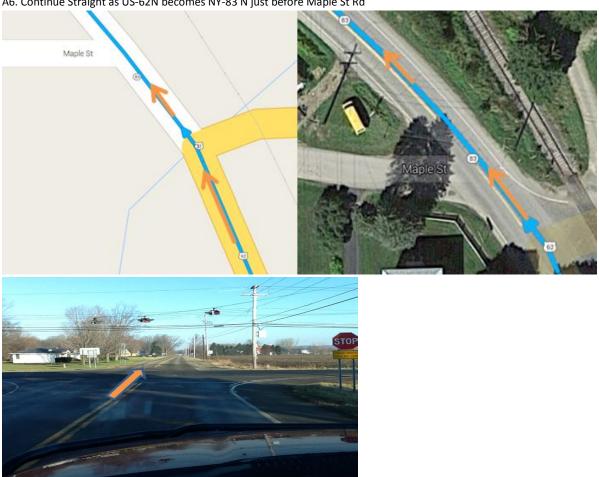
### A4. Continue through Ellington, NY from CR 50 N onto US 62 N (photo is from the north looking south)

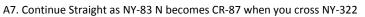


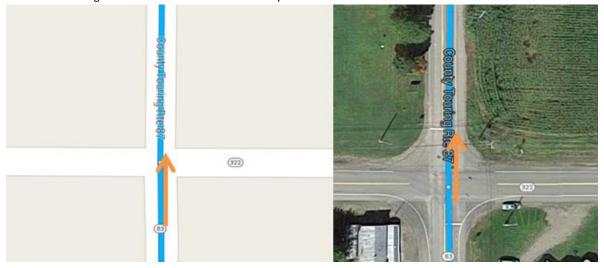
### A5. Continue through a left hand turn on US 62 N (picture is from the north looking south)



A6. Continue Straight as US-62N becomes NY-83 N just before Maple St Rd







AWTG-WE-080 6

### A8. LEFT onto Danker Road





### 7. Summary / Observations

### No major transport obstacles or obstructions noted on the route from I-86

During the survey no major obstacles were identified that would prevent movement of the wind cargo from origin points East or West of the wind farm site while traveling on I-86. Noted below are several items to be aware of along the route.

- Gravel at the corner of CR-87 and Danker Road / removable Stop Sign
- All County roads are in Chautauqua County and will require approvals.

A Follow up survey will be required once project progresses closer to the transport execution phase and the following are confirmed or completed:

- Source locations defined
- Lay-down yard or truck staging area
- Pad access roads
- Road and pad completed to Vestas Specifications

### 8. Alternate Route

### Alternate Route Notes:

• Didn't consider transporting loads in from US 20 up to Ball hill as it's pretty much impossible. The corner at the bottom of Ball Hill in Forestville would be a tough turn for a regular length semi –truck much less specialized wind heavy-haul equipment.

### M-2 Summary of Construction Truckloads

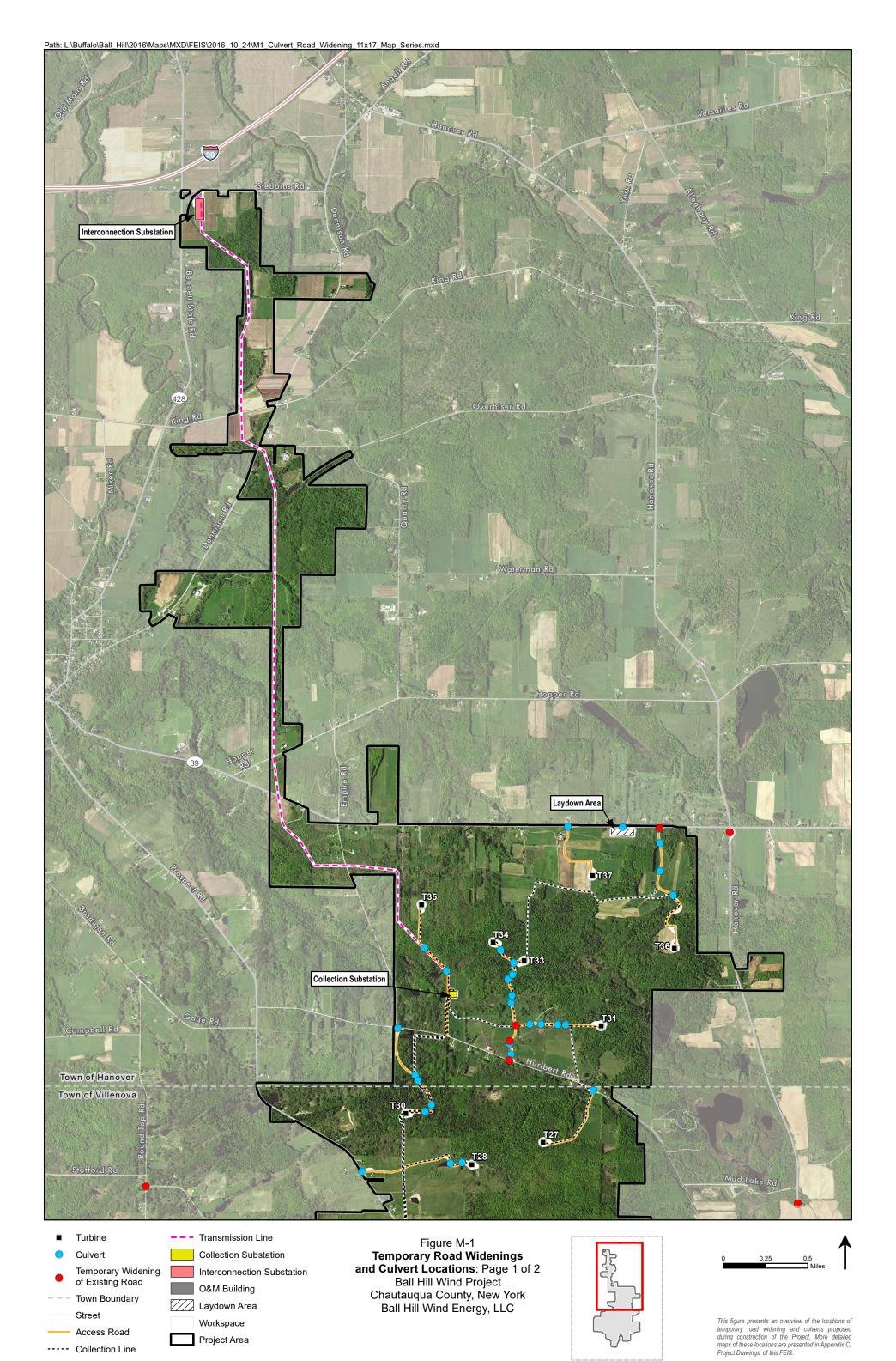
Table M-1 Summary of Gravel, Turbine Transport, and Concrete Truckloads

		Capacity per	
Material	Amount	Truckload	Truckloads
Gravel	77,155 cubic yards	22 cubic yards	3,416
Turbines	29 turbines	1/12 turbine	348
Concrete	13,920 cubic yards	10 cubic yards	1,392
		Total	5,156

Note: This table presents an estimate of the number of truckloads required for construction of the Project.

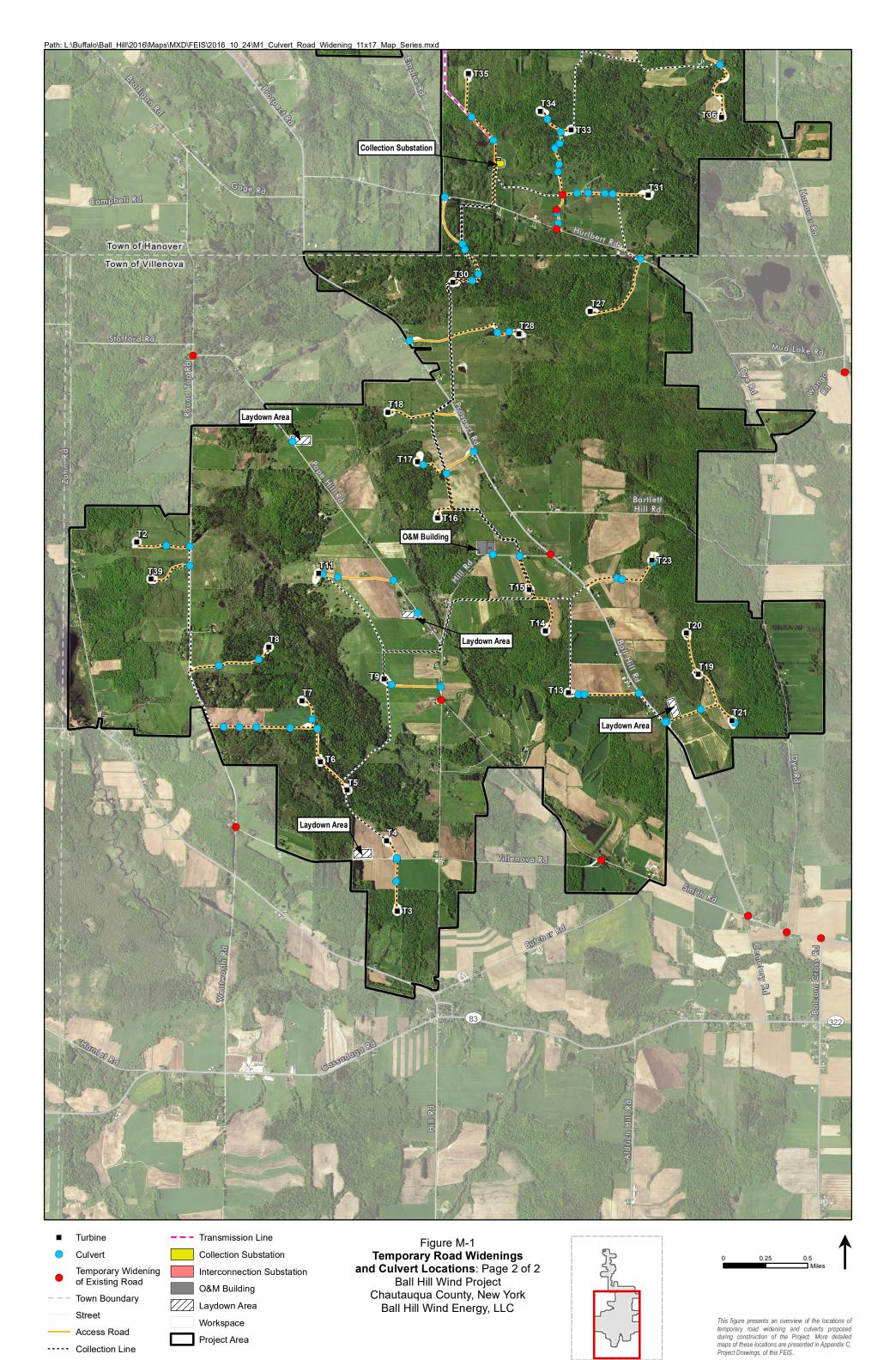
Ball Hill will enter into Road Use Agreements with the Towns of Villenova and Hanover and
Chautauqua County as appropriate, and obtain permits from the New York State Department of
Transportation (NYSDOT) to allow improvements and modifications to existing roads and ROWs
prior to the start of construction.

M-3 Temporary Road Widenings and Culvert Locations



---- Collection Line Source: ESRI 2012; Fisher Associates 2016; NAIP 2015.

Project Area



Source: ESRI 2012; Fisher Associates 2016; NAIP 2015.

Project Area

Access Road

---- Collection Line



## N Cultural Resources Surveys

### N-1 Archeological Survey



New York Branch 2390 Clinton Street Buffalo, NY 14227

Tel: (716) 821-1650 Fax: (716) 821-1607

Alabama Branch 2301 Paul Bryant Drive Tuscaloosa, AL 35401 Tel: (205) 556-3096 Fax: (205) 556-1144

Tennessee Branch 91 Tillman Street Memphis, TN 38111 Tel: (901) 454-4733 Fax: (901) 454-4736

Corporate Headquarters P.O. Box 20884 Tuscaloosa, AL 35402 Tel: (205) 248-8767 Fax: (205) 248-8739

# ARCHAEOLOGICAL SURVEY FOR THE BALL HILL WIND PROJECT, TOWNS OF VILLENOVA AND HANOVER, CHAUTAUQUA COUNTY, NEW YORK ADDENDUM 3

New York State Historic Preservation Office (NYSHPO) #08PR01814

Prepared for:

ECOLOGY & ENVIRONMENT, INC. 368 Pleasant View Drive Lancaster, New York 14086

Prepared by:

PANAMERICAN CONSULTANTS, INC. 2390 Clinton Street Buffalo, New York 14227-1735 (716) 821-1650

October 2016

# ARCHAEOLOGICAL SURVEY FOR THE BALL HILL WIND PROJECT TOWNS OF VILLENOVA AND HANOVER, CHAUTAUQUA COUNTY, NEW YORK ADDENDUM 3

New York State Historic Preservation Office (NYSHPO) #08PR01814

### **Prepared for:**

ECOLOGY & ENVIRONMENT, INC. 368 Pleasant View Drive Lancaster, New York 14086

### Prepared by:

Robert Hanley, M.A., RPA, Principal Investigator/Senior Archaeologist
Donald Smith, Ph.D., Senior Archaeologist/GIS Supervisor
Mark A. Steinback, M.A., Senior Historian
Michael A. Cinquino, Ph.D., RPA, Project Director

PANAMERICAN CONSULTANTS, INC.
Buffalo Branch Office
2390 Clinton Street
Buffalo, New York 14227
(716) 821-1650

October 2016

### **Management Summary**

SHPO Project Review Number: #08PR01814

Involved State and Federal Agencies: U.S. Army Corps of Engineers, New York State Department of

Environmental Conservation, Public Service Commission

Phase of Survey: Addendum to the Phase 1 archaeological survey

**Project Location Information** 

Location: see minor civil division below

Minor Civil Division: Towns of Villenova (MCD 01326) and Hanover (MCD 01314)

County: Chautauqua

Number of Proposed Turbines: 29

**Area of Potential Effect (APE):** The new total APE of turbines, access roads, collection lines, laydown areas, and support structures (e.g., operations & management, substation) is 318.9 acres.

**USGS 7.5-Minute Quadrangle Maps (all New York): Archaeological Investigation:** Forestville (1979); **Architectural Investigation:** Cassadega (1976), Cherry Creek (1976), Dunkirk (1979), Farnham (1960), Forestville (1979), Hamlet (1976), Perrysburg (1976), and Silver Creek (1960)

**Archaeological Investigation Summary:** The previous project APE revision addressed in Addendum 2 of the Phase 1 Investigation discussed an APE measuring 354.8 acres, which was 46.2 acres smaller than the original 401-acre project APE. The new revisions to the project component totals (e.g., the elimination of seven turbines) and locations presented in this addendum have reduced the APE another 35.9 acres resulting in the current APE covering 318.9 acres.

The APE of the new design crosses similar environmental zones, "Local Habitat Areas," to those of the previously investigated APE. Therefore, the results generated by the first investigation are applicable in assessing the archaeological sensitivity of the current APE. No potentially National Register of Historic Places-eligible archaeological cultural resources have been identified in the current project area. As revealed by the earlier investigations, the project area has low sensitivity for precontact-period archaeological resources.

The new project design was reviewed over historic maps and only two Map-Documented Structures (MDSs) were in the vicinity of APE that had not been surveyed. In consultation with SHPO it was assessed that there is a low potential for the project to affect archaeological deposits associated with these two MDSs given the inaccuracies of nineteenth-century maps and additional archaeological testing for this project was not necessary (personal communication with Dr. Nancy Herter [SHPO], October 5, 2016).

The present configuration of the Ball Hill Wind Project is not considered sensitive for archaeological cultural resources. Sufficient field investigations have been conducted per the New York State Historic Preservation Office *Guidelines for Wind Farm Development Cultural Resources Survey Work*.

### **Results of Architectural Survey**

The architectural/viewshed investigation is submitted as a separate report (see Longiaru et al. 2016).

Report Author(s): R. Hanley, D. Smith, M. Steinback, and M. Cinquino.

Date of Report: October 2016

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### 1.0 Introduction

### 1.1 PROJECT DESCRIPTION

Panamerican Consultants, Inc. (Panamerican), Buffalo, New York, was contracted by Ecology & Environment, Inc. (E&E), Lancaster, New York, to complete archaeological and historic structures survey addenda for the Ball Hill Wind Project, a wind-energy project proposed in the Towns of Hanover and Villenova, Chautauqua County, New York (Figure 1.1). Cultural resources investigations were completed for two earlier configurations of the project in 2008 and 2013, including: in 2008, a Phase I archaeological survey (Hanley et al. 2008b); an addendum archaeological investigation in which the addition of several project components (laydown areas, a switchyard, and a substation) were addressed (Hanley et al. 2008a); and an historical architectural investigation, which assessed the effects of the project on historical cultural resources in the surrounding landscape (Longiaru et al. 2008); and in 2013, an archaeological and architectural assessment addendum that addressed the effects of changes to the project between 2008 and 2013 (Smith et al. 2013). The project design was revised again in December 2015 and addressed in the Phase 1 investigation addendum 2 that discussed an Area of Potential Effect (APE) measuring 354.8 acres which was 46.2 acres smaller than the original 401-acre project APE (Hanley et al. 2015; Longiaru et al. 2015).

New revisions in 2016 to project component locations and totals (e.g., the elimination of seven turbines) have reduced the APE another 35.9 acres resulting in the current APE of 318.9 acres (Figure 1.2). The current investigation was conducted to determine if the revised project component locations outside the previously surveyed APE are archaeologically sensitive. This report only discusses the archaeological component of the investigation; the historic structures survey addendum for the current 2016 layout is submitted as a separate report.

In accordance with the New York State Historic Preservation Office (NYSHPO) *Guidelines for Wind Farm Development Cultural Resources Survey Work* (2006), the purpose of this addendum is to assess the potential for the parts of the current physical project APE that are outside the areas covered by the earlier investigations to contain potentially National Register-eligible (NRE) archaeological resources. The investigation was conducted in compliance with the New York State Historic Preservation Act, the State Environmental Quality Review Act, the National Historic Preservation Act, and the National Environmental Policy Act, as well as all relevant state and federal legislation. It was also conducted according to the New York Archaeological Council's (NYAC) Standards for Archaeological Investigations, and NYSHPO quidelines.

The addendum investigation was conducted by Panamerican in September and October of 2016. Mr. Robert J. Hanley, M.A., RPA Principal Investigator for this Phase 1 archaeology addendum. Dr. Donald A. Smith, RPA, served as Geographic Information Analyst, and Mr. Mark A. Steinback, M.A., was the project historian and technical coordinator. As noted, the historic structures assessment for the project is submitted as a separate report (Longiaru et al. 2016).

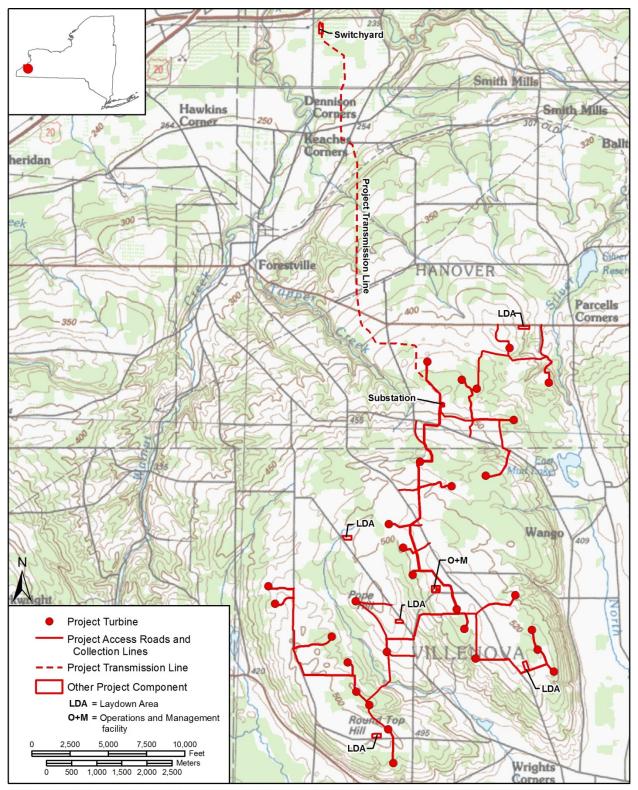


Figure 1.1. Location of the 2016 Ball Hill Wind Project in the Towns of Hanover and Villenova, Chautauqua County, New York (Base map: United States Geological Survey [USGS] 100k series Jamestown, NY-Penn. [1988] and Silver Creek, NY-Penn.-Ont. [1986] quadrangles).

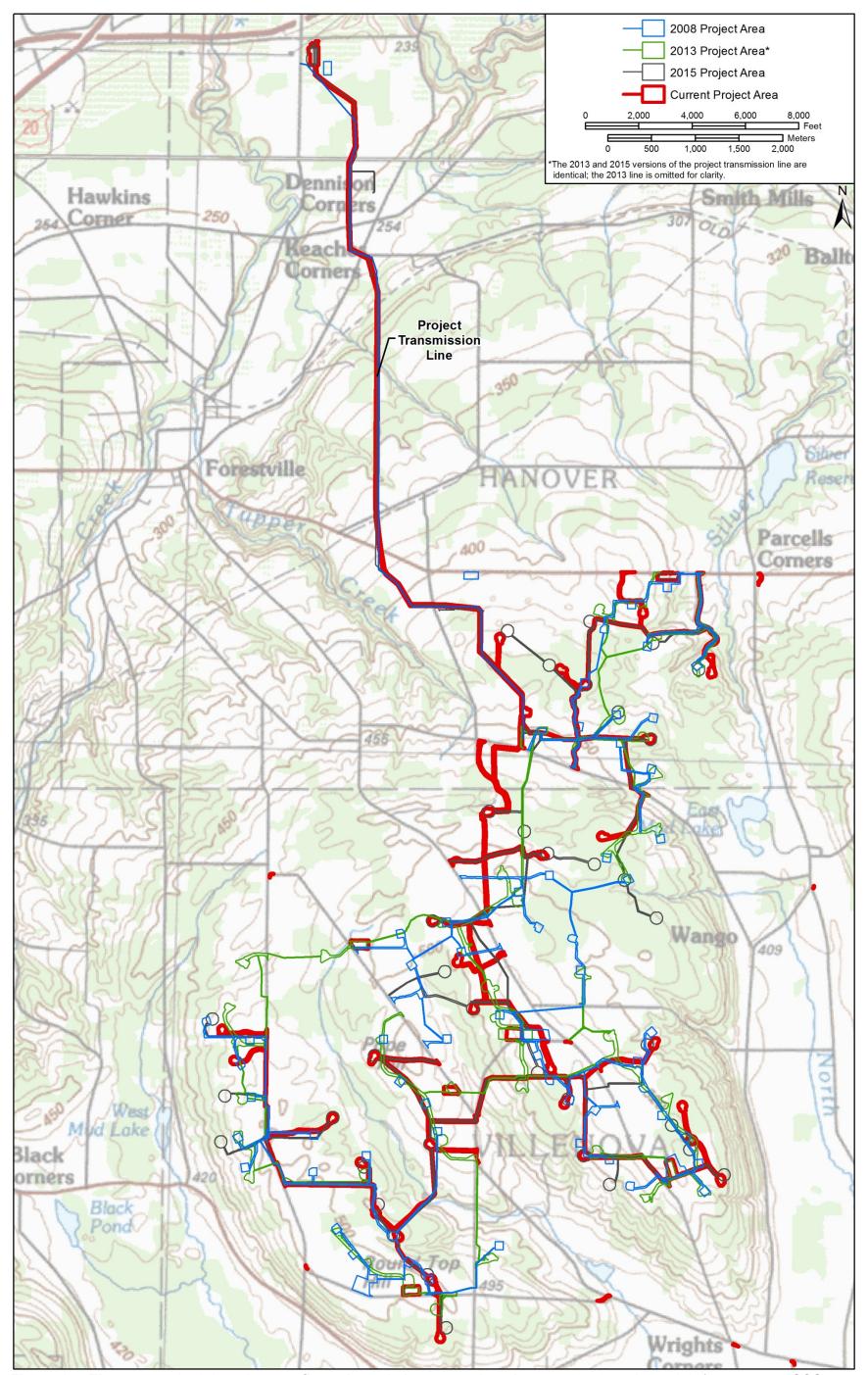


Figure 1.2. The current (2016) project configuration relative to previous layouts (2008, 2013, 2015) (Base map: USGS 100k series Jamestown, NY-Penn. [1988] and Silver Creek, NY-Penn.-Ont. [1986] quadrangles).

### 2.0 Archaeological Investigation

### 2.1 PREVIOUS INVESTIGATIONS

The newly revised layout of the current Ball Hill Wind Project has significant overlap with that of the previously-proposed versions of the project, with the primary revisions associated with the removal of components and consequent reduction in size of the APE (see Figure 1.2). The current project area falls within the same overall footprint as the 2008 configuration and extends across parts of the same environmental zones with a similar spatial distribution. Thus, the areas selected for testing in 2008 were distributed across environmental zones at a similar ratio to those of the current project area. Figure 2.1 depicts the present project design in the same topographic setting as the previous survey areas. Therefore, based on environmental zone criterion of the SHPO *Wind Farm Guidelines*, the results of the archaeological testing completed during the 2008 investigation are approximately also representative of the testing of the current project configuration.

No National Register of Historic Places (NRHP)-eligible archaeological resources were previously reported within the current APE or found during the field investigations for prior project designs. Only two isolated precontact-period artifacts (both lithic debitage) were recovered during the previous field investigations. These investigations resulted in finding three historic sites at Map-Documented Structure (MDS) locations but they were determined not to be eligible for listing in the NRHP (see Hanley et al. 2015).

### 2.2 HISTORICAL MAP RESEARCH

The historical maps reviewed for the 2016 Phase 1 Addendum 3 investigation include: Rea and Trimble (1854), Stewart (1867), Beers (1881), and the USGS Cherry Creek (1900) topographical quadrangle. The present project design places an access road and interconnect in proximity to just two MDSs outside previously surveyed locations. Both are located on the south side of Hurlburt Road in the Town of Hanover. Portions of the APE depicted north of Hurlburt Road were previously surveyed and no evidence of cultural resources was found.

In 1854, an MDS attributed to W. McManus was east of a proposed access road (Figure 2.2: MDS 1) and an MDS apparently attributed to O. Meritt was located south of an interconnect (Figure 2.2: MDS 2). By 1867, the MDS attributed to W. McManus near the access road was attributed to S.L. Hulbert (Figure 2.3: MDS 1) and the MDS possibly attributed to O. Meritt south of the interconnect was no longer present (see Figure 2.3). In 1881 MDS 1 was still attributed to S.L. Hulbert (Figure 2.4: MDS 1) and it was still present in 1900 (Figure 2.5). No MDSs were depicted at either location on the 1954 USGS topographic map (map reviewed but not presented).

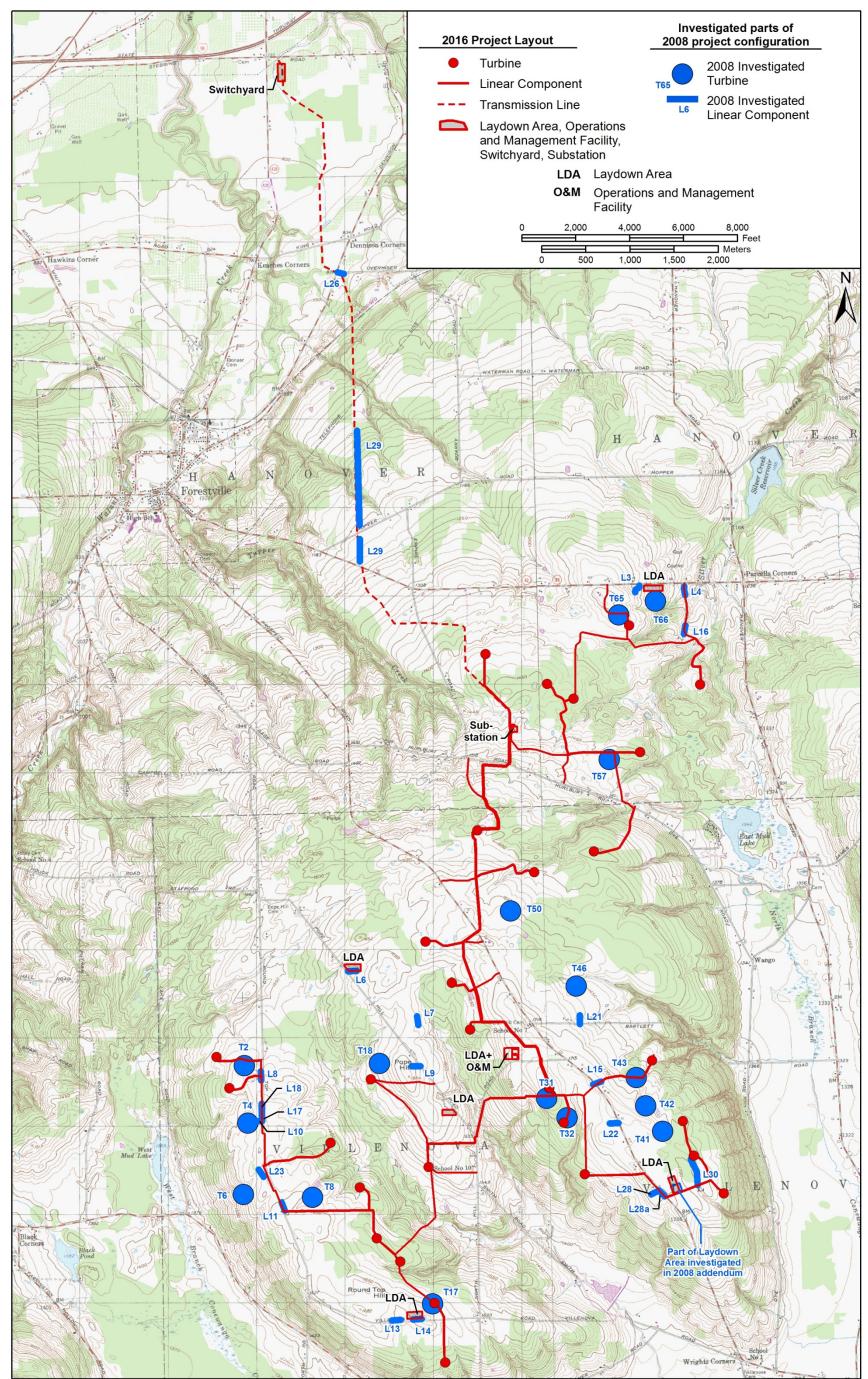


Figure 2.1. Portions of the Ball Hill Wind Project previously subjected to archaeological survey relative to the current project area (Base Maps: USGS 24k Series Topographic: Silver Creek, NY 1960, Farnham, NY 1960, Perrysburg, NY 1979, Forestville, NY 1979).

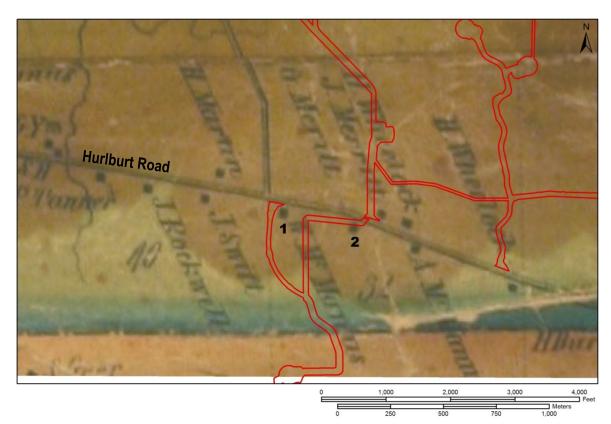


Figure 2.2. MDS locations in the vicinity of the APE in 1854 (Rea and Trimble).

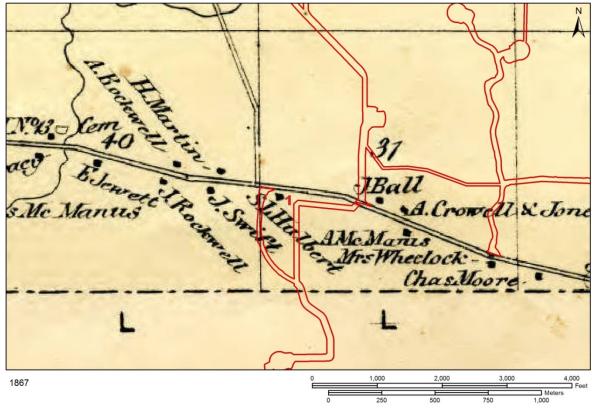


Figure 2.3. MDS locations in the vicinity of the APE in 1867 (Stewart).

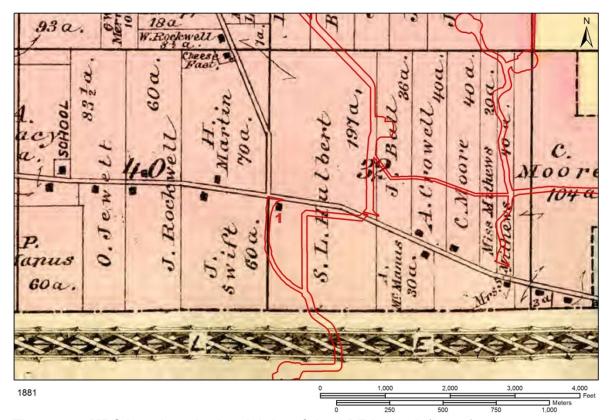


Figure 2.4. MDS locations in the vicinity of the APE in 1881 (Beers).

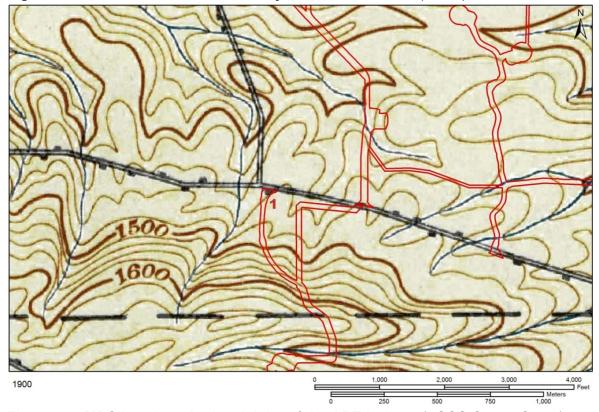


Figure 2.5. MDS locations in the vicinity of the APE in 1900 (USGS Cherry Creek).

## 2.3 CONCLUSIONS AND RECOMMENDATIONS

Archaeological field investigations were previously conducted to account for the original APE of 401 acres. The current project APE is now 82.1 acres smaller with the total presently measuring 318.9 acres. The APE of the new design crosses similar environmental zones "Local Habitat Areas" to those of the previously investigated APE. Therefore, the results generated by the first investigation are applicable in assessing the archaeological sensitivity of the current APE. No potentially NRHP-eligible archaeological resources have been previously identified in the current project area. As determined by the earlier investigations, the project area has low sensitivity for precontact-period archaeological resources and no NRHP-eligible historic sites were found after investigating numerous MDS loci.

The new project design was overlain on historical maps and only two MDSs were identified in the vicinity of the APE that had not been previously surveyed. In consultation with SHPO it was assessed that there is a low potential for the project to affect archaeological deposits associated with these two MDSs given the inaccuracies of nineteenth-century maps, and, as a result, additional archaeological testing for this project was not necessary (email: Dr. Nancy Herter, NYSHPO, October 5, 2016).

In summary, the present 2016 configuration of the Ball Hill Wind Project is not considered sensitive for archaeological cultural resources. Sufficient field investigations have been conducted per the NYSHPO *Guidelines for Wind Farm Development Cultural Resources Survey Work*. Panamerican does not recommend any further cultural resources investigations for the current design of the Ball Hill Wind Project.

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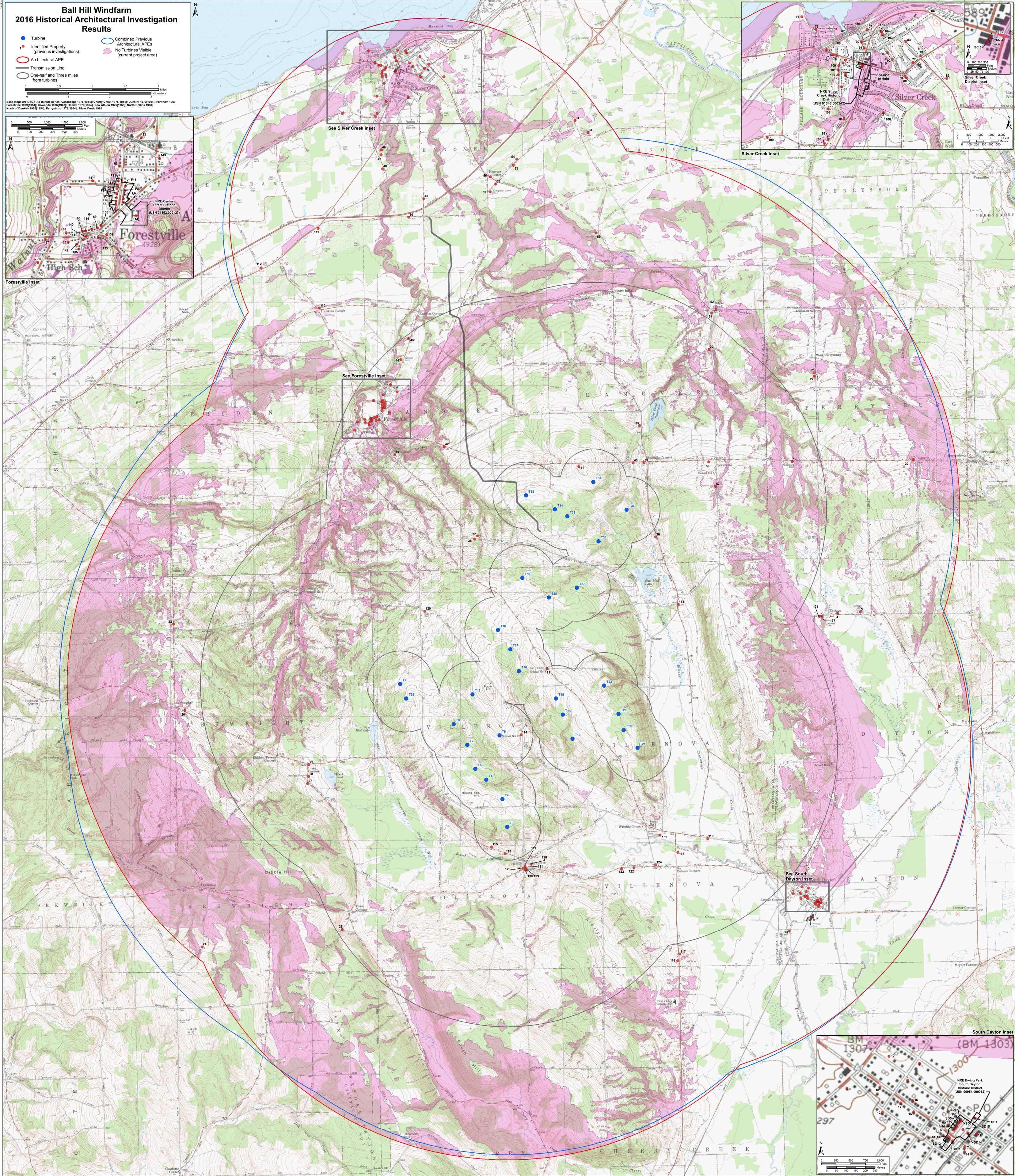
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# N-2 Architectural Survey





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# ARCHITECTURAL SURVEY FOR THE BALL HILL WIND PROJECT TOWNS OF VILLENOVA AND HANOVER, CHAUTAUQUA COUNTY, NEW YORK ADDENDUM #3

OPRHP#08PR01814

**Prepared for:** 

ECOLOGY & ENVIRONMENT, INC. 368 Pleasant View Drive Lancaster, New York 14086

Prepared by:

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October 2016

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October 2016

# **Management Summary**

SHPO Project Review Number: #08PR01814

Involved State and Federal Agencies: U.S. Army Corps of Engineers, New York State Department of

Environmental Conservation, Public Service Commission

Phase of Survey: Addendum Phase 1 historic architectural resources survey

# **Project Location Information**

Location: see minor civil division below

**Minor Civil Division:** Towns of Villenova (MCD 01326) and Hanover (MCD 01314)

County: Chautauqua

## **Five-mile Ring Information**

**Minor Civil Division:** Towns of Arkwright (MCD 01301), Charlotte (MCD 01304), Cherry Creek (MCD 01306), Hanover (MCD 01314), Sheridan (MCD 01323), and Villenova (MCD 01326), and the villages of Forestville (MCD 01352), Silver Creek (MCD 01346), Chautauqua County; and Towns of Dayton (MCD 00906), Leon (MCD 00917), and Perrysburg (MCD 00926), and the villages of Perrysburg (MCD 00951) and South Dayton (MCD 00954), Cattaraugus County

Counties: Chautaugua and Cattaraugus

Number of Proposed Turbines: 29

# **Architectural Survey Area:**

**Total area surveyed:** The current total within the five-mile buffer of the Ball Hill turbines and the and three-mile buffer of the Project's transmission line is 170.1 square miles; 76.2 percent of which, or 129.7 square miles, makes up the Visual APE.

**USGS 7.5-Minute Quadrangle Maps (all New York): Archaeological Investigation:** Forestville (1979); **Architectural Investigation:** Cassadega (1976), Cherry Creek (1976), Dunkirk (1979), Farnham (1960), Forestville (1979), Hamlet (1976), Perrysburg (1976), and Silver Creek (1960)

#### **Results of Architectural Survey**

Number of previously determined NR-listed or –eligible buildings/structures/cemeteries/ districts in the 5-mile Visual Area of Potential Effect (APE):

- National Register-listed properties: None
- Individual National Register-eligible (NRE) properties: 159

# Number of Historic Districts with "Undetermined" NRHP Status: 2

- Silver Creek Historic District (approximately 35 contributing properties, number of noncontributing is unknown) four were recommended contributing properties to the Silver Creek Historic District.
- 2) Center Street Historic District in Forestville, which consists of 14 primary buildings (13 contributing resources and one non-contributing resource).

Number of recommended NRE buildings/structures/cemeteries/districts in the 5-mile Visual APE 2016 Addendum: None

Report Author(s): D. Smith, M. Steinback, C. Longiaru, and M. Cinquino.

Date of Report: October 2016

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# 1.0 Introduction

## 1.1 PROJECT DESCRIPTION

Panamerican Consultants, Inc. (Panamerican) was contracted by Ecology & Environment, Inc. (E&E), Lancaster, New York, to complete an historic architectural resources survey addendum for the proposed Ball Hill Wind Project, a wind-energy project proposed in the Towns of Hanover and Villenova, Chautauqua County, New York (Figure 1.1). The Project's most visible components are 29 492-ft-(150-meter)-tall wind-power generating turbines. Its visual Area of Potential Effect (APE) is defined as the area within five miles of the turbines and three miles of its transmission line and from which its turbines will be visible. The area within five miles of turbines and three miles of the transmission line totals 170.1 square miles, of which turbines will be visible in 129.7 square miles (Figure 1.2). Three previous historic architectural resources studies were completed for earlier configurations of the Ball Hill Wind Project. In 2008 Panamerican completed the initial historic buildings survey of the five-mile visual APE (Longiaru et al. 2008) and in 2013 and 2015 archaeological and architectural assessment addenda were submitted to the New York State Historic Preservation Office (NYSHPO) (Smith et al. 2013; Longiaru et al. 2015 [Figure 1.3]). The configuration of the Project addressed in the 2015 addendum was considerably larger than its current layout and included 36 turbines. This 2016 addendum addresses the current Project layout and includes an updated five-mile visual APE study area that accounts for changes to the 2015 study area (i.e., new areas in the current Project's five-mile visual APE).

The project includes wind-energy generation and transmission components. The generation component (i.e., wind turbines and their auxiliary facilities [access roads, an electrical collection network, construction laydown areas, and an operations and management [O&M] facility]) will be constructed in the towns of Villenova and Hanover and the transmission component (i.e., an electrical transmission line with its ancillary facilities [access roads, a switchyard, and a substation]) will be in the Town of Hanover. The total physical APE for the current project is approximately 329 acres. It includes 29 wind turbines with a capacity to produce approximately 100MW of electricity; the APE for each turbine covers 3.65 acres. The generation project's linear components (access roads and electrical collection lines) total 215,376 feet (65,646 meters / 40.8 miles) in length and have APEs that range from 25 to 40 ft (7.6 to 12.2 m) wide; the construction laydown areas total 15 acres and the O&M facility is 5 acres. The project's transmission line is 29,945 ft (9,127 m / 5.7 miles) in length and has a 120-ft (3.6-m)-wide APE / right-of-way (ROW). Its switchyard covers 4 acres and the substation covers 1.3 acres. Finally, the transmission portion of the project also includes a series of access roads, all but 1.5 acres of which are located within the transmission line's ROW.

The purpose of the 2016 architectural survey addendum is to identify National Register Listed/Eligible (NRL/NRE) properties in the current Project's five-mile visual APE study area.<sup>2</sup> This addendum addresses newly identified areas in the current visual APE that were previously not covered by earlier investigations (i.e., new locations containing historic architectural resources now in the visual APE). It includes an up-to-date analysis of the potential visual effect of the Project on historic architectural resources in the study area. Panamerican also completed a separate archaeological investigation for the current Project layout (Hanley et al. 2016).

Any National Register eligibility recommendations presented in the 2016 addendum report are preliminary and **not** considered final determinations of National Register eligibility. Final determinations will be made

<sup>&</sup>lt;sup>1</sup> Previous versions of the project included up to 39 turbines, which were assigned the designations T1 to T39. In the current layout, the earlier numerical designations for turbines have been retained. Thus, turbine designations used throughout this report range from T1 to T39, from which 10 designations have been omitted (T1, T10, T12, T22, T24, T25, T26, T29, T32, and T38). The current configuration calls for only 29 turbines.

Previously documented resources as identified in the original five-mile visual APE for the Architectural Survey (Five-mile APE) for the Proposed Noble Ball Hill Windpark (2008) and the 2013 addendum were not re-surveyed for the 2015 addendum.

by NYSHPO. The historic building survey of the five-mile APE study area and the three-mile APE study area was conducted in compliance with NYSHPO *Wind Farm Guidelines* (2006).

Each of the historic architectural resources surveys completed by Panamerican in 2008, 2013, 2015, and 2016 were conducted in accordance with NYSHPO's *Guidelines for Wind Farm Development Cultural Resources Survey Work* (2006), and based on previous experience with conducting historic resources surveys for wind-energy projects. These investigations were completed in compliance with the New York State Historic Preservation Act, the State Environmental Quality Review Act, the National Historic Preservation Act, and the National Environmental Policy Act, as well as all relevant state and federal legislation. Panamerican completed the historic architectural resources field survey in November 2015. Ms. Christine M. Longiaru, M.A., served as Principal Investigator for the architectural evaluation. The project team included Senior Historian Mr. Mark A. Steinback, M.A.; Geographic Information Analyst Dr. Donald A. Smith, RPA, Project Director/Senior Archaeologist Dr. Michael A. Cinquino, RPA, and Senior Preservation Planner/Senior Archaeologist Dr. Frank J. Schieppati, RPA.

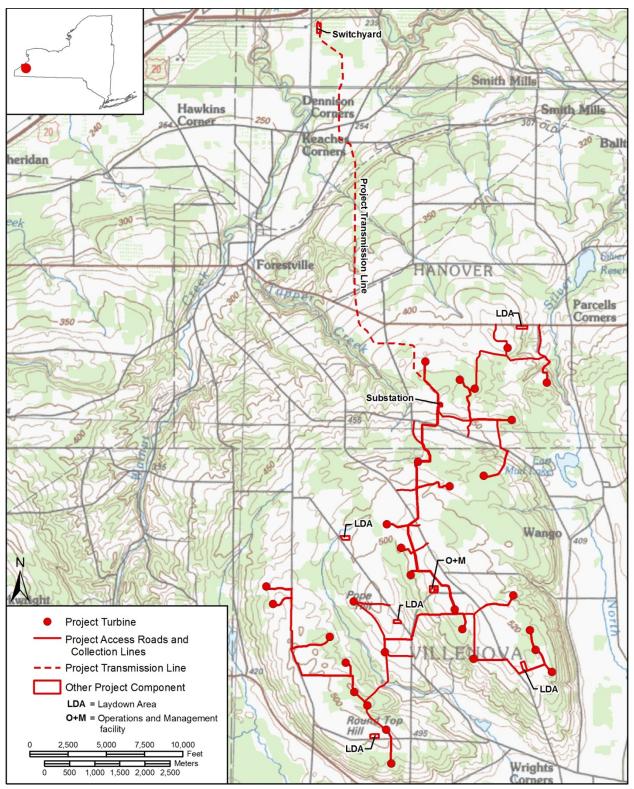
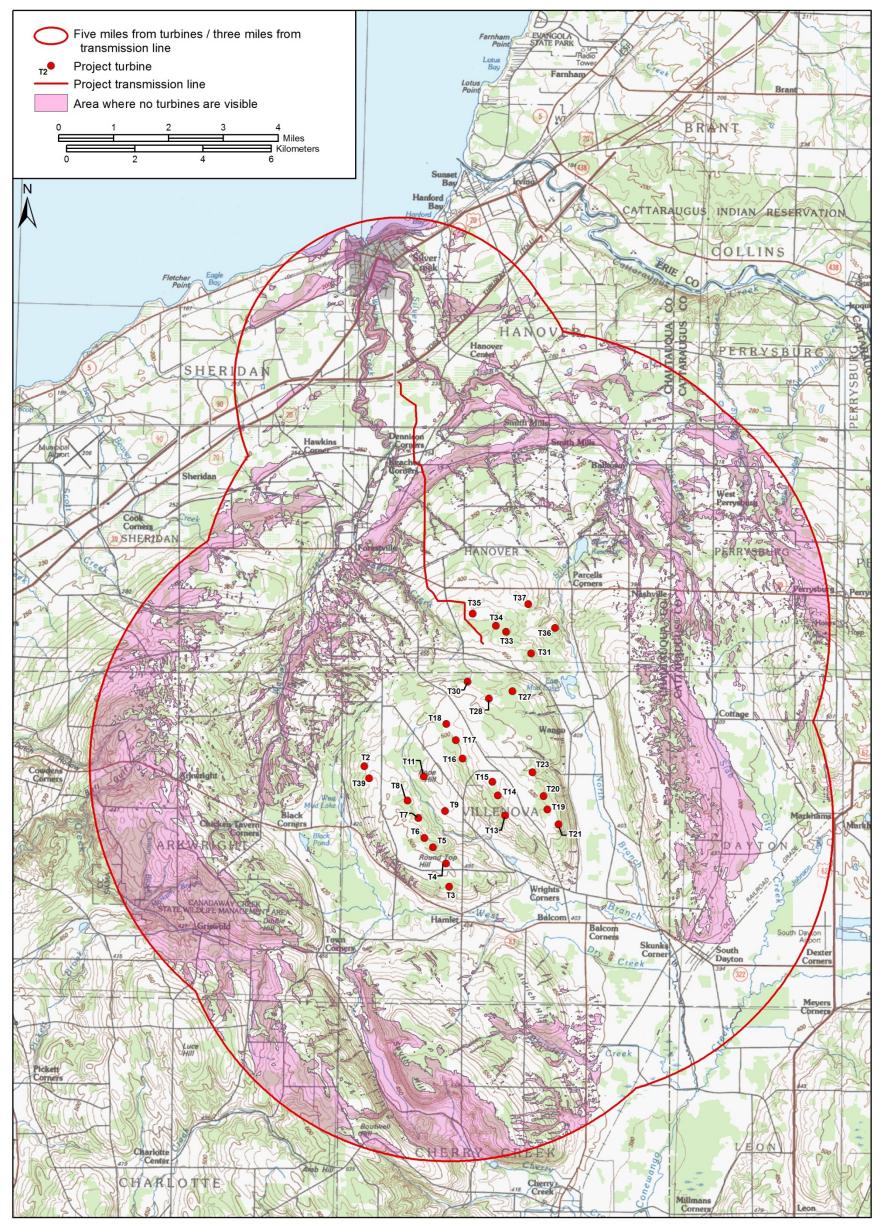
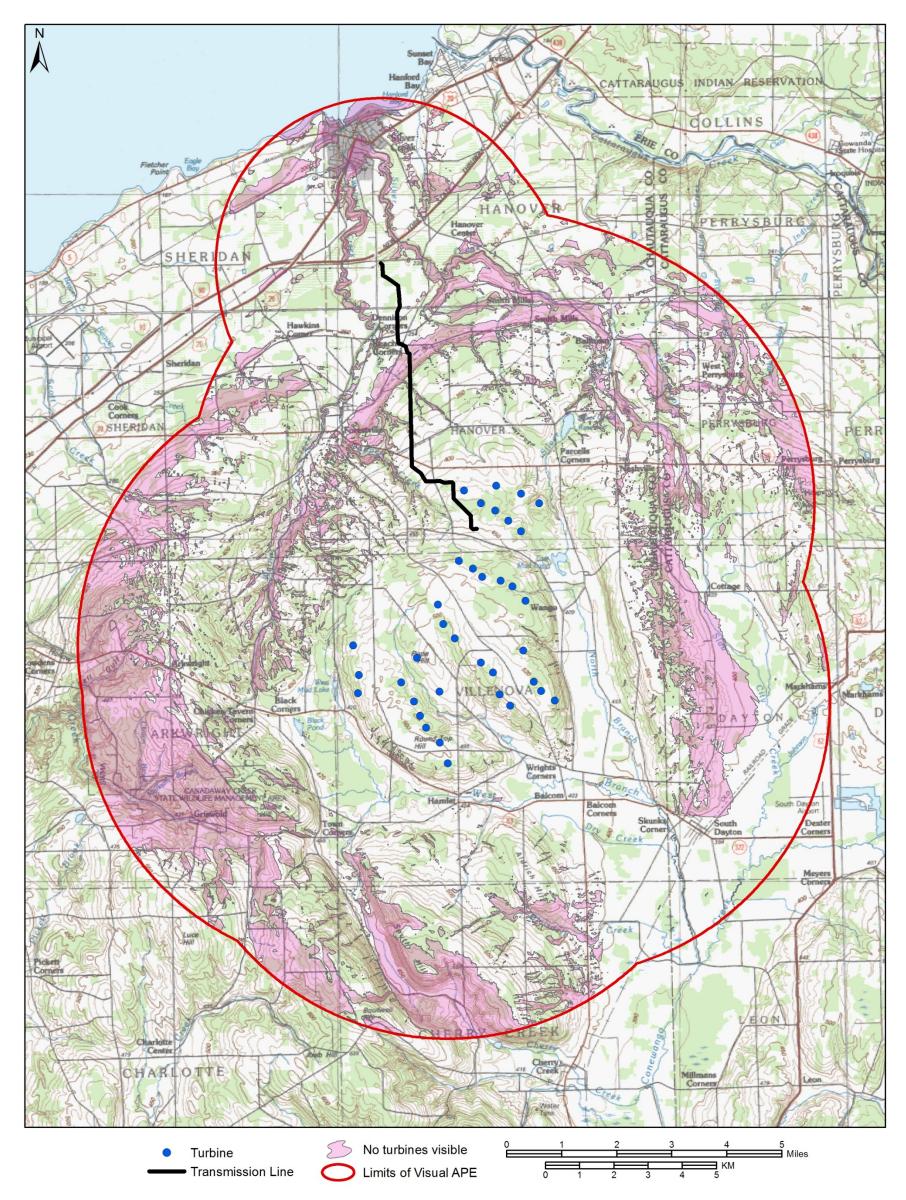


Figure 1.1. The approximate location of the Ball Hill Wind Project in the Towns of Hanover and Villenova, Chautauqua County, New York (USGS 100k Series Topographic: Jamestown, NY-Pennsylvania (1988 [1986]); Silver Creek, NY-Pennsylvania-Ontario (1986).



**Figure 1.2. Ball Hill 2016 Addendum historic architectural resources visual APE** (base map sources: USGS 100k Series Topographic: Buffalo, NY 1984; Jamestown, NY 1988 [1986]; Olean, NY 1986; Silver Creek, NY 1986).



**Figure 1.3.** Ball Hill **2015** architectural / visual APE (base map sources: USGS 100k Series Topographic: Buffalo, NY 1984; Jamestown, NY 1988 [1986]; Olean, NY 1986; Silver Creek, NY 1986).

# 2.0 Historic Architectural Resources Summary

For this investigation, the visual APE is defined as the area within five miles of the Project turbines and three miles of its transmission line and from which its turbines will be visible (see Figure 1.2). Within this area both direct and indirect visual effects are assessed that may cause changes in the character or use of cultural properties. Panamerican generated the viewshed analysis map of the five-mile visual APE based solely on topography (NYSHPO 2006; see Appendix A). Additional screening may be provided by existing buildings and vegetation. The visual APE spans parts of northwestern Cattaraugus County and northeastern Chautauqua County.

The current Project's five-mile visual APE has significant overlap in area with that of a previously proposed project, Noble Ball Hill Windpark and Transmission Line (NYS Office of Parks, Recreation, and Historic Preservation [OPRHP] #08PR01814), which was not constructed. In 2008, Panamerican conducted a reconnaissance-level historic buildings survey of the five-mile APE for the originally proposed project (Longiaru et al. 2008 [#08PR01814]). NYSHPO reviewed the 2008 report recommendations and provided final National Register of Historic Places (NRHP) evaluations (Bonafide 2008). A list of all NRE properties in the current Project viewshed previously documented by Panamerican and evaluated by NYSHPO in 2008 is included in this addendum report (Table 2.1, below).

#### 2.1 PREVIOUS INVESTIGATIONS

Five historic architectural resources studies for wind-energy projects were previously conducted in and partially within the Project's five-mile visual APE study area (Longiaru et al. 2008 [Ball Hill]; Smith et al. 2013 [Ball Hill]; Longiaru et al. 2015 [Ball Hill]; Sexton and Toner 2009 [Arkwright Summit wind project]; and EDR 2015 [Cassadaga wind project]). Four of the previous historic architectural resources surveys identified NRE resources within the current Project's visual APE. These surveys included identification of all historical architectural resources previously determined listed or eligible the S/NRHPs, as well as newly documented resources.

The original 2008 survey for Ball Hill Wind Project identified 132 individual NRE properties and one NRE historic district—Ewing Park South Dayton Historic District (USN 0095.000062; 13 contributing and one non-contributing properties [Longiaru et al. 2008]). The majority of properties identified in the original 2008 survey were nineteenth-century residences. These NRE properties reflect the rural agricultural heritage of the region as represented by large farm complexes historically consisting of farm houses, farm buildings, and agricultural fields. Commercial, municipal, religious, and industrial buildings were found in the villages of Forestville, Silver Creek, and South Dayton. In addition, seven bridges were documented in the 2008 survey (Map Points 2 [in Dayton], 60 [in Forestville], and 85-89 [in Silver Creek]). NYSHPO assigned an "Undetermined" NRHP status for each of these structures (Bonafide 2008). The seven bridges have not been assigned OPRHP unique site numbers (USNs).

An historic architectural resources investigation of a five-mile ring study area for the Arkwright Summit Wind Farm in Arkwright, Chautauqua County, was completed in 2009 (Sexton and Toner 2009). The Arkwright Summit Wind Farm study area partially overlapped the five-mile visual APE for the Noble Ball Hill Windpark and Transmission project (Longiaru et al. 2008). Slight differences between the 2008 and 2009 viewsheds in some locations accounted for duplicate documentation of historic properties by these two studies.

In 2013 Panamerican submitted an addendum cultural resources investigation for a second proposed project, the Duke Energy Ball Hill Windpark (OPRHP #08PR01814). The 2013 five-mile visual APE had significant overlap with the 2008 visual APE. The total area within five miles of the Project turbines in 2013 was 169.4 sq miles, of which turbines were visible from 128.8 sq miles. Several new locations in the 2013 addendum study area required further investigation for historic architectural resources.

The 2013 addendum survey recommended eight individual properties and one historic district (Center Street Historic District in Forestville, Chautauqua County [USN 01352.000127] Map Points F1 to F14) as

NRE. The 2013 addendum survey also recommended consideration of additional contributing properties to the Silver Creek Historic District (USN 01346.000242; Map Points SC2 to SC6). One of the individual properties recommended as a contributing resource to the Silver Creek Historic District—The Geitner Theatre (The Blackline) at 19 Park Place (Map Point SC5)—was also recommended as an individual NRE property. For continuity in project review and reference, the 2013 addendum survey report retained Map Points assigned to historic architectural resources in the 2008 report (Smith et al. 2015).

The 2015 visual APE for the Project covered 129.9 sq miles. The addendum investigation identified a total of 163 identified historic architectural properties in the five-mile visual APE for the Project. No new resources were identified as NRE. No NRL properties were identified within the visual APE. The types of NRE historic properties included farm complexes, individual residences, commercial buildings, and cemeteries. Two historic districts with "Undetermined" NRHP Status were partially within the visual APE: the Center Street Historic District, Forestville and the Silver Creek Historic District (Longiaru et al. 2015). Since the 2015 report both historic districts have been determined NRE.

## 2.2 Previously Identified Historic Architectural Resources

Panamerican utilized OPRHP's CRIS to identify previously inventoried historic properties and historic districts located within a five-mile buffer around the Project. Any new information obtained from CRIS for previously documented resources in 2008, 2013, and 2015 (i.e., USNs, street addresses, resource names, etc.) were amended for this addendum. (The 2008 and 2013 reports were completed prior to the development of the CRIS website.)

The following is a summary of findings for previously identified historic architectural resources in the Project's visual APE.

- No State/National Register Listed properties
- 163 individual State/National Register Eligible properties
- Two historic districts with "Undetermined" NRHP status

The results of the CRIS search for NRE properties are enumerated in Table 2.1. The table includes the original map numbers assigned in the 2008 report for consistency and cross referencing with the earlier reports. Map Points 1 through 132 reference those properties previously documented in 2008. Map Points SD1 through SD14 were originally assigned to properties that were recommended NRE in Ewing Park Historic District (USN 0095.000062; Longiaru et al. 2008). Map Points 137 through 143 and SC 2 through 6 were identified in the 2013 addendum study (Smith et al. 2013). Locations of identified properties are indicated on the project study area map (see Appendix A). Note, line items in Table 2.1 identified in bold and by an asterisk indicate properties in the viewshed of the project transmission line. Missing map points in Tables 2.1 and 3.1 (Visual Impacts section) indicate those resources that are no longer included in the visual APE as a result of either their absence in CRIS or their change in NRHP status.

A small portion of the NRE Silver Creek Historic District (USN 01346.000242) in the Village of Silver Creek, Town of Hanover, Chautauqua County, is in the 2016 visual APE. Properties in the Silver Creek Historic District were not located in the 2008 visual APE. The Silver Creek Historic District is centered on Main Street (U.S. Route 20 [US 20]) at the historic crossroads of the village. Properties in the district were initially surveyed in the 1990s as part of a cultural resources reconnaissance survey conducted for a New York State Department of Transportation (NYSDOT) project. The approximate boundaries of Silver Creek Historic District include a three-block section of Main Street (US 20) from Central Avenue (NY 5) to Robinson Street; the Village Park bound by Park Place, Main Street, and Central Avenue; and a section of Central Avenue (NY 5) from Main Street to 199-201 Central Avenue. The historic district comprises 41 properties dating from the mid-nineteenth century through the early twentieth century, the majority of which are residential. Other property types include a village park, commercial buildings, religious

buildings, a post office, and a school. Formal identification and delineation of the Silver Creek Historic District was beyond the scope of the 2013 addendum survey. The current study addresses the portion of Silver Creek Historic District in the Project's visual APE. Map Points assigned to properties in the Silver Creek Historic District are SC2 through SC6 (see Table 2.1).

The NRE Center Street Historic District (USN 01352.000127) in the Village of Forestville, Town of Hanover, Chautauqua County, consists of 14 NRE buildings and ten outbuildings. All of the buildings in the proposed district are residential with the exception of St. Rose of Lima Church. The boundaries of the Center Street Historic District include a roughly one-block stretch of Center Street, from the intersection with Pearl Street to Cedar Street. Residential buildings on this section of Center Street represent a cohesive, largely intact example of Forestville's nineteenth-century architectural heritage, which includes examples of Greek Revival, transitional Greek/Italianate, Italianate, Gothic/Italianate, and Queen Anne styles, as well as early twentieth-century styles (e.g., Craftsman). Map Points assigned to properties in the Center Street Historic District are F1 through F14 (see Table 2.1).

The NRE Ewing Park South Dayton Historic District (USN 0095.000062); South Dayton, Cattaraugus County, has 16 contributing and one non-contributing properties. Ewing Park Historic District is an approximately 3.7-acre (161,203-sq ft) area bound by Park Street on the west, the Erie Railroad tracks on the east, Maple Street on the north, and Pine Street on the south. Map Points for properties in the Ewing Park Historic District are SD1 through SD14, as per the 2008 report.

Changes in CRIS were noted for a few properties since the 2013 addendum was submitted. Seven bridges were previously documented in 2008, and included in the 2008 and 2013 survey reports (see Table 2.2), but have not been assigned USNs or entered into CRIS.

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual A	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
1		12182 Markhams Road	Cattaraugus	Dayton	NRE	00906.000086	
3 <sup>4</sup>	Cottage Cemetery	Cottage Road, north side, west of Edwards Corners Road	Cattaraugus	Dayton	NRE	00906.000089	
4	Residential, c.1860	12654 Cottage Road	Cattaraugus	Dayton	NRE	00906.000090	
5	Residential, c.1930	27 Cherry Street	Cattaraugus	Dayton	NRE	00906.000091	
6	Factory Building	East Railroad Avenue, at south end	Cattaraugus	South Dayton (V)	NRE	00954.000048	
7	Residential, c.1870	73 East Railroad Avenue	Cattaraugus	South Dayton (V)	NRE	00954.000049	
8	Residential, c.1860	62 Main Street	Cattaraugus	South Dayton (V)	NRE	00954.000050	
9	Residential, c.1890	203 Maple Street	Cattaraugus	South Dayton (V)	NRE	00954.000051	
10	Residential, c.1910	212 /214 Maple Street	Cattaraugus	South Dayton (V)	NRE	00954.000052	
11	Harry Austin Milling Co., 1883	Mill Street, between tracks, east side, north of Pine Street	Cattaraugus	South Dayton (V)	NRE	00954.000053	
12	Residential, c.1860	227 Oak Street	Cattaraugus	South Dayton (V)	NRE	00954.000054	
13	Sears Farmhouse & Complex, c.1920	8143 Oaks Road	Cattaraugus	South Dayton (V)	NRE	00954.000055	

Key for Table 2.1. USN=NYSOPRHP Unique Site Number; S/NRHP= State/National Registers of Historic Places; and Address: n/a = No locational information available for property in CRIS. Note, line items in bold and identified by an asterisk indicate properties in the viewshed of the project transmission line.
 Note, missing map points indicate those resources that are no longer included in the visual APE as a result of either their absence in CRIS or their change in

NRHP status.

		Table 2.1. National Regi	ster-Eligible Pr	operties in Visual A	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
14	Corkwell's Garage	107 Pine Street	Cattaraugus	South Dayton (V)	NRE	00954.000007	
15	Residential, c.1910	309 Pine Street	Cattaraugus	South Dayton (V)	NRE	00954.000057	
16	Residential, c.1900	312 Pine Street	Cattaraugus	South Dayton (V)	NRE	00954.000058	
17	Residential, c.1890 (Wilson House)	319 Pine Street	Cattaraugus	South Dayton (V)	NRE	00954.000060	
18	Commercial, c.1920	413 Pine Street	Cattaraugus	South Dayton	NRE	00954.000061	
19	Perrysburg Cemetery	NY 39, west of West Perrysburg Road	Cattaraugus	Perrysburg	NRE	00926.000040	
20	Residential, c.1860	12316 NY 39	Cattaraugus	Perrysburg	NRE	00926.000041	
21	Rugg-town West Perrysburg Cemetery	West Perrysburg Road, west side, north of NY 39	Cattaraugus	Perrysburg (West Perrysburg [H])	NRE	00926.000042	
22	Farm Complex, 1939	10929 West Perrysburg Road	Cattaraugus	Perrysburg (West Perrysburg [H])	NRE	00926.000043	
23	Weaver Cemetery	Center Road, west side, north of Weaver Road	Chautauqua	Arkwright	NRE	00926.000044	
24	Residential,1847	8129 Griswold Road	Chautauqua	Arkwright	NRE	01301.000022	
25	Rose Farm, c.1870	1936 Ruttenbur Road	Chautauqua	Arkwright	NRE	01301.000023	
26	Residential, c.1915	2667 NY 83	Chautauqua	Arkwright (Arkwright [H])	NRE	01301.000024	
27	Farmstead, c.1850 (Wooley Farm Complex)	8903 Farrington Hollow Road	Chautauqua	Arkwright (Blacks Corners [H])	NRE	01301.000033	Resource type is "Building"; in CRIS as "Archaeology" resource
28	Arkwright Summit Cemetery	Farrington Hollow Road, east side, south of NY 83	Chautauqua	Arkwright (Blacks Corners [H])	NRE	01301.000034	Resource type is "Building"; in CRIS as "Archaeology" resource

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual A	APE (CRIS 201	16).3	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
29	Farm Complex, c.1870 Barns / Pre-Civil War House (Maple-Camp Farm / Black Farm)	2083 NY 83	Chautauqua	Arkwright (Blacks Corners [H])	NRE	01301.000027	
30	Residential, c.1850	10917 Alleghany Road	Chautauqua	Hanover	NRE	01314.000060	
*31	Residential, c.1895	12168 Alleghany Road	Chautauqua	Hanover	NRE	01314.000061	
32	Evergreen Cemetery	Angell Street, south side, east of Denison Road	Chautauqua	Hanover	NRE	01314.000062	
33	Forestville Depot	Center Street, NE corner Erie Street	Chautauqua	Hanover	NRE	01314.000063	
*34	Christy Road Cemetery	Christy Road, north side, east of Alleghany Road	Chautauqua	Hanover	NRE	01314.000064	
35	Residential, c.1860	Hanover Road, West side, south of Hopper Road	Chautauqua	Hanover	NRE	01314.000065	
36	Livermore Homestead- Farm Complex, c.1840	10079 Hanover Road	Chautauqua	Hanover	NRE	01314.000066	
37	Swift Cemetery	Hurlburt Road	Chautauqua	Hanover	NRE	01314.000092	
38	Residential, c.1850	Hurlburt Road, south side, east of Prospect Road	Chautauqua	Hanover	NRE	01314.000067	
39	Residential, c.1870	469 NY 39	Chautauqua	Hanover	NRE	01314.000069	
40	Residential, c.1890	503 NY 39	Chautauqua	Hanover	NRE	01314.000070	
41	Residential, c.1860	675 NY 39	Chautauqua	Hanover	NRE	01314.000071	
42	Residential, c.1840	1411 NY 39	Chautauqua	Hanover	NRE	01314.000072	
43		11776 Bennett State Road	Chautauqua	Hanover	NRE	01314.000056	

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual A	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
44	Forestville Pioneer Cemetery	Bennett State Road, south of 11051	Chautauqua	Hanover	NRE	01314.000090	
45	Residential, c.1870	11103 Bennett State Road	Chautauqua	Hanover	NRE	01314.000074	
*46	Mt. Carmel Cemetery, 1926	Old Main Street	Chautauqua	Hanover	NRE	01314.000075	
*47	Glenwood Cemetery, c.1810	Old Main Street	Chautauqua	Hanover	NRE	01314.000076	
*48	Residential, c.1910	11935 Old Main Street	Chautauqua	Hanover	NRE	01314.000077	
49	Forestville Cemetery (Prospect Cemetery)	Prospect Street, east side, south of Forestville Village	Chautauqua	Hanover	NRE	01314.000089	
50	Doty Cemetery	Stebbins Road, South side, west of Old Forestville Road	Chautauqua	Hanover	NRE	01314.000079	
51	Residential, c.1810	11037 Alleghany Road	Chautauqua	Hanover (Balltown [H])	NRE	01314.000080	
52	Balltown Cemetery	Mackinaw Road, north side at Allegany Road	Chautauqua	Hanover (Balltown [H])	NRE	01314.000081	
53	Residential, c.1915	12010 Angell Road	Chautauqua	Hanover (Hanover Center [H])	NRE	01314.000082	
54	Residential, c.1905	12021 Angell Road	Chautauqua	Hanover (Hanover Center [H])	NRE	01314.000083	
55	Farmstead, c.1890	967 Hanover Road	Chautauqua	Hanover (Hanover Center [H])	NRE	01314.000084	
56	Residential, c.1920	11991 Hanover Road	Chautauqua	Hanover (Hanover Center [H])	NRE	01314.000085	
57	Nashville Cemetery	Alleghany Road	Chautauqua	Hanover (Nashville [H])	NRE	01314.000086	
58	Church, c.1850	NY 39, south side, west of Allegany Road	Chautauqua	Hanover (Nashville [H])	NRE	01314.000087	

		Table 2.1. National Regis	ster-Eligible Pr	roperties in Visual A	PE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
59	Smith's Mill Cemetery	Hanover Road, West side at York Road	Chautauqua	Hanover (Smith Mill [H])	NRE	01314.000088	
61	Residential, c.1860	13 Cedar Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000098	
63	Residential, c.1870	28 Center Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000100	
64	Commercial, c.1870	11-15 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000047	
65	Residential, c.1830 (Cyrus D. Angell House)	26 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000103	
66	Commercial, c.1870	27 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000105	
67	Residential, c.1860 (former church)	32 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000058	
68	Residential, c.1812	43 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000065	
69	Commercial, c.1860	2 Pearl Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000101	
70	Residential, c.1830	9 Water Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000102	
71	Clark Mansion on Lighthouse Point, c.1900	Beachview Avenue, facing the lake	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000200	
72	Residential, c.1930	10 Beachview Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000201	
73	Residential, c.1830	130 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000008	
74	Residential, c.1870	147 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000202	
75	Structure 414 (Residence Tew- Babcock-Livermore House	151 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000129	

Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
76	Our Lady of Mt. Carmel	165 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000006	
77	Residential, c.1915	338 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000037	
78	Residential, c.1915	350 Central Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000043	
79	Residential, c.1870	5 Christy Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000202	
80	Residential, c.1910	9 Christy Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000204	
81	Residential, c.1915	4 Dana Drive	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000205	
82	Farmstead	12370 Hanover Road	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000206	
83	Residential, c.1915	16 Hanover Road	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000207	
90	Residential, c.1890	6/8 Lake Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000208	
91	St. Alban's Church	38 Lake Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000158	
92	Residential, c.1870	18 Oak St	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000209	
93	Residential, c.1860	30 Oak St	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000210	
94	Residential, c.1915	117 Old Main St	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000211	
95	Residential, c.1915	151 Old Main Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000212	
96	Residential, 1850	155 Old Main Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000227	
97	Residential, c.1910	1 Oliver Place	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000213	

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual A	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
98	Residential, c.1915	5 Oliver Place	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000214	
99	Residential, 1914 (Swift House)	6 Parkway Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000215	
100	Residential, c.1930	9 Parkway Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000216	
101	Residential, c.1900	17 Parkway Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000217	
102	Erbin House, c.1905 – 27	27 Parkway Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000005	
103	Trinity Lutheran Church, c.1880	Porter Avenue, northeast side at Adams Porter Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000218	
104	Church, c.1860	Porter Avenue, south of 21	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000219	
105	Residential, c.1920	21 Porter Avenue	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000220	
106	Residential, c.1915	45 Robinson Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000221	
107	Residential, c.1860	16 Rumsey Street	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000222	
108	Residential, c.1920	28 Ward Place	Chautauqua	Hanover (Silver Creek [V])	NRE	01346.000223	
109	Residential, c.1860	1873 East Middle Road	Chautauqua	Sheridan	NRE	01323.000050	
110	Residential, c.1830	1980 King Road	Chautauqua	Sheridan	NRE	01323.000051	
111	Residential, c.1915	2023 Stebbins Road	Chautauqua	Sheridan	NRE	01323.000052	
112	Residential, c.1860	2248 Stebbins Road	Chautauqua	Sheridan	NRE	01323.000053	

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual <i>i</i>	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
113	Wheeler Cemetery, c.1848	Hanover Road, East side	Chautauqua	Villenova	NRE	01326.000065	
115	Farm Complex, c.1870	NY 83, South side, west of Hamlet	Chautauqua	Villenova	NRE	01326.000066	
116	Farm Complex, c.1920	8025 NY 83	Chautauqua	Villenova	NRE	01326.000067	
118	Farm Complex, c.1860	8562 NY 83	Chautauqua	Villenova	NRE	01326.000068	
119	Farm Complex, c.1830	307 Philips Road	Chautauqua	Villenova	NRE	01326.000070	
120	Pope Hill Cemetery	Pope Hill Road, south side, east of Round Top Road	Chautauqua	Villenova	NRE	01326.000071	
121	Forestville Wesleyan Church Complex, c.1858, includes Cemetery & School	9495 Prospect Road	Chautauqua	Villenova	NRE	01326.000069	
122	Farm Complex	641 South Dayton Road	Chautauqua	Villenova	NRE	01326.000072	
123	Residential, c.1845	691 South Dayton Road	Chautauqua	Villenova	NRE	01326.000073	
124	Farm Complex, c.1890 (Dye Homestead)	558 South Dayton-Hamlet Road	Chautauqua	Villenova	NRE	01326.000016	
125	Hamlet Cemetery	NY 83, south side, west of Hamlet	Chautauqua	Villenova		01326.000074	
126	Residential, c.1840	1141 NY 83	Chautauqua	Villenova	NRE	01326.000041	
127	Villenova Grange Hall	1150 NY 83, west side	Chautauqua	Villenova	NRE	01326.000075	
128	Hamlet School District No. 2	8520 School Street	Chautauqua	Villenova	NRE	01326.000078	
129	Hamlet United Methodist Church, 1812	1119 South Dayton Road	Chautauqua	Villenova	NRE	01326.000038	

		Table 2.1. National Regis	ster-Eligible Pr	operties in Visual <i>i</i>	APE (CRIS 201	16). <sup>3</sup>	
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
130	Residential, c.1870	1129 South Dayton Road	Chautauqua	Villenova	NRE	01326.000039	
131	Commercial, c.1905 (I.O.O.F.)	1112 South Dayton Road, NY 83	Chautauqua	Villenova	NRE	01326.000040	
132	Villenova Cemetery	Cemetery Road, east side.	Chautauqua	Villenova	NRE	01326.000076	
SD2	Wilson Hale & Co.	1 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000035	
SD3	Wilson Hale & Co./ Post Office	5 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000036	
SD4	Cattaraugus County Bank	7 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000037	
SD5	Gypsy Tea Room	9 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000038	
SD6	Commercial, c.1890	11 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000039	
SD7	Commercial, c.1910	13 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000040	
SD8	Commercial, c.1900	15 Park Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000041	
SD1 1	The Valley House/ South Dayton Hotel 1877	203 Pine Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000044	
SD1 2	Commercial, c.1930	205 Pine Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000045	
SD1 3	Commercial, c.1900	207 Pine Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000046	
SD1 4	South Dayton Depot	Railroad Street	Cattaraugus	Dayton (South Dayton [V])	NRE	00954.000047	
133	Residential, c.1865-90	1 Lodi Street NY 39	Chautauqua	Hanover (Forestville [V])	NRE	01352.000112	

Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment
134	Commercial, c.1870	25 Main Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000106	
135	Forestville ME Church, 1861	3 Park Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000104	
136	Residential, c.1890	4 Pearl Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000072	
137	Grange Hall No. 829	12729 Cottage Road (CR 2)	Cattaraugus	Dayton (Cottage [h])	NRE	00906.000093	
138	Cottage United Methodist Church	12737 Cottage Road (CR 2)	Cattaraugus	Dayton (Cottage [h])	NRE	00906.000094	
139	First Hose House	2 Lodi Street / NY 39	Chautauqua	Hanover (Forestville [V])	NRE	01352.000010	
140	Commercial	10 Main Street / NY 39	Chautauqua	Hanover (Forestville [V])	NRE	01352.000046	
141	Commercial	14 Main Street / NY 39	Chautauqua	Hanover (Forestville [V])	NRE	01352.000048	
142	St. Peter's Episcopal Church	Park Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000002	
143	Residence, Italianate	7 Third Street	Chautauqua	Hanover (Forestville [V])	NRE	01352.000116	
*SC 2	Commercial Building, c.1890	7 Park Place	Chautauqua	Silver Creek (V)	NRE	01346.000238	
*SC 3	Commercial Building, c.1890	9 Park Place	Chautauqua	Silver Creek (V)	NRE	01346.000239	
*SC 4	Commercial Building, c.1920	17 Park Place	Chautauqua	Silver Creek (V)	NRE	01346.000240	
*SC 5	The Geitner Theatre, 1921	19 Park Place	Chautauqua	Silver Creek (V)	NRE	01346.000237	
*SC 6	Commercial Building, c.1910	25 Park Place	Chautauqua	Silver Creek (V)	NRE	01346.000241	
F1	Sherman House, c.1860	1 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000114	

	Table 2.1. National Register-Eligible Properties in Visual APE (CRIS 2016). <sup>3</sup>									
Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet	S/NRHP Status 2016	Unique Site No.	2016 Comment			
F2	Residence, c.1840	2 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000117				
F3	Residence, c.1840	4 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000118				
F4	Residence, c.1900	5 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000119				
F5	Residence, c.1850	6 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000094				
F6	Residence, c.1850	7 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000120				
F7	Residence, c.1840	8 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000121				
F8	Residence, c.1900	9 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000122				
F9	Levi J. Pierce Homestead, c.1840	10 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000123	In CRIS also as USN 01352.000003			
F10	St. Rose of Lima Church	11 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000124				
F11	Residence, c.1840	12 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000125				
F12	Residence, c.1905	16 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000126				
F13	Residence, c.1890	18 Center St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000099				
F14	Residence, c.1868- 1890	21 Pearl St	Chautauqua	Hanover (Forestville [V])	NRE	01352.000113				

Table 2.2. Bridges previously documented in 2008 without NRHP determinations in CRIS.

Map Pt.	Resource Name	Street Address	County	Town/ Village/ Hamlet
2	Erie Railroad Bridge over Cattaraugus Creek	Oaks Road, over Conewango Creek	Cattaraugus	Dayton
60	Bridge over Walnut Creek	Bradigan Road, south of Water Street	Chautauqua	Hanover (Forestville [V])
85	Skew Arch Bridge	Jackson Street, over Jackson Street	Chautauqua	Hanover (Silver Creek [V])
86	Nickel Plate Bridge over Jackson Street	Jackson Street, over Jackson Street	Chautauqua	Hanover (Silver Creek [V])
*87	Hanover Bridge	Jackson Street, between Lake at Jackson Street	Chautauqua	Hanover (Silver Creek [V])
88	Stone Bridge	Lake Avenue, over Lake Avenue	Chautauqua	Hanover (Silver Creek [V])
89	Nickel Plate Bridge over Lake Avenue	Lake Avenue, over Lake Avenue	Chautauqua	Hanover (Silver Creek [V])

#### 2.3 2016 ADDENDUM INVESTIGATION

The 2016 Project visual APE was compared with the 2008, 2013, and 2015 visual APEs to determine if any locations necessitated additional survey for historic architectural resources. Differing turbine heights and layouts are accounted for in the current visual APE. Changes in the viewshed were minimal; the small areas where turbines will be visible as a result of the current project layout and that were outside of the 2008, 2013, and 2015 visual APEs were addressed during previous Project revisions and no additional field survey was conducted. Panamerican utilized spatial data from the previous surveys to identify NRE properties in the current project and assess visual impacts of the Project (see Section 3.0).

#### 2.4 2016 ADDENDUM ARCHITECTURAL RESOURCES SURVEY RESULTS

A total of 159 of the previously-identified historic architectural resources are located within the five-mile visual APE for the Ball Hill Wind Project. No new resources were identified in the 2016 addendum as National Register Eligible. Five properties visible in the 2015 configuration of the Project are not visible in its current layout. There are no National Register-Listed properties in the visual APE. As in the earlier versions of the Project, the types of NRE historic resources include farm complexes, individual residences, commercial buildings, and cemeteries. Two NRE historic districts are partially within the visual APE: the Center Street Historic District, Forestville (USN 01352.000127); and the Silver Creek Historic District (USN 01346.000242).

# 3.0 Visual Impacts to Architectural Resources

The study area is a five-mile radius around the proposed project turbines and a three-mile area around its transmission line. The project is located in Chautauqua County. The towns included within the Project's five-mile visual APE primarily include portions of Dayton, Perrysburg, and a small section of Leon in Cattaraugus County, and Arkwright, Charlotte, Cherry Creek, Hanover, Villenova, and Sheridan in Chautauqua County (see Section 2.0). The total study area for the current project layout is 170.1 sq miles, of which turbines are visible from 129.7 sq miles (76.2 percent of the study area).

No structures or buildings will be demolished or physically altered in connection with the construction of the project. Access to the surrounding historical, recreational, and commercial land uses will not be impeded by the project.

The definition of visual impacts has historically been conceptually problematic. The New York State Department of Environmental Conservation (NYSDEC) defines *Visual Impact* as:

when the mitigating effects of perspective do not reduce the visibility of an object to insignificant levels. Beauty plays no role in this concept. A visual impact may also be considered in the context of contrast. For instance, all other things being equal, a blue object seen against an orange background has greater visual impact than a blue object seen against the same colored blue background. Again, beauty plays no role in this concept [NYSDEC 2000:10-11].

However, the difficulty lies in defining insignificant levels or in determining the levels of contrast that have an effect. Further, at what level of contrast does the effect become adverse? In the overall assessment, the multivariate natures of the NRL and NRE properties in the viewshed can be considered to a limited degree. In many instances, the setting of the property contributes to its eligibility while in other cases, it is less so or not at all important. In this analysis, the level of effect (visibility and contrast) is measured on the dataset as a whole—the NRL and NRE (and potentially eligible) properties within the viewshed (Table 3.1 [end]).

Based on the provided information, it is apparent that the project will change the visible landscape of the region and create a distinct visual setting. The turbines will be unique and prominent visible features on the landscape in many locations where there are not or ever have been other types of vertical, manmade features. The Federal Aviation Administration (FAA)-required lighting on some of the turbines will also be visible from many locations. While there may be some screening afforded by mature trees, shrubbery and other plantings during the growing season, the prominent features of the turbines will be visible during periods of dormancy.

Another method for illustrating the degree of visual impact is based on categories suggested by the U.S. Forest Service. In this framework, the project viewshed or visual APE is divided into zones of relative visibility based on geographical distance to the nearest turbine: Foreground (0-0.5 mile); Middle ground (0.5-3.0 miles); and Background (3.0 miles to horizon). Of the 161 historic properties identified in the visual APE, five are situated such that proposed turbines are in the visual foreground (property nos./map points 41, 114, 115, 121 and 125), 66 are at locations where turbines would be in the visual middle ground, and 90 are situated such that proposed turbines are in the visual background (more than 3.0 miles from the structures) (Table 3.1; see Appendix A, the Historical Architectural Investigation Results map).

Within or immediately adjacent to the proposed wind-project study area there are electrical distribution lines, telephone poles, water towers, and other vertical, modern visual intrusions. Most of these modern intrusions, to a certain extent, may have compromised some historical settings. Existing modern visual intrusions are relatively small compared to the 150-meter-tall wind turbines.

The proposed wind-energy project will be prominently sited in the southern portion of Hanover and the northern half of Villenova. The most significant visual impacts will be on open farming land (rural

agricultural landscapes), and any of the following that have open/clear views of the wind farm: historic properties on ridges, cemeteries, historic properties within Hanover and Villenova, historic properties along major thoroughfares in the area, and at historic crossroads communities. The impacts to these resources vary with the surrounding topography, distance from the turbines, existing landscaping and vegetation, and surrounding land uses.

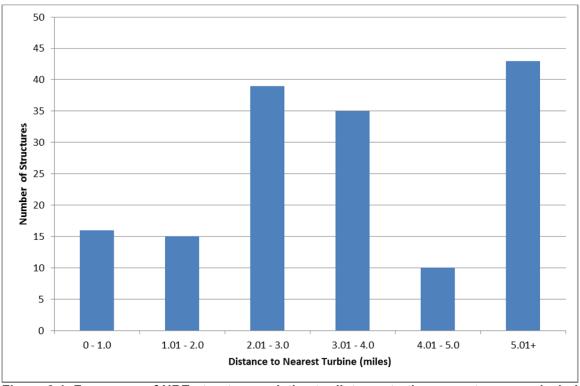


Figure 3.1. Frequency of NRE structures relative to distance to the nearest proposed wind turbine.

Below is a summary of visual impact findings for the previous historic architectural surveys completed for the proposed Project:

- 1) The 2008 investigation identified 132 individual NRE resources and one NRE historic district (Ewing Park South Dayton Historic District [13 contributing and 1 non-contributing properties]) in the project visual APE (see Longiaru et al. 2008).
- 2) The 2013 addendum survey identified an additional eight recommended individual NRE properties, one recommended NRE historic district (Center Street Historic District [13 contributing resources and one non-contributing resource]), and the NRE Silver Creek Historic District within the topographic visual APE (see Smith et al. 2013).
- 3) The 2015 addendum survey identified a total of 163 individual NRE architectural resources and the two historic districts—the Center Street and Silver Creek Historic Districts—in the visual APE. The number of turbines that can be seen from properties documented within the five-mile APE (e.g., NRL, NRE, and recommended NRE properties) spanned the full range of values possible values. The mean number of turbines visible from NRE properties, however, was 19; the average distance from an NRE property to the nearest turbine was 3.7 miles (Longiaru et al. 2015).

## 2016 ADDENDUM: VISUAL IMPACTS SUMMARY

No NRL properties are located in the visual APE. Five properties that were in the 2015 visual APE are in areas from which no turbines are visible in the current Project layout (property nos. 22, 106, 137, SC5, and SC6) (Table 3.1<sup>1</sup>). There are 159 individual NRE architectural resources and two NRE historic districts in the visual APE. The number of turbines that can be seen from all properties documented within the five-mile APE (e.g., NRL, NRE and recommended NRE properties) spans the full range of values (see Table 3.1).

The mean number of turbines that are visible from an NRE property, however, is 15; the average distance from an NRE property to the nearest turbine is 3.6 miles (5.8 km). Due to the smaller number of turbines in the current Project layout relative to its 2015 configuration (29 vs. 39 turbines), its visual impact on the landscape is somewhat less than the version addressed in the 2015 addendum.

<sup>&</sup>lt;sup>1</sup> To facilitate comparison with the 2015 addendum, the five previously-identified properties not in the viewshed for the project's current layout have been included in Table 3.1, which also retains the numbering system employed for the previous project architectural investigations.

Table 3.1. Properties within the visual APE of the Ball Hill Wind Farm and visual impacts of project turbines.

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
1		12182 Markhams Road	Cattaraugus	Dayton		21	4.6	19
3 <sup>2</sup>	Cottage Cemetery	Cottage Road	Cattaraugus	Dayton	Cottage (h)	36	3.8	19
4		12654 Cottage Road	Cattaraugus	Dayton	Cottage (h)	36	3.5	13
5		27 Cherry Street	Cattaraugus	Dayton	South Dayton (V)	21	3.3	4
6	Factory Building	East Railroad Avenue	Cattaraugus	Dayton	South Dayton (V)	21	3.6	22
7		73 East Railroad Avenue	Cattaraugus	Dayton	South Dayton (V)	21	3.6	17
8		62 Main Street	Cattaraugus	Dayton	South Dayton (V)	21	3.2	20
9		203 Maple Street	Cattaraugus	Dayton	South Dayton (V)	21	3.3	9
10		212 or 214 Maple Street	Cattaraugus	Dayton	South Dayton (V)	21	3.2	4
11	Harry Austin Milling Co.	Mill Street	Cattaraugus	Dayton	South Dayton (V)	21	3.6	16
12		227 Oak Street	Cattaraugus	Dayton	South Dayton (V)	21	3.3	19
13	Sears	8143 Oaks Road	Cattaraugus	Dayton	South Dayton (V)	21	3.6	29
14		107 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.6	17
15		309 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.4	17
16		312 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.4	14
17		319 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.4	16
18		413 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.3	14
19	Perrysburg Cemetery	NY 39	Cattaraugus	Perrysburg		36	2.6	9
20		12316 NY 39	Cattaraugus	Perrysburg		36	4.4	5
21	Rugg-town West Perrysburg Cemetery	West Perrysburg Road	Cattaraugus	Perrysburg	West Perrysburg (h)	36	3.5	28
22		10929 West Perrysburg Road	Cattaraugus	Perrysburg	West Perrysburg (h)	36	3.5	0

Note, missing map points indicate those resources are no longer included in the Visual APE as a result of either their absence in CRIS or their NRHP status has changed.

Table 3.1 (cont'd)

					T			
Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
23	Weaver Cemetery	Center Road	Chautauqua	Arkwright		2	3.5	29
24		8129 Griswold Road	Chautauqua	Arkwright		39	4.8	5
25	Rose Farm	1936 Ruttenbur Road	Chautauqua	Arkwright		3	2.9	27
26		2667 NY 83	Chautauqua	Arkwright	Arkwright (h)	2	3.3	13
27	Black Farm Complex	8903 Farrington Hollow Road	Chautauqua	Arkwright	Blacks Corners (h)	39	2.0	28
28	Arkwright Summit Cemetery	Farrington Hollow Road	Chautauqua	Arkwright	Blacks Corners (h)	39	1.9	27
29	Mapl-Camp Farm/Black Farm	2083 NY 83	Chautauqua	Arkwright	Blacks Corners (h)	39	1.8	27
30		10917 Alleghany Road	Chautauqua	Hanover		37	2.6	8
31		12168 Alleghany	Chautauqua	Hanover		37	5.4	20
32	Evergreen Cemetery	Angell Street	Chautauqua	Hanover		35	4.6	26
33	Forestville Depot	Center Street	Chautauqua	Hanover		35	2.6	9
34	Christy Road Cemetery	Christy Road	Chautauqua	Hanover		37	5.2	0-29
35		Hanover Road	Chautauqua	Hanover		37	1.1	18
36	Livemore Family	10079 Hanover Road	Chautauqua	Hanover		36	.6	22
37	Hurlburt Road Cemetery	Hurlburt Road	Chautauqua	Hanover		30	0.9	6
38		Hurlburt Road	Chautauqua	Hanover		30	0.9	9
39		469 NY 39	Chautauqua	Hanover		36	0.8	22
40		503 NY 39	Chautauqua	Hanover		37	0.7	17
41		675 NY 39	Chautauqua	Hanover		37	0.3	19
42		1411 NY 39	Chautauqua	Hanover		35	1.4	18
43		Old Forestville Road	Chautauqua	Hanover		35	4.7	27
44	Pioneer Cemetery	11049? Old Forestville Road	Chautauqua	Hanover		35	2.8	14
45		11103 Old Forestville Road	Chautauqua	Hanover		35	2.9	15
46	Mt. Carmel Cemetery	Old Main Street	Chautauqua	Hanover		35	5.6	0-29
			0.5		A 124 ( 15	•		

Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
47	Glenwood Cemetery	Old Main Street	Chautauqua	Hanover		35	5.6	28
48		11935 Old Main Street	Chautauqua	Hanover		35	5.4	28
49	Prospect Hill Cemetery	Prospect Street	Chautauqua	Hanover		35	2.1	12
50	Doty Cemetery	Stebbins Road	Chautauqua	Hanover		35	4.5	26
51	Ball Valley Farms	11037 Allegany Road	Chautauqua	Hanover	Balltown (h)	37	3.1	17
52	Balltown Cemetery	Mackinaw Road	Chautauqua	Hanover	Balltown (h)	37	3.2	9
53		12010 Angell Road	Chautauqua	Hanover	Hanover Center (h)	37	4.9	28
54		12021 Angell Road	Chautauqua	Hanover	Hanover Center (h)	37	5.0	28
55	Golden Harvest	967 Hanover Road	Chautauqua	Hanover	Hanover Center (h)	35	4.7	26
56		11991 Hanover Road	Chautauqua	Hanover	Hanover Center (h)	35	4.8	26
57	Nashville Cemetery	Alleghany Road	Chautauqua	Hanover	Nashville (h)	36	1.4	9
58	Church	NY 39	Chautauqua	Hanover	Nashville (h)	36	1.4	15
59	Smith's Mill Cemetery	Hanover Road	Chautauqua	Hanover	Smith's Mill (h)	37	3.7	11
61		13 Cedar Street	Chautauqua	Hanover	Forestville (V)	35	2.7	11
63		28 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.6	9
64		11-15 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.6	7
65		26 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.6	8
66		27 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.6	9
67	Forestville Free Methodist Church	32 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.8	11
68		43 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.7	11
69		2 Pearl Street	Chautauqua	Hanover	Forestville (V)	35	2.5	5
70		9 Water Street	Chautauqua	Hanover	Forestville (V)	35	2.8	8

Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
71	Clark Mansion on Lighthouse Point	Beachview Avenue	Chautauqua	Hanover	Silver Creek (V)	35	7.2	5
72		10 Beachview Avenue	Chautauqua	Hanover	Silver Creek (V)	35	7.1	3
73		130 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.9	5
74		147 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.8	19
75		151 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.8	28
76	Our Lady of Carmel	165 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.8	23
77		338 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.6	28
78		350 Central Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.6	28
79		5 Christy Street	Chautauqua	Hanover	Silver Creek (V)	35	6.5	28
80		9 Christy Street	Chautauqua	Hanover	Silver Creek (V)	35	6.5	28
81		4 Dana Drive	Chautauqua	Hanover	Silver Creek (V)	35	6.5	13
82		12370 Hanover Road	Chautauqua	Hanover	Silver Creek (V)	35	6.4	28
83		16 Hanover Road	Chautauqua	Hanover	Silver Creek (V)	35	6.8	28
90		6/8 Lake Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.9	8
91	St. Albans	38 Lake Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.8	16
92		18 Oak Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	24
93		30 Oak Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	28
94		117 Old Main Street	Chautauqua	Hanover	Silver Creek (V)	35	6.3	3
95		151 Old Main Street	Chautauqua	Hanover	Silver Creek (V)	35	6.2	12
96		155 Old Main Street	Chautauqua	Hanover	Silver Creek (V)	35	6.1	28
97		1 Oliver Place	Chautauqua	Hanover	Silver Creek (V)	35	6.6	14
98		5 Oliver Place	Chautauqua	Hanover	Silver Creek (V)	35	6.6	13
99	Swift House	6 Parkway Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	23
100		9 Parkway Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	26
101		17 Parkway Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	25

Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
102	Erbin House	27 Parkway Street	Chautauqua	Hanover	Silver Creek (V)	35	6.7	23
103	Trinity Lutheran Church	Porter Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.9	28
104		19? Porter Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.9	28
105		21 Porter Avenue	Chautauqua	Hanover	Silver Creek (V)	35	6.9	28
106		45 Robinson Street	Chautauqua	Hanover	Silver Creek (V)	35	6.2	0
107		16 Rumsey Street	Chautauqua	Hanover	Silver Creek (V)	35	7.0	14
108		28 Ward Place	Chautauqua	Hanover	Silver Creek (V)	35	6.4	28
109		1873 East Middle Road	Chautauqua	Sheridan		35	6.4	28
110		1980 King Road	Chautauqua	Hanover		35	4.2	25
111		2023 Stebbins Road	Chautauqua	Sheridan		35	5.1	23
112		2248 Stebbins Road	Chautauqua	Sheridan		35	5.2	27
113	Cemetery	Hanover Road	Chautauqua	Villenova		31	1.5	20
114	School No. 10	9129 North Hill Road	Chautauqua	Villenova		9	0.3	21
115		NY 83	Chautauqua	Villenova		3	0.4	2
116		8025 NY 83	Chautauqua	Villenova		3	3.2	24
117		8052 NY 83	Chautauqua	Villenova		21	3.2	24
118		8562 NY 83	Chautauqua	Villenova		21	1.7	22
119		307 Philips Road	Chautauqua	Villenova		21	1.7	22
120	Pope Hill Cemetery	Pope Hill Road	Chautauqua	Villenova		18	1.1	27
121	Forestville Wesleyan Church /School/Ball Hill Cemetery	9495 Prospect Road	Chautauqua	Villenova		16	0.4	24
122		641 South Dayton Road	Chautauqua	Villenova	Balcom Corners (h)	21	1.8	19
123		691 South Dayton Road	Chautauqua	Villenova		3	1.8	20
124	Dye Homestead	558 South Dayton-Hamlet Road	Chautauqua	Villenova	Balcom Corners (h)	21	1.8	20
125	Hamlet Cemetery	NY 83	Chautauqua	Villenova	Hamlet (h)	3	0.4	2
_	Hamlet Cemetery erican Consultants, Inc.		Chautauqua 3-8	Villenova		_	-	um

Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
126		1141 NY 83	Chautauqua	Villenova	Hamlet (h)	3	0.7	13
127	Villenova Grange	NY 83	Chautauqua	Villenova	Hamlet (h)	3	0.6	9
128	Hamlet School District No. 2	School Street	Chautauqua	Villenova	Hamlet (h)	3	0.7	5
129	Hamlet United Methodist Church	1119 South Dayton Road	Chautauqua	Villenova	Hamlet (h)	3	0.7	13
130		1129 South Dayton Road	Chautauqua	Villenova	Hamlet (h)	3	0.7	13
131	IOOF	South Dayton Road	Chautauqua	Villenova	Hamlet (h)	3	0.7	10
132	Villenova Cemetery	Cemetery Road	Chautauqua	Villenova	Wright's Corners (h)	21	1.4	18
SD2	Wilson Hale & Co.	1 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	16
SD3	Wilson Hale & Co./ Post Office	5 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	16
SD4	Cattaraugus County Bank	7 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	16
SD5	Gypsy Tea Room	9 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	15
SD6	Commercial c.1890	11 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	15
SD7	Commercial c.1910	13 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	14
SD8	Commercial c.1900	15 Park Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	14
SD11	The Valley House/ South Dayton Hotel 1877	203 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.6	17
SD12	Commercial c.1930	205 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.6	17
SD13	Commercial c.1900	207 Pine Street	Cattaraugus	Dayton	South Dayton (V)	21	3.5	17
SD14	South Dayton Depot	Railroad Street	Cattaraugus	Dayton	South Dayton (V)	21	3.6	16
133		1 Lodi Street (NY 39)	Chautauqua	Hanover	Forestville (V)	35	2.5	3
134		25 Main Street	Chautauqua	Hanover	Forestville (V)	35	2.6	9
135	Forestville Methodist Episcopal Church	3 Park Street	Chautauqua	Hanover	Forestville (V)	35	2.6	1
136		4 Pearl Street	Chautauqua	Hanover	Forestville (V)	35	2.5	5

Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
137	Grange Hall No. 829	12729 Cottage Road (CR 2)	Cattaraugus	Dayton	Cottage (h)	36	3.3	0
138	Cottage United Methodist Church	12737 Cottage Road (CR 2)	Cattaraugus	Dayton	Cottage (h)	36	3.3	4
139	First Hose House	2 Lodi Street (NY 39)	Chautauqua	Hanover	Forestville (V)	35	2.5	3
140		10 Main Street (NY 39)	Chautauqua	Hanover	Forestville (V)	35	2.6	6
141		14 Main Street (NY 39)	Chautauqua	Hanover	Forestville (V)	35	2.6	4
142	St. Peter's Episcopal Church	Park Street	Chautauqua	Hanover	Forestville (V)	35	2.6	3
143		7 Third Street	Chautauqua	Hanover	Forestville (V)	35	2.5	2
	Recommended Center Street Historic District	Center Street	Chautauqua	Hanover	Forestville (V)	35	2.3	0-10
F1		1 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	3
F2		2 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	4
F3		4 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	5
F4		5 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	2
F5		6 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	6
F6		7 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	2
F7		8 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	4
F8		9 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	2
F9		10 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.6	6
F10	St. Rose of Lima Church	11 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.6	6
F11		12 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.5	5
F12		16 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.6	8
F13		18 Center Street	Chautauqua	Hanover	Forestville (V)	35	2.6	7
F14		18 Pearl Street	Chautauqua	Hanover	Forestville (V)	35	2.4	1
SC 2	Commercial Building (Unique Hair & Nails)	7 Park Place	Chautauqua	Hanover	Silver Creek (V)	35	6.8	1

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Table 3.1 (cont'd)

Property Number	Property Name	Street Address	County	Town	Hamlet (h) or Village (V)	Nearest Turbine	Distance to nearest turbine (miles)	Number of turbines visible
SC 3	Commercial Building (Stitches)	9 Park Place	Chautauqua	Hanover	Silver Creek (V)	35	6.7	1
SC 4	Commercial Building (People Inc.)	17 Park Place	Chautauqua	Hanover	Silver Creek (V)	35	6.7	1
SC 5	The Geitner Theatre (The Blackline)	19 Park Place	Chautauqua	Hanover	Silver Creek (V)	35	6.7	0
SC 6	Commercial Building	25 Park Place	Chautauqua	Hanover	Silver Creek (V)	35	6.7	0

#### 4.0 Mitigation of Visual Impacts

A total of 159 individual NRE properties and two NRE historic districts are in the current visual APE for the Ball Hill Wind Project. None of these properties are listed on the National Register. The number of turbines that can be seen from NRE properties spans the full range of possible values. The average number of turbines that can be seen is 15 with an average distance of 3.6 miles. While some of these properties are grouped together within villages or hamlets, along roads or in associated complexes such as farmsteads, on the whole, the properties are widely dispersed across the area. As noted in Section 3.0, the impacts to these resources vary with the surrounding topography, distance from the turbines and electrical lines, existing landscaping and vegetation, and surrounding land uses.

Some screening will be afforded by mature trees, shrubs, and plantings for at least part of the year. This observation is especially true for buildings/structures in the areas surrounding streams and steep embankments. The topography of some portions of the five-mile visual APE will provide additional screening. Nevertheless, there are visual impacts to the area associated with the construction of the Ball Hill Wind Project that will require mitigation.

Ball Hill Wind Energy, LLC is obligated to mitigate adverse visual effects to NRE and NRL properties under Section 106 of the National Historic Preservation Act as well as to mitigate significant visual impacts under Article 8 of the New York State Environmental Conservation Law (ECL) and 6NYCRR Part 617 as delineated in the New York State Department of Environmental Conservation's (NYSDEC) Assessing and Mitigating Visual Impacts (2000). In the case of the Ball Hill Wind Project, both Section 106 and NYSDEC mitigation were triggered by the same occurrence: the inclusion of NRE or potentially NRE properties within the project visual APE. NYSDEC lists specific mitigation strategies, while Section 106 does not; the two are not mutually exclusive, however, and strategies for each can have common characteristics.

The mitigation of visual effects to these properties presents an opportunity for a number of alternative mitigative strategies. The usual mitigative approaches can be applied; however, broader alternative strategies can encourage local community input and assist those communities through the undertaking of "hometown" cultural resource projects that are commonly in need of financial and professional assistance. The mitigative strategies below are grouped into several categories. These categories overlap; and some of the categories include the more traditional mitigative alternatives.

#### PROJECT CRITERIA

Typically, the following working criteria are considered for any proposed "historical mitigation" project or activity. These criteria provide that the subject of any such project should:

- 1. Be consistent with the guidance of NYSHPO
- 2. Have historical significance
- 3. Serve a public historic purpose
- 4. Be a good investment
- 5. Be appropriate to the state of preservation of local historical resources

#### PROFESSIONAL DESIGN AND SITING

NYSDEC considers a properly designed and sited project the best way to mitigate potential impacts. The Ball Hill Wind Project is designed to mitigate the visual impact of the turbines where practical. The color of the towers is a non-specular neutral white or off-white so the towers will blend into a white sky. The turbines are laid out in a random, natural pattern so that the flow of the landscape is not interrupted. FAA

lighting is not required on every turbine. Permanent access roads are generally only 16 ft (4.9 m) wide and temporary access roads are only 35 ft (10.7 m) wide.

Electrical lines connecting the turbines to each other and the existing substation will be carried on poles ranging from 55.5 to 75 ft (16.9 to 22.9 m) tall, or placed underground, or installed along existing power line rights-or-way where possible. Since the collection lines are on average approximately 65 ft (19.8 m) tall, some screening will be afforded by mature trees, shrubs and plantings for at least part of the year. The overhead line runs through a heavily forested area and over open fields in Hanover. In part, the utility poles will not extend above the natural canopy.

#### **MAINTENANCE**

NYSDEC considers the maintenance of buildings/structures and landscapes and the decommissioning of objects or buildings/structures as part of a mitigation strategy. Proper maintenance prevents "eyesores" and is an integral part of the plan for the Ball Hill Wind Project.

Local laws require a decommissioning plan to be put into place to remove obsolete and unused turbines. The plan will include cost estimates for the removal of towers and the reclamation of the areas including concrete foundations, access roads, seeding and re-vegetation and salvage of various materials.

#### **SURVEYS**

The completion of various types of surveys is a more traditional form of Section 106 mitigation; nevertheless it can also be used as a type of "offset" as described by NYSDEC. An "offset" is the correction of an existing aesthetic problem identified within the visual APE as compensation for project impacts. Elements of these surveys can include:

- GIS mapping of the county's cultural resources within the affected area
- Complete a detailed architectural survey of Chautaugua County
- Conduct surveys identifying specific architectural styles and types of buildings, structures and landscapes within the counties, towns, villages and hamlets affected by the project
- Listing NRE resources
- Sites/buildings/structures/objects/districts/landscapes that have been identified as NRE, but never listed within the area affected by the project
- Completing formal recordation documents (e.g., Historic American Buildings Survey [HABS], Historic American Engineering Record [HAER], Historic American Landscape Survey [HALS]) for the power houses/dams as well as sites, buildings, structures, landscapes that have been identified but never completed within the APE.

#### MONETARY CONTRIBUTIONS

The creation of a pool of funds overseen by a third party is a less traditional, but effective way of offsetting project impacts.

- Establish a monetary fund, with NYSHPO oversight, to initiate an historic landscape preservation program to support the preservation of historic landscapes in New York State.
   The introduction of such a program would offer technical assistance to municipalities and notfor-profit organizations to increase awareness of historic landscapes in New York State.
- Establish a cemetery maintenance program that can disburse funds to maintain the many small historic cemeteries in the area.

- Provide funds towards the construction of a "Historic Center" for storage and display of historic material. The location can be determined upon consultation with the county and affected towns.
- Donations to libraries in the affected area for purchase of local and Chautauqua County material.
- Create a Historic Property Visual Mitigation Grant Fund for use by the owners of historic structures affected by the project. Funds from grants would be used to purchase onsite screening or make repairs to affected historic structures. The details of oversight, submission protocols, and eligibility will be negotiated with the NYSHPO.

#### **HERITAGE TOURISM**

The creation of Heritage Tourism materials has become an important part of municipalities, regions, and states promotional activities. These materials can be easily used by many individuals and widely distributed. Most of the activities listed below fall within the traditional Section 106 mitigation sphere, and all can be used as offset.

- 10-Minute Video Presentation. A video presentation can be used in schools, for presentations to civic groups, and on public access television.
- Brochure. A brochure highlighting historic architecture can be distributed at public libraries, visitor's centers, etc., within the affected area.
- Posters. Posters can be produced highlighting the area and its history.
- Driving/Walking tours. Tours can be conducted out of the public library, visitor's centers, etc., within the affected area.
- Exhibit. Exhibits focusing on history and architecture can be set up in libraries, visitor's centers, town halls, etc., within the affected area.
- Power-Point Presentation. This can be used in schools, for presentations to civic groups within the affected area

#### **EDUCATIONAL ACTIVITIES**

Educational activities have a broad appeal and can target a wide age group. Activities for school-age groups can help raise awareness of cultural resources within the community at an early age and engender excitement within the school system. Educational activities of various types are traditional Section 106 mitigation options; however, the creation of a graphic novel is a twist on this traditional use. The items below are also excellent offset activities.

- Grade Appropriate Lesson Plans. Packages can include teacher information, student activities, and possible field trips, long- and short-term class projects centered on the affected area and distributed via Internet.
- Graphic Novel (comic book) about the history of the area.
- Host Public History Day. A special event can be staged in conjunction with schools and chambers of commerce within the affected area

#### **HISTORY ACTIVITIES**

Activities related to historic resources are the most traditional of Section 106 mitigation strategies. Nevertheless, they can be useful and an important offset activity.

- Popular Written History of the County. Produce a history highlighting specific county contributions to state and country, addressing the towns, villages and hamlets within the affected area.
- Historic Brochure and/or series of brochures addressing various aspects of the county's, town's, village's and hamlet's history within the affected area.
- Oral History Project.
- Placing Historic Markers.
- Creation of Context/s. Produce historical/architectural histories and contexts specific to the area, particularly a regional farming context.

Local community input is vital to the success of any mitigation strategy. Local historians, town officials, and agencies should be contacted to begin the process of determining community needs. NYSHPO staff will also play a major role in this process. This investigation of probable community needs is preliminary at best and in no way represents a final accounting of those needs.

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# Architectural Resources Mitigation

#### **Architectural Resources Mitigation**

Consultation for this Project has been initiated with the New York State Historic Preservation Office (NYSHPO) pursuant to Article 14 of the New York Parks, Recreation, and Historic Preservation Office (see Appendix G, Agency Correspondence). Due to the presence of wetlands within the Project area of potential effect (APE), the United States Army Corps of Engineers (USACE), serving as the lead federal agency, will oversee the wetland permitting process as well as the requirements associated with Section 106 of the National Historic Preservation Act (NHPA), as amended. As part of this consultation, Ball Hill may be required to mitigate adverse visual affects to properties that are listed or are considered eligible for listing on the National Register of Historic Places (NRHP) through a Memorandum of Agreement (MOA) with the USACE. Because a number of individual historic resources and two historic districts are located within the Project APE, it is anticipated that mitigation for visual impacts will be required. Consultations with the NYSHPO will culminate with an appropriate combination of mitigative actions to be implemented by Ball Hill. Mitigative strategies suggested by NYSHPO include the following:

- Professional design and siting;
- Maintenance;
- Surveys;
- Monetary contributions;
- Heritage tourism;
- Educational activities: and
- Historic activities.

Due to the size of the wind turbines and the geographical extent of the Project, direct mitigation through plantings and screenings is generally not considered viable. In addition, moving tower locations will not significantly minimize impacts due to their placement throughout the landscape. Based on these conditions, direct mitigation will have little affect toward actually mitigating impacts from the proposed Project, therefore, indirect mitigation projects will likely be used to address the need for mitigation.

The mitigation of visual effects to historic properties for this Project presents an opportunity for a number of alternative mitigative strategies. The usual mitigative approaches can be applied; however, broader alternative strategies can encourage local community input and assist those communities through the undertaking of "hometown" cultural resource projects that are commonly in need of financial and professional assistance. The mitigative strategies below are grouped into several categories. These categories overlap; and some of the categories include the more traditional mitigative alternatives.

#### **Project Criteria**

The following working criteria for any proposed "historical mitigation" project or activity. These criteria provide that the subject of any such project should:

1. Be consistent with the guidance of NYSHPO.

- 2. Have historical significance.
- 3. Serve a public historic purpose.
- 4. Be a good investment.
- 5. Be appropriate to the state of preservation of local historical resources.

#### **Professional Design and Siting**

The New York State Department of Environmental Conservation (NYSDEC) considers a properly designed and sited project the best way to mitigate potential impacts. The Project has been designed to mitigate visual impact where practicable.

#### Maintenance

NYSDEC considers the maintenance of buildings/structures and landscapes and decommissioning to be a mitigation strategy. Proper maintenance prevents "eyesores" and is part of Ball Hill's plan for the Project. A decommissioning plan is included as Appendix R of this Final Environmental Impact Study (FEIS).

#### Surveys

The completion of various types of surveys is a more traditional form of Section 106 mitigation; nevertheless, it can also be used as a type of "offset" as described by NYSDEC. An "offset" is the correction of an existing aesthetic problem identified within a zone visual influence as compensation for project impacts. Elements of these surveys can include:

- Geographic information system mapping of the county's cultural resources within the affected area.
- Complete a detailed architectural survey of Chautauqua County.
- Conduct surveys identifying specific architectural styles and types of buildings, structures, and landscapes within the counties, towns, villages and hamlets affected by the Project.
- Listing National Register Eligible (NRE) resources.
- Sites/buildings/structures/objects/districts/landscapes that have been identified as NRE, but never listed within the area affected by the Project.
- Completing formal recordation documents (e.g., Historic American Buildings Survey, Historic American Engineering Record, Historic American Landscape Survey) for the power houses/dams as well as sites, buildings, structures, landscapes that have been identified but never completed within the APE.

#### **Monetary Contributions**

The creation of a pool of funds overseen by a third party is a less traditional, but effective way of offsetting Project impacts.

■ Establish a monetary fund, with NYSHPO oversight, to initiate an historic landscape preservation program to support the preservation of historic landscapes in New York State. The introduction of such a program would offer technical assistance to municipalities and not-for-profit organizations to increase awareness of historic landscapes in New York State.

- Establish a cemetery maintenance program that can disburse funds to maintain the many small historic cemeteries in the area.
- Provide funds towards the construction of a "historic center" for storage and display of historic material. The location can be determined upon consultation with the county and affected towns.
- Donations to libraries in the affected area for purchase of local and Chautauqua County material.
- Create a Historic Property Visual Mitigation Grant Fund for use by the owners of historic structures affected by the Project. Funds from grants would be used to purchase on-site screening or make repairs to affected historic structures. The details of oversight, submission protocols, and eligibility will be negotiated with NYSHPO.

#### **Heritage Tourism**

The creation of Heritage Tourism materials has become an important part of municipalities, regions, and states promotional activities. These materials can be easily used by many individuals and widely distributed. Most of the activities listed below fall within the traditional Section 106 mitigation sphere, and all can be used as offset.

- 10-Minute Video Presentation. A video presentation can be used in schools, for presentations to civic groups, and on public access television.
- **Brochure.** A brochure highlighting historic architecture can be distributed at public libraries, visitor's centers, etc., within the affected area.
- **Posters.** Posters can be produced highlighting the area and its history.
- **Driving/Walking Tours.** Tours can be conducted out of the public library, visitor's centers, etc., within the affected area.
- Exhibit. Exhibits focusing on history and architecture can be set up in libraries, visitor's centers, town halls, etc., within the affected area.
- **Power-Point Presentation.** This can be used in schools for presentations to civic groups within the affected area.

#### **Educational Activities**

Educational activities have a broad appeal and can target a wide age group. Activities for schoolage groups can help raise awareness of cultural resources within the community at an early age and engender excitement within the school system. Educational activities of various types are traditional Section 106 mitigation options; however, the creation of a graphic novel is a twist on this traditional use. The items below are also excellent offset activities.

- Grade Appropriate Lesson Plans. Packages can include teacher information, student activities, and possible field trips, long- and short-term class projects centered on the affected area and distributed via Internet.
- **Graphic Novel.** A comic book about the history of the area.
- Host Public History Day. A special event can be staged in conjunction with schools and chambers of commerce within the affected area.

#### **Historic Activities**

Activities related to historic resources are the most traditional of Section 106 mitigation strategies. Nevertheless, they can be useful and an important offset activity.

- A popular written history of the county. Produce a history highlighting specific county contributions to state and country, addressing the towns, villages and hamlets within the affected area.
- Historic brochure and/or series of brochures addressing various aspects of the county's, town's, village's and hamlet's history within the affected area.
- Oral history project.
- Placement of historic markers.
- Creation of context/s. Produce historical/architectural histories and contexts specific to the area, particularly a regional farming context.

#### **Next Steps**

Ball Hill will conduct meetings with local officials in both Villenova and Hanover to solicit their views with regard to indirect mitigation measures. Based on the host communities' expression of local needs and interest, a list of candidate projects will be developed and included in a Historic Resource Impacts Mitigation Plan prior to Project construction that will be developed by Ball Hill. The draft mitigation plan will be submitted to NYSHPO for review once NYSHPO makes a determination of impact. Once a specific mitigation project is selected, a final mitigation plan with site-specific construction details will be submitted. The selection of the project and the details of the plan will be based on ongoing consultation and will be approved prior to construction.

Local community input is vital to the success of any mitigation strategy. Accordingly, Ball Hill will discuss historic resource mitigation with local officials, including Town officials from Villenova and Hanover, local organizations, historians, and interested Town Board members. NYSHPO, the Town of Villenova, and the Town of Hanover will need to approve the decision.



## P Health and Safety Plans

### P-1 Safety Program File



## Ball Hill Wind Project Safety Program File

Document:

Revision: 01

This Procedure has been prepared by Renewable Energy System Americas Inc. ("RES") in accordance with internal procedures and mandates and is Confidential Information. If this Procedure is an exhibit to a contract or agreement, then this Procedure, in the form attached to the contract, shall be subject to only those express representations or warranties regarding the exhibits to such contract, if any. Except for such representations, RES provides this Procedure "AS-IS" and does not represent, and RES expressly disclaims, that the procedures or material contained in this Procedure have been prepared pursuant to any particular methodology, are accurate or complete, or that they reflect the current status of applicable law. Portions of this Procedure may be excerpted or redacted and this Procedure is subject to revision or update at any time. Any party utilizing this Procedure, or any matter or information derived from it, ("Recipient") does so at his/her/its own risk and agrees to make his/her/its own investigation regarding his/her/its legal or other obligations for performance of his/her/its work. No Recipient shall have any right or claim against RES or any of its affiliated companies with respect to the Procedure.

Ball Hill Wind Project					
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#### **Revision History**

Revision #	Date	Nature of Revision
01	10/18/2016	Document first created.

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#### 1.0 PURPOSE

The purpose of the Safety Program File is to provide guidance to those responsible for managing health and safety on RES projects/sites.

The Safety Program File will also serve as a filing mechanism for the documentation generated as a result of implementing the RES Safety Management System.

All of the Safety Procedures referenced in this document can be found in the <u>RES Safety Management System</u>. Hard copies (uncontrolled) can be provided by the Safety Supervisor if/when needed.

#### 2.0 DESCRIPTION OF THE PROJECT

#### 2.1 Project Description and Program Details

Name:	Ball Hill Wind Project
Address:	Chautauqua County, New York.
Client:	TBD (currently RES development site)
RES Project Number:	23105
Start Date:	Summer 2017
Projected End Date:	December 2018
Type:	Wind Solar Transmission Storage
If Other, describe:	
Generating Capacity:	100MW

Renewable Energy Systems (hereafter referred to as "RES") is constructing a 100 MW wind project at Chautauqua County, New York. The site is currently used for agricultural purposes.

The works will comprise the erection/installation of 29 Vestas V126-3.45MW Turbines, the construction of associated foundations, access tracks and electrical infrastructure and the applicable grid connection.

The elements of the site works for the RES project shall comply with all federal and state regulatory requirements.

#### 2.2 Site and Soil Investigation

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A site/soil investigation shall be carried out and made available to all subcontractors. The information contained in the site investigation report is indicative and Subcontractors shall satisfy themselves in respect of the adequacy of the information provided.

The site/soil investigation report shall cover information applicable to the Project on soil investigation, ground contamination, ground stability, and underground hazards.

#### 2.3 Ground Conditions

All vehicles shall use the site roads as designated for the project. Subcontractors using cranes shall inspect the site roads and crane pads to satisfy themselves that there is no risk to the stability of the cranes.

#### 2.4 Surrounding Land Uses

The surrounding land is primarily used for agricultural purposes.

#### 2.5 Instructions for Site Safety Supervisors Setting Up a New Jobsite

Each Safety Supervisor shall use the <u>Checklist for Safety Supervisors Establishing a New Project</u> (01199-001608) to establish the RES Safety Management System for a project.

#### 3.0 REFERENCES

All procedures and/or templates referenced within this document are available on the ECM within the RES Americas Safety Management System.

#### 4.0 SAFETY PROGRAM FILE REQUIREMNTS

#### 4.1 Appointing as a RES Safety Supervisor

The Project Manager, in conjunction with RES Corporate HSQE, shall appoint a competent member of the project team to act as the Safety Supervisor. The Safety Supervisor shall then be responsible for ensuing application of the RES Safety Management System at the project, and for liaising with all subcontractors on health and safety matters.

#### 4.2 Liaison between RES Safety Supervisor and the Subcontractor

Every subcontractor on site shall appoint a competent person, with appropriate authority, to be responsible for ensuring compliance with health and safety requirements for the project. Subcontractor Safety personnel shall attend any and all RES required project safety meetings, and shall:

1) Enter discussions on health and safety matters.

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- 2) Evaluate hazards for their respective work scopes, as well as hazards to other contractors who work may be impacted.
- 3) Coordinate with other contractors (facilitated by the RES Safety Supervisor) to communicate the information necessary to enable these third parties to ensure the health and safety of themselves and any employees.
- 4) Provide proof of instruction and training of subcontractor employees as required.
- 5) Respond and act on any Safety Management System instructions from RES as necessary to fulfil their duty

The Safety Representative appointed by each Subcontractor shall attend all RES sponsored safety meetings as requested, or shall send an alternate with the same authority to affect Safety Management System application. RES reserves the right to replace a Subcontractor's Safety Representative for lack of attendance, participation, or action on RES Safety Management System directives.

Subcontractors shall also report any safety related concerns during the Plan of the Day meetings (POD) normally held every morning prior to work commencing for the day.

#### 4.3 Organizational Structure

The chart below depicts the typical reporting structure for RES projects/sites.



The RES Safety Supervisor shall be responsible for managing the RES Safety Management System at the project/site. Program direction and administrative support shall be provided by RES Corporate HSQE. Day-to-day functional direction shall be from the RES project/site manager.

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The RES Safety Supervisor shall ensure that any actions identified by the Project Manager, are communicated to all site employees and shall then monitor for effective compliance.

#### 4.4 Monitoring of Subcontractors

Subcontractor performance/compliance with RES Safety Management System shall be monitored throughout the life of the project by RES Safety Supervisor supported by all RES project employees.

Where the performance of a Subcontractor is not acceptable, they shall be informed in writing. Where necessary, a Subcontractor shall be stopped from working and may be removed from site.

#### 4.5 The Exchange of Safety Information Between RES and Subcontractors

All Subcontractors shall be responsible to promptly provide to RES any such information that might affect the health and safety of workers or members of the public. Exchange of information between subcontractors shall take place at the weekly RES hosted Safety Meetings and POD Meetings.

However, if between meetings a Subcontractor identifies safety related issues, they shall communicate these issues directly to the RES Safety Supervisor so that the issues can be communicated across the project, where appropriate.

#### 4.6 Site Security and Accessing the Site

#### 4.6.1 Site Security

RES shall provide basic security for the project to control access, and to provide a basic deterrent to theft or vandalism. However, each subcontractor shall be responsible to provide appropriate controls to leave their works in a condition that will not give rise to a safety risk to members of the public on the site (whether authorized or unauthorized) and are to protect their materials, equipment, and works against theft and vandalism.

The following steps will be taken to prevent unauthorized entry:

[TBD - Safety Supervisor shall detail site specific controls and procedures here, which will vary from site to site and contract to contract].

#### 4.6.2 Landowner Requirements

[TBD - Enter details of any Landowner requirements based on BOP/EPC contract including any hunting restrictions, livestock controls, restricted areas, etc. that will be encountered].

#### 4.6.3 Entrance to the Site (Existing Highway/Traffic Systems and Restrictions)

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[TBD - Enter details about surrounding roads and access to the site and any restrictions to be imposed, e.g., no heavy trucks entering or leaving the main highway during specified times, no deliveries accepted after a specific time].

#### 4.6.4 Vehicle Operations

No vehicles other than authorized site vehicles shall be permitted to access beyond the site office compound onto the construction site. Parking off road is not permitted.

The following vehicle operation rules shall be strictly enforced by RES:

- 1) Site speed limit shall be \_\_\_\_mph.
- 2) Compound speed limit shall be \_\_\_ mph.
- 3) When parked, all vehicles shall be reversed into the parking spot so that the operator can exit from the area in a forward direction. This may require initially backing into the area to park the vehicle.
- 4) All vehicles shall sound horn (once) or actuate a back-up alarm when backing.
- 5) All vehicle operators shall use a spotter to assist in backing a vehicle. The exception will be automobiles or pickups with unimpeded views of the area they are backing into. However, the operator shall make a visual inspection of the area before commencing the backing maneuver.

#### 4.6.5 Use of UTVs and Off Road Driving

There shall be no off-road driving unless approved by RES.

UTVs shall be the only authorized all-terrain vehicle to be used on RES sites.

#### 4.7 Site Safety Inductions

4.7.1 Employees (RES, RES Managed Subcontractors, Owners, and Owner Subcontractors)

No employee shall be allowed access to a RES project/site until they have received site safety induction. The content and structure of a site safety induction shall be governed by <a href="RASOP 010 - Site Safety Passport">RASOP 010 - Site Safety Passport</a>. A site safety induction shall be of approximately 2-3 hour duration.

Site Safety Inductions shall be conducted by the RES Safety Supervisor (or designee) addressing RES Safety Management System contents, requirements, and safe work expectations. Following completion of the site safety induction, workers will receive a site passport which will allow access to the site. A hardhat sticker will also be issued at that time which will designate the individual employees experience level and capability/authority to operate equipment.

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#### 4.7.2 Delivery Drivers

Delivery drivers shall be provided an abbreviated site safety induction (approximately 15 minutes) and shall thereafter be issued a vehicle passport and a hardhat sticker designating them as a delivery driver. Generally, delivery drivers shall be escorted at all times while on a RES site by the subcontractor to whom the delivery is being made. All delivery drivers shall report to the main RES compound prior to initiating a delivery, unless otherwise authorized by the RES Safety Supervisor.

#### 4.7.3 Languages

All employees should be able to communicate in English when working on a RES project. However, if a subcontractor employee does not speak or understand English well, the subcontractor shall be responsible for providing an interpreter for both verbal and written communication of Safety Management System requirements and expectations. The interpreter shall be provided by the company employing the individuals concerned.

#### 4.7.4 Visitors

All visitors shall be provided with an abbreviated site safety induction, and shall be accompanied at all times by an authorized site employee. The person accompanying the visitors shall ensure that the visit is recorded in the visitor's book or site diary (gate guard log) as detailed in RASWP 007 - Visitors.

#### 4.8 First Aid Provisions

#### 4.8.1 First Aid Equipment

First Aid equipment and supplies shall be available in sufficient quantities to respond to all employees at the project/site. RASWP 013 - First Aid shall govern first aid requirements for the project/site.

At a minimum, a first aid kit, eyewash unit, and defibrillator shall be available at the RES Safety Trailer which shall be the RES Safety Supervisor's office.

Additional first aid kits shall be available at strategic locations within the project, including within all site vehicles.

The RES Safety Supervisor shall ensure that a suitable number of employees at the project/site are trained in First Aid/CPR/AED.

Each subcontractor shall be responsible to provide first aid equipment (e.g., kits, defibrillators) and a suitable number of employees trained in First Aid/CPR/AED based on the requirements in RASWP 013 - First Aid. Each subcontractor shall meet these requirements individually.

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#### 4.9 Site Accommodations

#### 4.9.1 Site Trailers and Infrastructure

RES will establish a common site compound which will allocate space for a subcontractor office trailer and parking for a stated number of subcontractor vehicles. Electricity and communications links will be provided.

Each subcontractor shall be individually responsible for their own office and communication facilities, utility connections, and utility expenses.

#### 4.9.2 Sanitary Facilities

Sanitary facilities (toilets and wash stands) shall be available in sufficient quantities to respond to all employees at the project/site. Each subcontractor shall be individually responsible for providing sufficient facilities for their staff.

The RES Safety Supervisor shall coordinate the number and location of sanitary facilities to be deployed at the project/site. Subcontractors shall comply with directives of the RES Safety Supervisor regarding numbers and deployment of portable sanitary facility units.

#### 4.9.3 Drinking Water

Drinking water shall be available in sufficient quantities to respond to all employees at the project/site. Each subcontractor shall be individually responsible for providing sufficient quantities of drinking water for their staff.

Subcontractors shall comply with directives of the RES Safety Supervisor regarding numbers and deployment of drinking water.

In addition, an adequate supply of electrolyte solution and ice shall be made available during times when heat stress may become a hazard.

#### 4.9.4 Sun Block

Sun block shall be available in sufficient quantities to respond to all employees at the project/site, as requested. Each subcontractor shall be individually responsible for providing sufficient quantities for their staff.

#### 4.10 Project Signage

Guidance on safety signage required on RES projects can be found in the Work Instruction for Safety Signage.

#### 5.0 APPENDICES

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Placeholders shall be created as appendices to the Safety Program File for the hard copy documentation that is generated as a result of implementing the RES Americas Safety Management System.

Labeling of the place holders shall be consistent with the folder structure of the Safety Program File for the project/site on the ECM.

#### 5.1 Local/State/Federal Permits

5.1.1 Copies of the local/state/federal permits required for construction scope of work shall be maintained in this section.

#### 5.2 Site Safety Rules and Passports

5.2.1 Copies of the Site Safety Rules and Passports shall be created from the Construction Site Passport template and issued for use.

#### 5.3 Emergency Response Plan

- 5.3.1 An Emergency Response Plan shall be produced for each RES project/site. It shall be developed using RASOP 006 Emergency Response Procedure.
- 5.3.2 A copy of the plan shall be provided to all local emergency services near the project/site.

#### 5.4 Subcontractor Prequalification

5.4.1 RES has contracted with <u>Avetta</u> to manage and maintain each subcontractor Prequalification (PQF). RES requires all contractors/subcontractors (new and current) to successfully complete the Environmental, Health, and Safety qualification process through Avetta. Only those contractors who successfully complete the process will be qualified to do work for RES.

#### 5.5 Insurance Documentation

- 5.5.1 Each contractor shall provide RES with a copy of their Certificate of Insurance (COI) where RES is named as the Certificate Holder.
- 5.5.2 RES Risk Management shall verify that subcontractors have sufficient coverage limits.
- 5.5.3 Copies of the COIs shall be maintained onsite, in the Avetta Database, or on the ECM.

#### 5.6 Safety Training Records

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Records of all training for operating tools and machinery, as well as any on the job training, shall be retained as part of the Safety Program File. Copies of all subcontractor employee training records shall be submitted to RES at the time of the employee's site safety induction. This includes all OSHA documented training requirements.

#### 5.7 Site Safety Meetings

- 5.7.1 All contractors are required to start each shift with a coordination/planning/tailgate meeting that includes discussion on a health and safety related topic, review of incidents, and/or lessons learned from a previous experience.
- 5.7.2 Site Safety Meetings shall be conducted weekly and shall be chaired by the RES Safety Supervisor. These safety meetings shall be held to discuss recent safety incidents, the corrective actions undertaken, and the preventative measure established to preclude recurrence. Trends as to causal factors shall be discussed among the safety representatives present. Meeting minutes shall be taken and retained as records.
- 5.7.3 All Hands Meetings shall be held at least weekly and shall be led by the RES Project Manager, supported by the Safety Supervisor. These meetings shall focus on communicating recent incidents, causal factors, and trends, and shall also serve as a forum for employees to raise safety issues. Guest speakers should be brought in to discuss safety topics, and project performance should also be discussed. A written agenda should be prepared by the Project Manager, and the content of the meeting should be posted on the announcements board in advance of the meeting. All employees shall sign an attendance roster, and an accountability of subcontractor employee attendance should be made.

#### 5.8 Safety Data Sheets

- 5.8.1 Safety Data Sheets for substances used on the Project shall be filed in the Safety Program File or equivalent binder. Copies of SDSs shall be made available to subcontractors as necessary. The RES Site Safety Supervisor shall be responsible for maintaining the SDS system, as detailed in RASWP 004 Hazard Communication.
- 5.8.2 Where a subcontractor maintains an electronic database of SDS, a copy of the index shall be retained by the RES Safety Supervisor.

#### 5.9 Job Hazard Analysis (JHA) and/or Risk Assessments

Job Hazard Analysis (JHA) and/or Risk Assessments shall be completed for all scopes of work, access, hazardous flora/fauna, etc.

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5.9.1 Subcontractors shall perform their own JHA and/or risk assessments and provide copies to the RES Safety Supervisor upon request.

#### 5.10 Permits to Work

The RES Project Manager, or their designee, shall be responsible for managing permits to work for excavation, hot works, blasting, and any other operations requiring a permit. Copies shall be logged and retained.

- 5.10.1 Excavation permits may not exceed one week in duration. The RES Americas Blasting Checklist shall be completed with the Blasting Permits.
- 5.10.2 For Electrical Work Permits, the RES Americas Senior HV Authorized Person can issue permits. This is to include the Limitation of Access into the Substation.

#### 5.11 Incident and Near Miss Records

All incidents shall be reported to RES and the client, where appropriate. Copies of reports should be maintained in this section.

5.11.1 Notification, investigation, and documentation shall be completed as detailed in RASOP 001 - Incident Notification, Investigation, and Documentation.

#### **5.12** Safety Audits/Inspections/Observations

- 5.12.1 Safety Audits and Inspections shall be completed as detailed in RASOP 008 Safety Audits.
- 5.12.2 Safety Observations shall be completed as detailed in RASWP 052 Safety Walks.
- 5.12.3 RES HSQE Department Safety Audits and any safety consultant's reports received.
- 5.12.4 Site Safety Inspection Form shall be completed twice weekly by the Safety Supervisor/Discipline Supervisor using a section of the form relative to current scope of work.
- 5.12.5 Weekly Safety Inspections completed by Subcontractors.

#### 5.13 Warning Strikes (Three Strikes Rule) and Zero Tolerance

5.13.1 The Warning Strike Form shall be used for recording and issuing a strike. A register is also to be used to keep track of names and the number of strikes issued.

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- 5.13.2 Whenever a safety violation requires a strike, the strike shall be issued by the supervisor for that scope or work. A copy shall be provided to the person receiving the strike.
- 5.13.3 RES Americas applies a Three Strike Program at all projects, sites and work locations. Any employee working on a RES Americas site will be permanently removed from that site after violating Site Safety Rules on three occasions.
  - a) First violation The person involved will be given a verbal warning which shall be recorded.
  - b) Second violation The person involved will be given a further warning and sent home for a day without pay.
  - c) Third violation Any employee working on a RES Americas project, site or work location will be permanently removed from that project, site or work location after violating Site Safety Rules on three occasions.
- 5.13.4 RES Americas will implement a "No Tolerance" policy that will result in an automatic Strike to any employee who violates any of the following safety program requirements:
  - a) Failure to comply with required PPE in an active work area.
  - b) Failure to follow the RES Americas policy for vehicle operation while on the project site, including:
    - (1) Use of cell phone (by driver) while operating vehicle or equipment,
    - (2) Operating vehicle or equipment at greater than designated project speed limits,
    - (3) Backing of vehicles or equipment without use of spotter when necessary.
  - c) Failure to have or follow the approved Work Instruction, Method Statement, or Procedure, and/or failure to have or follow the approved Job Hazard Analysis (JHA) for the task.
  - d) Failure to conduct documented daily equipment and truck inspections.
  - e) Operation of any equipment without documented qualification for said equipment.

This is detailed in the Safety Program Improvement Plan.

#### 5.14 Work at Height and Rescue Procedures

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Contractors that work at height shall provide staff trained, qualified, and authorized to perform rescue at height activities. In addition, the following requirements shall be in place:

- 5.14.1 A plan on how rescue is to be performed, documented training on fall hazards, the use of the work at height equipment for their staff, and FA/CPR/AED trained staff.
- 5.14.2 Rescue at height activities shall be conducted in accordance with RASWP 002 Work at Height.
- 5.14.3 All rescue at height personnel shall be trained in the Ropeworks W110 (Safety at Height and Rescue) or equivalent.
- 5.14.4 At least two (2) members of each Erection crew shall hold current rescue at height training certifications (completed within the last calendar year) and current First Aid Training (as of the start of Erection).
- 5.14.5 Staff trained in rescue at height shall have in their possession (at their work location, up tower, etc.) the appropriate rescue and first aid equipment at all times.
- 5.14.6 All equipment used for rescue at height shall have a current and documented inspection (completed within the last six (6) months, as of the start of Erection).
- 5.14.7 The Erection Contractor shall submit a Rescue at Height Plan to RES for review and approval at least two (2) weeks prior to the start of Erection. The Rescue at Height Plan shall be approved for use by RES, prior to the start of Erection.
- 5.14.8 At least one rescue at height drill, based on the Rescue at Height Plan, shall be completed after the start of turbine erection, but before the first tower is mechanically completed.
- 5.14.9 RES will solicit support from the local Emergency Medical Services (EMS) to support a Rescue at Height, if/when needed.

#### 5.15 Lift Plans and Review Documentation

- 5.15.1 Contractors performing lifting operations on a RES project/site shall provide RES with a copy of the Lift Plan for the activity. The Lift Plan must be approved for use by a RES Competent Lift Person prior to the start of the activity.
- 5.15.2 The <u>Lifting Operations Evaluation Forms (LOEF Parts 1 & 2)</u> shall be utilized to document the lift plan and lifting activity review.

#### 5.16 Site Specific Safety Requirements

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The Site Specific Safety Requirements related to local regulations, hazards found on the project/site footprint, and client/owner requirements that are not included in the RES Safety Management System, shall be listed in this section.

## P-2 Emergency Response Plan



# Ball Hill Wind Project Emergency Response Plan

Report No:

Issue No: 01

This document ("Procedure") has been prepared by RES America Construction Inc. ("RES") in accordance with internal procedures and mandates and is Confidential Information. If this Procedure is an exhibit to a contract or agreement, then this Procedure, in the form attached to the contract, shall be subject to only those express representations or warranties regarding the exhibits to such contract, if any. Except for such representations, RES provides this Procedure "AS-IS" and does not represent, and RES expressly disclaims, that the procedures or material contained in this Procedure have been prepared pursuant to any particular methodology, are accurate or complete, or that they reflect the current status of applicable law. Portions of this Procedure may be excerpted or redacted and this Procedure is subject to revision or update at any time. Any party utilizing this Procedure, or any matter or information derived from it, ("Recipient") does so at his/her/its own risk and agrees to make his/her/its own investigation regarding his/her/its legal or other obligations for performance of his/her/its work. No Recipient shall have any right or claim against RES or any of its affiliated companies with respect to the Procedure.

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## **Revision History**

Revision #	Date	Nature of Revision
00	09/12/16	Document first created.
01	10/18/2016	Project specific emergency services described.

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#### 1.0 INTRODUCTION

RES Americas Construction Inc. (RES) are constructing a 100MW Wind Project, for [Client TBD], which is located Chautauqua County, New York.

RES has developed this Emergency Response Plan for use during the construction phase of the project.

#### 2.0 PROJECT DESCRIPTION

The works will comprise the erection/installation of 29 Vestas V126-3.45MW Turbines, the construction of associated foundations, access tracks and electrical infrastructure and the applicable grid connection.

#### 3.0 PROCEDURE

### 3.1 Safety Related Incident/Emergency Notification Procedure

- 3.1.1 Asses the emergency
- 3.1.2 Notify emergency services and site safety
  - a) If there is a potentially **LIFE THREATENING** injury or scenario, the first step is to call 911 directly.
  - b) Then contact the RES Safety Supervisor and Subcontractor/Owner Safety Representative by radio or cell phone depending on available services at site.
  - c) If the injury or scenario is not life threatening, contact the nearest Supervisor, as well as the RES Safety Supervisor and Subcontractor/Owner Safety Representative by radio or cell phone depending on available services at site.
- 3.1.3 Describe the emergency scenario. Typically the categories below can be used:
  - a) Incident type (e.g. fall, crush, vehicular accident, fire, electrical shock)
  - b) Potential fatality
  - c) Major illness (e.g., heart attack, not breathing, unconsciousness)
  - d) Major injury (e.g., broken bone, loss of limb, severe cuts/bleeding)
  - e) Minor injury (e.g., twisted ankle, foreign body in eyes, minor cuts)
  - f) Bite/sting (e.g., snake, scorpion, wasp)
  - g) Weather effect (e.g., heat or cold stress, lightning strike)

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### 3.1.4 Identify location

a) Provide the location of the emergency, by referring to the nearest structure or road junction.

### 3.1.5 Determine appropriate response

- a) Unless the injury is a **LIFE THREATENING** injury, the Supervisor, RES Safety Supervisor, and Subcontractor/Owner Safety Representative will determine the appropriate response, which may be:
  - (1) Arrange for a site First Aid Trained Employee to respond to the location of the injured.
  - (2) Arrange for transport of the injured to the site safety trailer for first aid administration, and further evaluation.
  - (3) Arrange for site transport to take the injured to a hospital or local medical clinic.
  - (4) Arrange for 911 services to respond directly to the injured employee.

### 3.1.6 Coordinate

- a) Send an employee to the nearest site access point to meet the emergency responders and escort them to the location of the emergency.
- b) If offsite 911 responders are notified, the RES Safety Supervisor and Subcontractor/Owner Safety Representative will coordinate in directing the emergency services to the scene of the incident.

### 3.1.7 Accompany

- a) The First Aid Trained Employee, Supervisor, RES Safety Supervisor, and Subcontractor/Owner Safety Representative will continue to assist with the emergency scenario.
- b) If the decision is made to transport the employee directly to an offsite hospital or medical clinic (either by site transport or by 911 emergency responders), the employees' Supervisor, the RES Safety Supervisor (or designee), and the Subcontractor/Owner Safety Representative shall:
  - (1) Accompany the injured employee to the hospital.
  - (2) Stay with the injured employee until examination (including a drug and alcohol test) is complete, and the diagnosis is completed (so that a full report including the extent of the potential injuries can be made).

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(3) Supervisors shall make known to the treating medical practitioners the employee's typical work duties, the availability of oversight for the employee's return to duty, and alternate duties available to the employee.

### 3.1.8 Notify Employer

- a) The employee's Supervisor shall notify the employee's employer and emergency contact.
- b) RES Safety shall notify RES Corporate HSQE and the RES Project Manager within established time frames.
- c) Subcontractor/Owner Safety Representative shall notify the Owner within established time frames.

### 3.2 Designated Medical Facility

3.2.1 RES has designated Gowanda Urgent Care & Medical Center for nonemergency, occupational health related injuries and illnesses.

Gowanda Urgent Care & Medical Center 34 Commercial Street Gowanda, NY 14070 8am - 8pm 716-532-8100

3.2.2 If the clinic is not available when needed during early, late, or weekend work hours, the hospital identified below will be utilized:

Bertrand Chaffee Hospital 224 E Main St Springville, NY 14141 (716) 592-2871

- 3.2.3 The Occupational Medicine facility shall be asked to consult on all injuries and illnesses with regard to determining the fitness of the individual with regard to a return to work. RES HSQE management will determine if any restrictions recommended by medical staff affects one or more of the employee's routine job functions.
- 3.2.4 The treating physician's diagnosis shall be the basis for initiating claims, unless the contractor has alternative arrangements for assessment of fitness for duty.
- 3.2.5 RES subcontractors shall log any alternate arrangements for medical treatment facilities with RES. This procedure is in the interests of both the employee (as it ensures they get the best treatment) and the employer (as

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they know that their employees are seen by a competent physician).

### 3.3 Damage Incident (No Injury)

#### 3.3.1 NOTIFY SUPERVISOR

a) Contact the nearest Supervisor or RES employee, preferably the RES Safety Supervisor, by radio or cell phone depending on the services available at the site.

### 3.3.2 DESCRIBE

- a) The nature of the damage.
- b) The location of the damage incident, by referring to the nearest structure or road junction.

### 3.3.3 STOP WORK

- a) Stop all work in an area of damage until RES Safety Supervisor arrives to investigate incident. Equipment and vehicle operators should stay in the vicinity of the vehicle.
- b) Any employee involved in an equipment or vehicle accident resulting in injury or damage to equipment/property shall submit to an immediate alcohol/drug test. Testing shall be coordinated by the RES Safety Supervisor.

### 3.4 Spill Response Procedure

- 3.4.1 Immediately report any releases of hazardous materials to your Supervisor and the RES Environmental Supervisor [TBD Enter name and phone number].
- 3.4.2 The site Spill Prevention, Control, and Countermeasure (SPCC) plan shall be followed when a spill occurs on site that involves any oil products. Specific guidance for reporting the spill is contained in the SPCC plan.

### 3.4.3 In case of Spill to Land:

- a) Stop all work in vicinity of spill.
- b) Identify the product check container design, warning labels, markings, etc.
- c) Prevent personnel from approaching the site and keep them at a distance sufficiently removed that they will not be injured by, or cause, a fire or explosion.

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- d) Install measures to contain the spill if it is safe to do so utilizing a spill kit as appropriate.
  - (1) A spill kit shall include: Poly containment pail, oil absorbent pads, oil absorbent socks, heavy duty disposal bags, nitrile gloves, all-purpose absorbent (such as sawdust or kitty litter), shovels, plugs and clamps (zip ties) to control a line break.
- e) Wait for further instructions from responding personnel.

## 3.4.4 In case of Spill to Water:

- a) Stop all work in vicinity of spill.
- b) Identify the product check container design, warning labels, markings, etc.
- c) Prevent personnel from approaching the site and keep them at a distance sufficiently removed that they will not be injured by, or cause, a fire or explosion.
- d) Install measures to contain the spill if it is safe to do so.
- e) Wait for further instructions from responding personnel.

#### 3.5 Site Evacuation Procedure

- 3.5.1 Site-wide evacuations can be ordered by:
  - a) The RES Project Manager, who may instruct ALL personnel to evacuate.
  - b) The Owner, who may instruct ALL personnel to evacuate.
  - c) The Supervisors of individual contractors, who may instruct their own people to evacuate.
- 3.5.2 Evacuation of local work areas can be ordered by the Supervisor of the work, following notification to RES Safety consistent with the reporting process above.
- 3.5.3 Notification of a site-wide evacuation shall be by radio communication.
- 3.5.4 When instructed to evacuate, all employees shall proceed in an orderly manner to the Muster Point.
  - [TBD Insert specific process for site here. Identify primary and/or secondary Muster Points].
- 3.5.5 Once at the Muster Point, check in with your supervisor immediately. The RES site manager (or designee) will arrange a head count of all personnel.

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This will be done by the supervisors from each contractor caring out their own head count, and advising RES of the result.

3.5.6 Although it is not commonly needed during construction, employees that remain after an evacuation to shut down or maintain critical operations shall perform the necessary operations and evacuate as soon as possible. For instances where critical operations are being undertaken, a separate Emergency Response and Evacuation procedure shall be created and followed for these employees.

#### 3.6 Fire Prevention Procedures

#### 3.6.1 Notification

- a) All fires shall be immediately reported to the task Supervisor and the RES Safety Supervisor consistent with reporting process above.
- b) The RES Safety Supervisor shall coordinate the emergency response for the fire.

### 3.6.2 Specific Construction Site Fire Hazards

- a) Possible fire hazards and threats include grass fires due to lightning, failure of overhead lines, and construction-related accidents such as sparks from cutting operations and vehicular operation over dry vegetated areas.
- b) [TBD All fire hazards know to the project SHALL be listed. If any changes to construction fire hazards occur, this plan SHALL be amended to include them. In addition to listing the possible or know fire hazards at the site, detail shall be given for proper handling of the hazard, potential ignition sources and their control measures, and the type of fire protection equipment necessary to control each of the hazards listed.]

### 3.6.3 Minimizing Fire Risk during Construction

In order to <u>minimize</u> fire risk, the following procedures will be implemented:

- a) Personnel Training All site personnel shall be made aware of the dangers associated with fires and how to respond in case of a fire.
- b) No open fires No exceptions.
- c) Hot Work shall be conducted following issuance of a Hot Work Permit, conducted in accordance with approved procedures, and within de-vegetated areas only.

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- d) Storage and use of flammable and combustible materials will be in accordance with RASWP 021 Fire Prevention.
- e) Fire-breaks shall be a design feature:
  - (1) Each road will be considered a site fire break. The road shoulders shall (most likely) be returned to grassland on completion of the project.
  - (2) Each turbine location shall have an area of approximately 125 feet by 150 feet to allow the assembly of rotors and erection of the turbine without the need for vehicles to travel off-road. This area will be rolled flat with the majority of significant vegetation removed.
  - (3) Each turbine and transformer shall be left with a minimum 5-foot wide gravel path surrounding them.

### 3.6.4 Suppression of Fires during Construction

In order to suppress fires, the following measures will be implemented:

- a) Employees should attempt to extinguish a fire if possible, but never at risk to their personal safety or the safety of fellow employees.
- b) Portable Fire Extinguishers Each site vehicle shall be equipped with an ABC rated fire extinguisher.
- c) Each piece of construction equipment (yellow iron or similar) shall be equipped with, or have available during operation, an up-to-date ABC rated fire extinguisher.
- d) Any fire not immediately contained and/or suppressed shall require notification to the local fire department for support.
- e) Water availability [TBD Enter details of water availability that can be utilized in a fire emergency hydrants, an XXX gallon water truck, XXX gallon water tank on site, sources of site water.]

### 3.7 Fire Prevention and Response Equipment Maintenance and Inspections

- 3.7.1 All installed fire prevention or fire response equipment shall receive monthly inspections (with records) and regular maintenance in accordance with OSHA requirements.
- 3.7.2 All RES personnel and subcontractors carrying fire extinguishers in their vehicles are responsible for conducting a monthly inspection of the extinguishers to ensure the equipment is in good working order and ready for use in a fire emergency.

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### 4.0 SAFETY DATA SHEETS

### 4.1 Location and Posting

- 4.1.1 Each subcontractor shall maintain a listing of all materials that they are using which may be flammable or hazardous to health. Therefore, refer to each subcontractor for the most comprehensive and up-to-date listing together with the Safety Data Sheets (SDSs) for each chemical.
- 4.1.2 The location of the SDSs within each subcontractor's trailer or office shall be clearly posted at the project site entrance and in the RES Safety trailer.

## 5.0 SPECIFIC PROCEDURES FOR KNOWN SITE HAZARDS

- 5.1 Snake Bite Procedures [Venomous Snakes are not expected in this area of NY, Remove this section upon confirmation if this does not apply]
  - 5.1.1 What to do if bitten by a venomous snake.
    - a) Allow the bite to bleed freely for 15-30 seconds.
    - b) Cleanse and rapidly disinfect the area with an iodine solution (if not allergic to iodine, fish, or shellfish), and remove clothing and jewelry from the body extremity where the bite occurred (pant legs, shirt sleeves, rings, etc.)
    - c) If bite is on the hand, finger, foot, or toe wrap the leg/arm rapidly with 3" to 6" of ACE or crepe bandage past the knee or elbow joint immobilizing it. Over-wrap bite marks. If possible, apply hard and direct pressure over bite using a 4" x 4" gauze pad folded in half twice to 1" x 1". Tape in place with adhesive tape. Soak gauze pad in Betadine™ solution if available and victim is not allergic to iodine, fish or shellfish.
    - d) Strap gauze pad tightly in place with adhesive tape.
    - e) Over-wrap dressing above, over, and below bite area with ACE or crepe bandage, but not too tight. Wrap ACE bandage as tight as one would for a sprain. Not too tight. Check for pulse above and below elastic wrap; if absent, the wrap is too tight. Unpin and loosen. If pulses are strong (normal), it may be too loose.
    - f) Immobilize bitten extremity use splinting if available.
    - g) If possible, try and keep bitten extremity at heart level or in a gravity-neutral position. Raising it above heart level can cause venom to travel into the body; below heart level can increase swelling.
    - h) Evacuate to nearest hospital or medical facility as soon as possible.

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- i) Try to identify the snake (ONLY if safe to do so). This is the least important thing you should do. Visual identification/description usually suffices, especially in the U.S. and in regions where the local fauna is known. Local symptoms will alert doctors to whether or not the bite is venomous.
- j) Bites to face, torso, or buttocks are more of a problem. ACE or crepe bandaging cannot in these areas. A pressure dressing made of a gauze pad may help to contain venom.
- 5.1.2 What to Communicate at the Hospital.
  - a) Ask the staff to immediately contact their designated Poison Control Center.
  - b) Ask the hospital staff to use physician consultants available through the nationwide Poison Control Network if necessary.
- 5.1.3 What **NOT** to do if bitten by a venomous snake.
  - a) Contrary to advice given elsewhere, do not permit removal of pressure dressings or ACE bandages until you are at the treatment facility and the physician is ready and able to administer anti-venom. When the dressings are released, the venom will spread causing the usual expected problems associated with a venomous snakebite.
  - b) Do **not** eat or drink anything.
  - c) Do **not** engage in strenuous physical activity.
  - d) Do **not** apply oral/mouth suction to the bite.
  - e) Do **not** cut into or incise bite marks with a blade.
  - f) Do **not** drink any alcohol or use any medication.
  - g) Do **not** apply hot or cold packs.
  - h) Do **not** apply a narrow, constrictive tourniquet such as a belt, necktie, or cord.
  - i) Do **not** use a stun gun or electric shock of any kind.
  - j) Do **not** remove dressings/wraps until arrival at hospital and antivenom is readily available.

### 5.2 Bear Encounters

- 5.2.1 Counter Assault Bear Deterrent Spray.
  - a) Bear spray shall be kept with every work crew if working in known bear areas.

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- 5.2.2 What to Do If You Encounter a Bear.
  - a) Scenario #1 Bear has not detected your presence and is more than 100 m (350 ft.) away:
    - (1) Don't announce your presence if the bear has not seen you. If possible, retreat slowly and give the bear plenty of space. If you have the opportunity, you should retreat and leave the trail to the bear. If you must continue, back off a short distance, and give the bear time to leave the area. You should also do a wide detour quietly and quickly downwind to avoid problems.
  - b) Scenario #2 Bear has detected your presence, but is more than 100 m (350 ft.) away:
    - (1) Your goal here is to act in a way that will allow the bear to identify you, but also to let the bear know that you are not a threat. Speak calmly so that it knows you are a human their eyesight is quite poor. They will often quickly give ground to you once they identify you as human. If the situation permits, back away slowly, keeping a close eye on the bear. Otherwise, you may wish to detour around the bear, but in this case, detour upwind so that the bear can get your scent. Keep talking calmly. Waving your arms may help it identify you as a human.
  - c) Scenario #3 Bear has detected you and shows signs of aggression:
    - (1) If you have followed the advice listed above, hopefully you have a bit of distance between the bear and yourself. You'll need to assess the situation. Are there cubs involved? Are there climbable trees nearby and do you have sufficient time to climb them?
    - (2) Do Not Run. You can't outrun a bear so don't even try. Black and can outrun a human on ANY terrain, uphill or down.
    - (3) Try to retreat slowly. Back up slowly and try to put more space between you and the bear. Talk calmly so that it can identify you as human, and slowly back up. Keep your backpack on as it can provide protection if necessary. Don't make direct eye contact, but keep a close look at the bear as you back away.
    - (4) Climb a tree if available. If you have enough time, and the bear continues to move closer, take advantage of a tall tree to climb. Remember, black bears are strong climbers as well. You want to get at least 10 m (33 feet) high to reduce the chance of being pulled out of the tree. Even though some bears can come up the tree after you, the hope is that they will feel less threatened, and thus less likely to chase you up the tree.

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- (5) Bears will often bluff charge before attacking. This is designed to allow enemies to back down before the bear needs to actually make contact. It evolved as a way to prevent encounters with enemies and it may provide you with an opportunity to back away.
- (6) Use your pepper spray. Pepper spray is only good at very close range (5 m or 15 ft.). Wind will reduce this effective range even farther and may blow the spray back into your face. If the bear approaches within this range, point the spray at its eyes and discharge the contents. Hopefully, this will either disorient the bear to allow you to escape, or at the very least deter it from attacking. Once you have partially discharged a canister of bear spray it should be discarded. While the spray may deter attacks, the smell of pepper can act as an attractor.
- (7) If the attack escalates and a black bear or any bear that appears to have been stalking you physically contacts you, fight back with anything that is available to you. Black bears tend to be more timid than grizzlies and fighting back may scare the bear off. In addition, if a bear is stalking you than you are in a predatory situation and fighting back is your only option. This also applies to any attack at night as these may also be considered predatory in nature.
- (8) Many attacks are defensive in nature, and playing dead may show the bear that you are not a threat. Keep your backpack on as it will provide added protection. The best position is to lie on your side in a fetal position. Bring your legs up to your chest and bury your head into your legs. Wrap your arms around your legs and hold on tight. You may also lie on your stomach, backpack on, and place your hands behind your neck to protect that vulnerable area. Do not play dead until the last moment. Staying on your feet may allow you to dodge, or divert an attack.
- (9) Once the attack has ended, remain patient. After a few minutes, try to determine if the bear is still in the area. If the bear has moved on, you should make your way towards assistance as quickly as possible.

### 6.0 PROJECT EMERGENCY SERVICES

6.1 Emergency Services for Ball Hill Wind Project

In case of Emergency (Fire/Police/Medical): 911

Gowanda Fire Department 230 Aldrich St

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Gowanda, NY 14070 716-532-3434

Gowanda Police Department 27 E Main St, Gowanda, NY 14070 716-0532-2020

Gowanda Urgent Care & Medical Center 34 Commercial Street Gowanda, NY 14070 8am - 8pm 716-532-8100

Bertrand Chaffee Hospital 224 E Main St Springville, NY 14141 (716) 592-2871

#### 7.0 RESCUE OPERATIONS

### 7.1 Rescue at Height

- 7.1.1 The WTG Erection Contractor shall provide trained and qualified staff authorized to perform Rescue at Height activities during WTG Erection. The following requirements shall be in place prior to the start of WTG Erection:
  - a) Rescue at Height activities shall be conducted in accordance with RASWP 002 Work at Height.
  - b) All Rescue at Height personnel shall be trained in the Ropeworks W110 (Safety at Height and Rescue) or equivalent.
  - c) At least two (2) members of each WTG Erection crew shall hold current Rescue at Height training certifications (completed within the last calendar year, as of the start of WTG Erection).
  - d) Staff trained in Rescue at Height shall have in their possession (at their work location, up tower, etc.) the appropriate rescue and first aid equipment at all times.
  - e) All equipment used for Rescue at Height shall have a current and documented inspection (completed within the last six (6) months, as of the start of WTG Erection).

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- f) The WTG Erection Contractor shall submit a Rescue at Height Plan to RES for review and approval at least two (2) weeks prior to the start of WTG Erection. The Rescue at Height Plan shall be approved for use prior to the start of WTG Erection.
- g) At least one rescue at height drill, based on the Rescue at Height Plan, shall be completed after the start of turbine erection but before the first tower is mechanically completed.
- h) If necessary, RES will contact the local Emergency Medical Services (EMS) to support a Rescue at Height.
- 7.1.2 Rescue operations are not to be undertaken under any circumstances by someone who is not trained and authorized. Below is a list of employees and their employers who have been trained and authorized to conduct rescue at height operations:

#### 8.0 APPENDICES

- Appendix 1 Site Contact List
- Appendix 2 First Aid Qualified Personnel
- Appendix 3 Rescue at Height Trained Personnel
- Appendix 4 Concise Emergency Response Plan
- Appendix 5 Radio Communications for Severe Weather & Lightning Alert Flier
- Appendix 6 Site Map
- Appendix 7 Occupational Health Clinic Map and Directions
- Appendix 8 Emergency Hospital Map and Directions
- Appendix 9 Tornado Shelter Map and Directions

## Appendix 1 - Project Site Contacts - TBD

## Date of Issue: XX/XX/XX

(To be updated as construction progresses)

## **Renewable Energy Systems**

Title	Name	Cell		
RES Site Office Project Manager Site Administrator Construction Manager Electrical Manager Civil Manager Safety Supervisor Safety Supervisor Env. Supervisor	Name Name	(xxx) xxx-xxxx (office) (xxx) xxx-xxxx		
	Clier	nt/Owner		
Title	Name	Cell		
Site Office Title Title	Name Name	(xxx) xxx-xxxx (office) (xxx) xxx-xxxx		
Subcontractors				
Title	Name	Company	Cell	
Title Title	Name Name	xxxxxxx	(xxx) xxx-xxxx	

[Add additional RES, Owner, and subcontractor management as appropriate]

## Appendix 2 - First Aid Qualified Personnel

## Date of Issue: XX/XX/XX

(To be updated as construction progresses)

## **RES Americas**

Title	Name	Cell	Valid Through
Project Manager Site Administrator Construction Manager Electrical Manager Civil Manager Safety Supervisor Safety Supervisor	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx
Env. Supervisor			

## Subcontractor

Title	Name	Cell	Valid Through		
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx		
	Subco	ontractor			
Title	Name	Cell	Valid Through		
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx		
Subcontractor					
Title	Name	Cell	Valid Through		
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx		

## Appendix 3 - Rescue at Height Trained Personnel

## Date of Issue: XX/XX/XX

(To be updated as construction progresses)

## **RES Americas**

Title	Name	Cell	Valid Through	
Project Manager Site Administrator Construction Manager Electrical Manager Civil Manager Safety Supervisor Safety Supervisor Env. Supervisor	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx	
	Subc	ontractor		
Title	Name	Cell	Valid Through	
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx	
	Subc	ontractor		
Title	Name	Cell	Valid Through	
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx	
Subcontractor				
Title	Name	Cell	Valid Through	
Title Title	Name Name	(xxx) xxx-xxxx (xxx) xxx-xxxx	xx/xx/xx xx/xx/xx	

### Appendix 4 - Concise Emergency Response Plan

Ball Hill Wind Project

How to Deal With an Emergency Situation

\*\*\*\* ALWAYS KNOW YOUR LOCATION \*\*\*\* (Grid, road, compound, structure location, etc.)

With any emergency situation the best thing to do first is notify your immediate supervisor. If your supervisor is at another location on the site or is not on the project site, you must contact a RES site official immediately.

If a RES site official is not close to you and your location, you will need to contact the RES site office or a RES site manager via your cell phone or via the RES radio system. If you are using the RES radio system:

- Make sure you are on Channel 2 or the designated RES talk around channel.
- Announce over the radio that you have an emergency announcement asking all other radio talk to stop immediately.
- Request that ALL site activity stop during the emergency response.
- Call out for a RES site official.
- When a RES site official answers on the radio, explain the emergency slowly and clearly.
  - Make sure the RES site official understands if the emergency is a Medical emergency, a Fire emergency, a Spill emergency, a Police emergency.
  - o Make sure the RES site official understands the location of the emergency.
  - o If you have determined that 911 should be called tell the RES site official to call 911.

### In case of INJURY or ILLNESS:

- Follow the prescribed steps described above for notifying your supervisor and/or a RES site
  official making sure you communicate your location and a brief description of the medical
  emergency.
- 2. If you determine the emergency is a 911 event, tell your supervisor or the RES site official to activate the 911 system.
- 3. If you determine the injured or ill person needs additional First Aid assistance, tell your supervisor or the RES site official you need additional First Aid assistance.
- 4. Make sure the injured or ill person is being monitored and taken care of. Remember, never move an injured or ill person more than you have to in order to protect them from further injury.
- 5. Secure the immediate job site area if possible, shutting down all equipment and work. Remember to inform your immediate supervisor or RES site official if you need assistance securing the job site area.
- 6. A RES site official will dispatch personnel to assist with First Aid.
- 7. A RES site official will dispatch personnel to assigned points on the public and/or private roadways to help direct emergency personnel to the emergency location.
- 8. If it appears the injured or ill person is experiencing a heart attack, a RES site official will dispatch an AED to the emergency location.
- 9. If the injured or ill person is a snake bite victim, try to identify the type of snake involved. If the snake has been killed, carefully secure the snake in a manner for transport to the hospital for identification by medical personnel.
- 10. The supervisor of the injured or ill employee should accompany the employee to the hospital. If the employee is a subcontractor's employee a RES site official will be dispatched to the hospital.

### In case of FIRE:

- 1. Follow the prescribed steps described above for notifying your supervisor and/or a RES site official making sure you communicate your location and a brief description of the fire emergency.
- 2. If you determine the emergency is a 911 event, tell your supervisor or the RES site official to activate the 911 system.
- 3. Immediately clear the area of all personnel and, if possible, vehicles and flammables. If you are trained in fire safety, and the fire is small, attempt to put the fire out with an extinguisher. DO NOT PUT YOURSELF AT RISK.
- 4. Await the arrival of the fire department.

#### In case of SEVERE or EXTREME WEATHER:

- 1. If a severe weather emergency occurs at your work location and you have not received an official site notification either verbally, via cell phone, or via the RES Radio System, follow the prescribed steps described above for notifying your supervisor and/or a RES site official.
- 2. If you receive an official site notification either verbally, vial cell phone, or via the RES Radio System follow the instruction associated with the notification.
- 3. In the event you are caught in an open area during a lightning strike event, get into the nearest rubber-tired vehicle or grounded trailer/structure (e.g., O&M building, site office trailer).
- 4. If you take shelter in a rubber-tired vehicle, do not use the vehicle's electronic devices such as the radio.

### In case of SPILL to LAND or WATER:

- Follow the prescribed steps described above for notifying your supervisor and/or a RES site
  official making sure you communicate your location and a brief description of the spill
  emergency.
- 2. Stop all operations.
- 3. Identify the product.
- 4. Prevent personnel from approaching the site.
- 5. Install measures to contain the spill if it is safe to do so.
- 6. Wait for further instructions from responding personnel.

In any emergency situation, keep calm and don't panic. Give clear and direct information and directions.

### Appendix 5 - Radio Communications for Severe Weather & Lightning Alert Flier

### **Ball Hill Wind Project**

Items in red are information only and not to be read over radio.

### \*\*50 Mile Weather Advisory\*\*

Attention All Site:

We are currently under a condition YELLOW. At this time preparations should be made to allow an immediate shut down of main crane and up tower operations should the lightning get within our 30 mile radius. Again we are currently under a condition YELLOW for lightning within 50 miles. Repeat 3 times over a 2 or 3 minute period when lightening is within 50 miles of site. Work will continue during an advisory. Preparations should be made to stop work if storm continues towards site.

### \*\*30 Mile Weather Caution\*\*

Attention All Site:

We are currently under a condition **ORANGE** for lightning within 30 miles of the site. All main crane lifting and tower climbing activities must cease and personnel should immediately evacuate the towers and cranes and shall maintain a 100' clearance from the cranes/towers. All other ground operations may continue provided 100' clearance from the towers/cranes is being observed. Again we are currently under a condition **ORANGE** for lightning with 30 miles. Repeat 3 times over a 2 or 3 minute period when lightning is within 30 miles of site. All Main Crane and Tower work is to cease immediately.

#### \*\*10 Mile Weather Warning or if Thunder is Heard\*\*

Attention All Site:

We are currently under a condition **RED** for lightning within 10 miles of the site. All site personnel must IMMEDIATELY cease their operations and seek shelter in any rubber tired vehicle/piece of equipment or the nearest safe building (e.g., O&M building, Substation Control Building, site office trailers). Again we are under a condition **RED** for lightning within 10 miles. Repeat 3 times over a 2 or 3 minute period when lightning is within 10 miles of site or if Thunder is heard. ALL site operations are to cease immediately and personnel should seek shelter.

#### \*\*Lightning All Clear\*\*

Attention All Site:

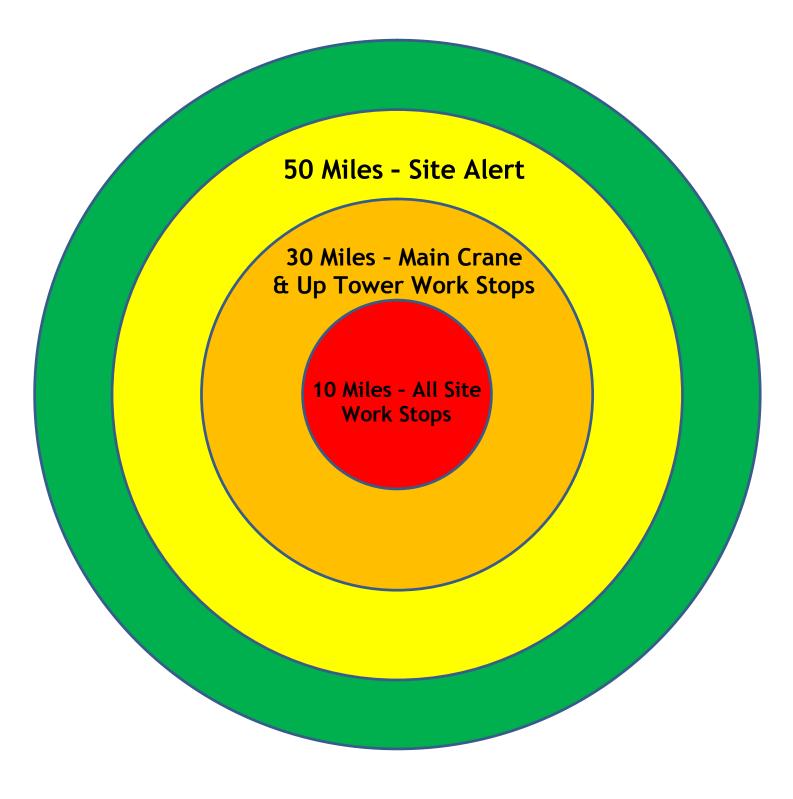
We are currently under a condition (ORANGE or YELLOW or GREEN). No lightning has been observed within (10 or 30 or 50) miles of the site in the last 30 minutes.

- 10 Mile All Clear, but lightning still within 30 Miles. We are currently under a Condition ORANGE. Ground operation crews may return to work but must observe 100' clearance from towers and main cranes. Again we are currently under condition ORANGE.
- 30 Mile All Clear, but lightning still within 50 Miles. We are currently under a condition YELLOW. All site crews may return to work but maintain awareness because lightning is still within 50 Miles of the site.
- <u>50 Mile All Clear</u>, We are currently under a condition **GREEN**. There has been no lightning within 50 miles in the last 30 minutes. All crews may return to their normal work duties.

Repeat the specific all clear announcement (10, 30, 50 mile) 3 times over a 2 or 3 minute period once the RES Project Office gets confirmation of all clear. An all clear will be announced once no strikes have been reported in the 10, 30, and 50 mile radius for 30 minutes.

\*\*\*Only the Project Manager has the authority to extend the time period before declaring an "ALL CLEAR" notice.

Lightning Alert Flier
Ball Hill Wind Project



## Appendix 6 - Site Map

Add map when available

## Appendix 7 - Occupational Health Clinic Map and Directions

[Insert Clinic Map and Directions when site compound address is available]

## Appendix 8 - Emergency Hospital Map and Directions

[Insert Hospital Map and Directions when laydown address is available.

## Appendix 9 - Tornado Shelter Map and Directions

[Insert Tornado Shelter Map and Directions when identified]

# P-3 Construction Quality Plan



# **Construction Quality Plan – Ball Hill Wind Project**

Report No: 01410R00004

Issue No:

This document ("Procedure") has been prepared by RES America Construction Inc. ("RES") in accordance with internal procedures and mandates and is Confidential Information. If this Procedure is an exhibit to a contract or agreement, then this Procedure, in the form attached to the contract, shall be subject to only those express representations or warranties regarding the exhibits to such contract, if any. Except for such representations, RES provides this Procedure "AS-IS" and does not represent, and RES expressly disclaims, that the procedures or material contained in this Procedure have been prepared pursuant to any particular methodology, are accurate or complete, or that they reflect the current status of applicable law. Portions of this Procedure may be excerpted or redacted and this Procedure is subject to revision or update at any time. Any party utilizing this Procedure, or any matter or information derived from it, ("Recipient") does so at his/her/its own risk and agrees to make his/her/its own investigation regarding his/her/its legal or other obligations for performance of his/her/its work. No Recipient shall have any right or claim against RES or any of its affiliated companies with respect to the Procedure.

## Revision History

Revision #	Date	Nature And Location Of Change	
00	12/3/14	Update of forms and format.	
01	10/25/2016	Project specific details included	

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#### 1.0 PURPOSE

This Construction Quality Plan describes in concise terms the specific means of implementing the RES Americas Quality Management System, as described in the RES Americas Quality Manual, in accordance with the Contract Documents, relative to the Ball Hill Wind Project.

#### 2.0 SCOPE

This Construction Quality Plan details which procedures and associated resources shall be applied, by whom and when during the Ball Hill Wind Project.

The Plan is based upon the requirements of ISO 9001:2008.

### 3.0 BRIEF DESCRIPTION OF THE PROJECT

### 3.1 Project Details

Name of Project	Ball Hill Wind Project
Address of Project	Chautauqua County, New York
Client Name	TBD (currently RES development site)
RES Project Number	23105
Project Start Date	Summer 2017
Projected End Date	December 2018
Project Type	Wind Solar Transmission Other
If Other, describe	
Generating Capacity	100 MW

### 4.0 ISSUE AND CONTROL

### 4.1 Issue and Control of Construction Quality Plan

This Construction Quality Plan, prepared by the Vice President, Construction Projects (or his designee) reflects the major parameters of this Project, and has been prepared in accordance with the RES Americas Management System procedures, and the project contract between RES Americas and our Client.

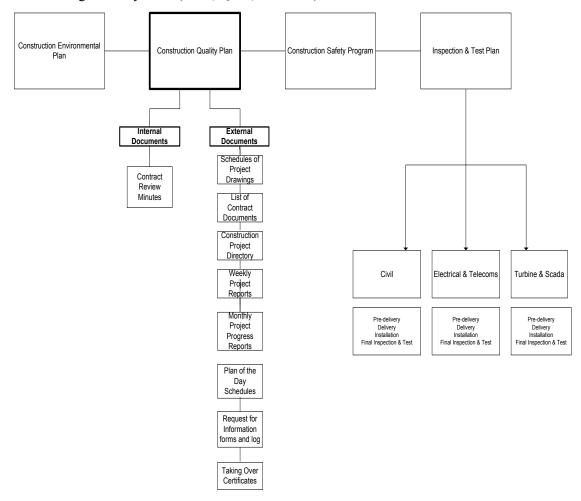
The Vice President, Construction Projects and other senior project personnel shall review this Construction Quality Plan at planned intervals throughout the life of the contract, to assure continued compliance with the contract terms and conditions.

This Construction Quality Plan is a controlled document and shall be issued in accordance with USQM 007, Control of Documents (01478-000041).

This plan shall be mirrored in structure and content on the ECM under the Project's folder location.

### 5.0 MANAGEMENT SYSTEM DETAILS

- 5.1 RES Americas Management Systems
  - 5.1.1 The diagram below portrays the typical relationship between the RES Americas Management Systems (SMS, QMS, and EMS).



- 5.1.2 The Construction Environmental Plan ensures that the project is constructed in compliance with all planning conditions; legal requirements and in accordance with the RES Americas Inc. (Company) Environmental Management System.
- 5.1.3 The Construction Safety Program File ensures that Health and Safety are managed on all construction sites, in order to prevent harm to anyone as a result of the company's activities. This plan also ensures that all statutory requirements are addressed and implemented.
- 5.1.4 The Inspection and Test Plan ensures inspections and test are performed, verified and documented according to work specifications, project drawings and contract documents.

## 6.0 CONSTRUCTION QUALITY PLAN REFERENCES

- 6.1 RES Americas Quality Manual
- 6.2 Contract Documents
- 6.3 Project Inspection and Test Plan

### 7.0 CONTRACT DOCUMENTS

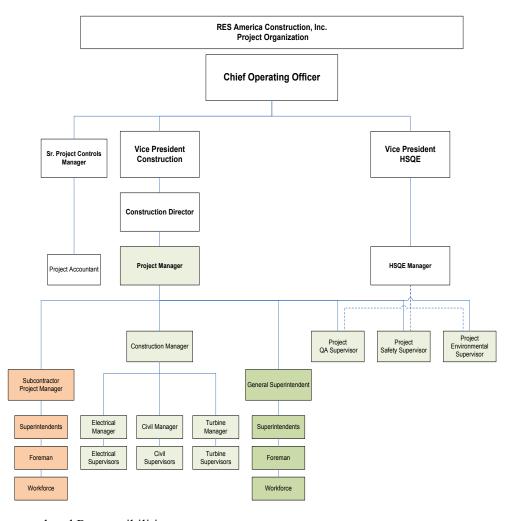
A complete set of the above shall be maintained on site by the Project Manager.

- 7.1 Contract
- 7.2 Construction Specifications and Drawings

### 8.0 ORGANIZATION

8.1 Project Organizational Structure

The project organizational chart (for RES Americas) is as shown below:



### 8.2 Key Personnel and Responsibilities

### 8.2.1 **Chief Operating Officer** – Andrew Fowler

The Chief Operating Officer reports to the President and CEO of RES Americas.

Responsible for assuring that the Project is completed to the requirements of the Contract.

Additional responsibilities include selecting the members of the Project Management Team.

### 8.2.2 **Senior Vice President, Construction Projects** – Jason Zingerman

The Vice President, Construction Projects reports to the Chief Operating Officer.

The Vice President, Construction Projects shall liaise with the Vice President, HSQE as necessary to assure compliance with the RES Management Systems.

Responsibilities include:

- a) Management of the Contract to assure compliance with the Main Contract requirements and RES Americas Safety, Quality and Environmental Policies.
- b) Assisting the Chief Operating Officer in assuring that suitably experienced and qualified RES Americas personnel are assigned to the project and that they are suitably briefed, consulted and motivated to carry out their various roles in an efficient and effective manner.

- c) Assuring the implementation of the RES Safety Policy, in conjunction with the Project Safety Supervisor.
- d) Quality of the Contract works including assuring that all necessary Inspections and Tests of work are conducted and recorded as appropriate, in accordance with the Project Construction Inspection and Test Plan.
- e) Preparation of the initial construction budget and subsequent forecasts of costs to completion.
- f) Management of all designers and sub-contract consultants to assure the timely production of all designs, specifications, and drawings required for construction of the works including any necessary design of temporary works. The Vice President, Construction Projects shall assure coordination of design information requirements and assure that the receipt and issue of drawings, specifications, and other design/technical information is controlled.
- g) Monitoring of progress against the construction program and the Contract requirements and ensuring that suitable resources are applied to all activities in order to maintain the program and achieve the specified quality.
- h) Reviewing the technical capability and capacity of prospective Subcontractors and Suppliers, and assuring that they meet or exceed RES Americas standards.
- Commercial administration of the Main Contract and sub-contracts including control and issue of contract documents; agreeing valuations with the Client and/or Engineer so that necessary invoices can be processed, agreeing contract variations, processing Subcontractors' and Suppliers' claims for payment, and negotiation and agreement of the subcontractors' Final Accounts.
- j) Approving all contract or schedule variations and scope change orders.

#### 8.2.3 **Construction Director** – Chris Fox

The Construction Director reports to the Vice President, Construction Projects. Responsibilities include:

- a) Assisting the Vice President, Construction Projects in assuring that suitably experienced and qualified RES Americas personnel are assigned to the project and that they are suitably briefed, consulted and motivated to carry out their various roles in an efficient and effective manner.
- b) Assuring that the Project Manager maintains and complies with this Construction Quality Plan.
- c) Assuring the implementation of the RES Americas Safety Policy, in conjunction with the Project Manager, the HSQE Manager, and the projects Safety Supervisor.
- d) The quality of the Contract works including ensuring that all necessary Inspections and tests of work are conducted and recorded by the Project Manager or QA/QC personnel as appropriate, in accordance with the Project Construction Inspection and Test Plan.
- e) Assisting the Vice President, Construction Projects with the preparation of the initial construction budget and subsequent forecasts of costs to completion.
- f) Assisting with management of all designers and sub-contract consultants to ensure the timely production of all designs, specifications and drawings required for construction of the works including any necessary design of temporary works. The Construction Director and the Project Manager shall assure coordination of design

information requirements and assure that the receipt and issue of drawings, specifications and other design/technical information is controlled.

- g) Monitoring of progress against the construction program and the Contract requirements and ensuring that suitable resources are applied to all activities in order to maintain the program and achieve the specified quality.
- h) Reviewing the technical capability and capacity of prospective Subcontractors and Suppliers, and assuring that they meet or exceed RES Americas standards.
- Assuring that necessary insurance is in place for construction of the works and that the Project Manager receives suitable evidence of insurances from the Subcontractors.
- j) Assisting the Vice President, Construction Projects with commercial administration of the Main Contract and subcontracts including control and issue of contract documents; agreeing valuations with the Client and/or Engineer so that necessary invoices can be processed, agreeing contract variations, processing Subcontractors' and Suppliers' claims for payment, and negotiation and agreement of the subcontractors' Final Accounts.
- k) Issuing instructions to Subcontractors when required.
- l) Assisting the Vice President, Construction Projects with review of all contract or schedule variations and scope change orders.

### 8.2.4 **Senior Vice President, HSQE** – Steve Reutcke

The Vice President, HSQE reports to the Chief Operating Officer.

He is responsible for administering the RES Americas Management Systems (Safety, Quality, and Environmental) used on the Project; and for providing guidance and assistance to the Project management team.

He shall assure that system audits are regularly undertaken on the Project to assure that project personnel comply with established procedures and, as necessary will direct the implementation of corrective actions for RES Americas Management Systems.

#### 8.2.5 **Manager, HSQE** – Shared between SMS, QMS, and EMS Managers

The Managers of HSQE reports to the Vice President, HSQE.

Shall liaise with the Construction Director and Project Manager as necessary to assure appropriate application of, and compliance with the RES Americas Management Systems. Responsibilities include:

- a) Providing programmatic and administrative management and guidance and support to the project Safety Supervisor, Environmental Supervisor and QA Supervisor for the application and management of the RES Americas Management Systems to the Project.
- b) Assuring that RES Americas project personnel are suitably trained and qualified for their role on the Project in accordance with RES Americas Management System requirements.
- c) Performing Management System audits of the project including the identification and verification of any necessary corrective actions to the project or management systems, and review of site generated nonconformance's,
- d) As necessary, providing or assuring the provision of training of RES Americas personnel to company procedures.

#### 8.2.6 **Project Safety Supervisor** – Steve Sloat

The Project Safety Supervisor reports functionally (for day to day functions in managing application of the RES Americas Safety Program at the project) to the Project Manager.

Reports administratively (for Safety program guidance and direction) to the Manager, HSQE (Safety).

Responsibilities include:

- a) Management of the RES Americas Safety Program as applicable to the project (as defined by the project Safety Program).
- b) Maintaining required safety records and compiling the safety information detailed in the Safety Program.
- c) Providing and assuring that all site personnel and visitors receive a Site Safety Induction.
- d) Briefing and issuing copies of the Project Safety Program File and RES Safety Requirements for Subcontractors to sub contractor safety representatives.
- e) Performing daily safety inspections of site works, including taking appropriate action where deficiencies are identified.
- f) Chairing the weekly Site Safety Meetings including maintaining meeting minutes and assuring that all actions issued are recorded as closed.
- g) Maintaining the project Safety Log
- h) Taking the lead to investigate any safety incidents including managing as necessary any corrective actions, and verifying that appropriate actions are implemented to prevent repetition.
- i) Maintaining the project OSHA 300 Log and keeping copies of completed 301 forms.
- j) Notification of any serious safety incidents involving worker injury in accordance with Contract and RES Americas Safety Program requirements.
- k) Assuring that initial details of any safety incident are documented and circulated to appropriate RES Americas and OGE representatives within 24 hours of the incidents occurrence.
- 1) Maintaining access to controlled copies of the RES Americas Safety Management System for the Project.
- m) Enforcing the Site Safety Rules.
- n) Assuring that a system of permits to work is used to control work, to include use of task Job Safety Analyses (JSA).
- o) Supervision of any additional Safety Supervisors that may be assigned to the Project.

#### 8.2.7 **Project Environmental Supervisor** – Al Jensen

The Project Environmental Supervisor reports functionally (for day to day functions in managing application of the RES Americas Environmental Program at the project) to the Project Manager.

They report administratively (for Environmental program guidance and direction) to the Manager, HSQE (Environmental).

Responsibilities include:

a) Enforcing the Construction Environmental Plan.

- b) Performing daily and scheduled environmental inspections of site works, including taking appropriate action where deficiencies are identified
- c) Assuring that all environmental incidents are logged and that appropriate action is taken to prevent repetition.
- d) Maintaining the project Environmental Log
- e) Taking the lead to investigate any significant environmental incidents including managing as necessary any corrective actions, and verifying that appropriate actions are implemented to prevent repetition.

#### 8.2.8 **Project QA Supervisor** – Cherie Mecca

The Project QA Supervisor reports functionally (for day to day functions in managing application of the RES Americas Quality Program at the project) to the Project Manager.

They report administratively (for Quality program guidance and direction) to the Manager, HSQE (Quality)

Responsibilities include:

- a) Oversight of project inspections and documentation to verify compliance with quality program and contract requirements.
- b) As directed inspection of completed works with strict utilization of RES Americas and project inspection forms to assure compliance with this Construction Quality Plan and the Project Construction Inspection and Test Plan (I&T Plan).
- c) Identifying and documenting nonconforming inspections and noticing these to the Construction Manager, Discipline Managers, and the Project Manager.
- d) Maintaining a log of nonconforming items and the corrective actions implemented, including verification of completed corrective actions.
- e) Liaise with the Manager, HSQE (Quality) as necessary to assure that quality issues affecting the Project are addressed.
- f) Audit of project documentation and job books assembly for accuracy and completeness.
- g) Conduct random audits to verify compliance to quality program and contract requirements.

#### 8.2.9 **Project Manager** – John Bruce

The Project Manager reports to the Construction Director.

Shall liaise with the Manager, HSQE, and the project Safety Supervisor as necessary to assure appropriate application of, and compliance with the RES Americas Management Systems.

Responsibilities include:

- a) Management and supervision of all on-site activity by RES Americas and its Subcontractors to assure compliance with the Contract requirements and RES Americas Management Systems.
- b) Implementation and management to this Construction Quality Plan.
- c) Implementing all measures necessary to assure site safety in accordance with RES Americas Safety Program including:
  - (1) Assuring all that all project personnel receive a safety induction (induction to be performed by the Project Safety Supervisor).

- (2) Production of the project Risk Assessment.
- (3) Application of RES Americas Procedures and Work Instructions to the project works, including as necessary, the development and approval of project specific procedures, work instructions, or method statements.
- (4) Review of subcontractor Risk Assessments and Method Statements/procedures (in conjunction Construction Director and the project Safety Supervisor).
- (5) Assuring that Site Rules are established and observed.
- (6) Participation in weekly safety meetings.
- (7) Assuring that First Aid facilities are available.
- d) The quality of all site works assuring all necessary Inspections and Tests are conducted and recorded, and that Quality Records are maintained
- e) Assuring that a system of permits to work is used to control work, to include use of task Job Safety Analyses (JSA).
- f) Liaison with the Designer to ensure that works at site are implemented to the Designer's satisfaction. The Project Manager shall advise the Designer of any nonconformance in the works or departures from the design required by the site conditions and (in conjunction with the Construction Director) agree any necessary design modifications.
- g) Monitoring of progress at site including preparation and maintenance of the construction program, the preparation of weekly progress reports to the Vice President, Construction Projects, and producing monthly valuations.
- h) Assisting (as requested) in the selection of Subcontractors and Suppliers including issuing review of Bids and attending meetings with Bidders.
- i) Assuring receipt on site of copies of necessary evidence of Subcontractors' Insurance's, Tax Exemption Certificates and State Contractor Licenses and reviewing them for adequacy and period of validity.
- j) Site management and administration of the various subcontracts including chairing regular site progress meetings, issuing instructions to Subcontractors and Suppliers and evaluating Subcontractors' claims for payment.
- k) Managing assembly and review of Job Book and other deliverable documentation, including review and concurrence of as-built drawings.

#### 8.2.10 Construction Manager or Assistant Project Manager – TBD

The Construction Manager reports to the Project Manager, and is responsible for:

- a) Management and supervision of all on-site activity by RES Americas and its Subcontractors to assure compliance with the Contract requirements and RES Americas Management Systems.
- b) Implementation and management to this Construction Quality Plan.
- c) Implementing all measures necessary to assure site safety in accordance with RES Americas Safety Program including:
  - (1) Assuring all that all project personnel receive a safety induction (induction to be performed by the Project Safety Supervisor).

- (2) Application of RES Americas Procedures and Work Instructions to the project works, including as necessary, the development and approval of project specific procedures, work instructions, or method statements.
- (3) Assuring that Site Rules are observed.
- (4) Participation in weekly safety meetings.
- d) The quality of all site works assuring all necessary Inspections and Tests are conducted and recorded, and that Quality Records are maintained
- e) Assuring that a system of permits to work is used to control work, to include use of task Job Safety Analyses (JSA).
- f) Monitoring of progress at site including maintenance of the construction program, the preparation of weekly progress reports to the Project Manager, and assisting the Project manager with producing monthly valuations.
- g) Assisting (as requested) in the selection of Subcontractors and Suppliers including issuing review of Bids and attending meetings with Bidders.
- h) Assuring receipt on site of copies of necessary evidence of Subcontractors' Insurance's, Tax Exemption Certificates and State Contractor Licenses and reviewing them for adequacy and period of validity.
- Supporting the Project Manager with Site management and administration of the various subcontracts including participating in regular site progress meetings, issuing instructions (as directed by the Project Manager) to Subcontractors and Suppliers, and evaluating Subcontractors' claims for payment.
- j) Managing assembly and review of Job Book and other deliverable documentation, including review and concurrence of as-built drawings.

### 8.2.11 **Project Electrical Manager** – *TBD*

The Project Electrical Manager reports to the Project Manager and is responsible for:

- a) Reviewing Subcontractor work method statements and JSA's (Job Safety Analysis) in consultation with the project Safety Supervisor, and daily agreeing subcontractor safe work practices before allowing subcontractor work to proceed.
- b) Maintaining a clear understanding of the technical work scope of each electrical subcontractor on the project, and the terms and conditions of the electrical subcontracts.
- c) Managing RES Americas Electrical Supervisors and Inspectors in the performance of their duties, including coordinating oversight and inspection functions, and the preparation of inspection records by RES Supervisors and Inspectors.
- d) Performing review of all RES Americas electrical works inspection records for accuracy and completeness.
- e) As directed, assuring appropriate notifications (specific to electrical issues e.g. main contract, PPA, Connection Agreement and Operational Agreement) are prepared and issued.
- f) Initial screening, assessment, and processing of RFI's, technical queries, and/or scope change proposals from electrical Subcontractors.
- g) Liaising with RES Americas or other design/engineering firms on electrical construction matters, in coordination with the Construction Manager or Project Manager.

- h) Assuring the timely production of electrical contract deliverables such as electrical As Built Drawings, equipment or substation operation and maintenance manuals, and facility training.
- i) Liaising with utilities and regulatory authorities to coordinate the installation, commissioning, witness testing, and handing-over of connection facilities in accordance with the contract.

### 8.2.12 Project Civil Manager – TBD

The Project Civil Manager reports to the Project Manager and is responsible for:

- a) Reviewing civil Subcontractor work method statements and JSA's (Job Safety Analysis) in consultation with the project Safety Supervisor, and daily agreeing subcontractor safe work practices before allowing subcontractor work to proceed.
- b) Maintaining a clear understanding of the technical work scope of each civil subcontractor on the project, and the terms and conditions of the civil works subcontracts.
- c) Managing RES Americas Civil Supervisors and Inspectors in the performance of their duties, including coordinating oversight and inspection functions, and the preparation of inspection records by RES Supervisors and Inspectors.
- d) Performing review of all RES Americas civil works inspection records for accuracy and completeness.
- e) As directed, assuring appropriate notifications (specific to civil issues) are prepared and issued.
- f) Initial screening, assessment, and processing of RFI's, technical queries, and/or scope change proposals from civil Subcontractors.
- g) Liaising with RES Americas or other design/engineering firms on civil construction matters, in coordination with the Construction Manager or Project Manager.
- h) Assuring the timely production of civil contract deliverables such as civil As Built Drawings.

#### 8.2.13 **Project Turbine Manager** – Bob Atterberry

The Project Turbine Manager reports to the Project Manager and is responsible for:

- a) Reviewing turbine works Subcontractor work method statements and JSA's (Job Safety Analysis) in consultation with the project Safety Supervisor, and daily agreeing subcontractor safe work practices before allowing subcontractor work to proceed.
- b) Maintaining a clear understanding of the technical work scope of the turbine works subcontractor(s) on the project, and the terms and conditions of all subcontracts related to turbine supply, delivery, erection, mechanical completion, and commissioning, and including any support services such as offloading or bolting and tensioning.
- c) Managing RES Americas turbine works Supervisors and Inspectors in the performance of their duties, including coordinating oversight and inspection functions, and the preparation of inspection records by RES Supervisors and Inspectors.
- d) Performing review of all RES Americas inspection records for accuracy and completeness.

- e) As directed, assuring appropriate notifications specific to turbine issues are prepared and issued.
- f) Initial screening, assessment, and processing of RFI's, technical queries, and/or scope change proposals from turbine works subcontractors.
- g) Liaising with the RES Americas Mechanical Engineering Manager or turbine manufactures representatives on technical matters related to the installation or operation of the turbine, in coordination with the Construction Manager or Project Manager.
- h) Assuring the timely production of contract deliverables such as Mechanical Completion Certificates, and to the extent possible Turbine Commissioning Certificates.

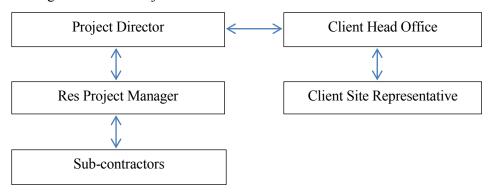
#### 8.2.14 General Superintendent – *TBD*

The General Superintendent will report directly to the Project Manager and be responsible for:

- a) Management and supervision of all day-to-day project work activities.
- b) The preparation of construction work method statements, and associated JSA's for each task performed by site workers.
- c) Assuring that all site workers are suitably trained, and possess the requisite skills for their assigned tasks.
- d) Assuring that all site workers have the appropriate tools for their assigned task.
- e) Assuring that all required equipment is available, and appropriately serviced and maintained for the intended site work.
- f) Assuring that all necessary parts needed for the assigned tasks are available and in sufficient quantity.
- g) Monitoring of progress at site including preparation and maintenance of the construction program, and preparation of weekly progress reports to the Transmission Construction Manager.
- h) Monitoring and adherence to this Construction Quality Plan and approved specification and construction drawings.
- i) Assuring the preparation and assembly of required Quality documents and records.
- j) Maintaining redline drawings, and assuring the timely production of As Built Drawings.

#### 8.3 Lines of Communication

8.3.1 The Chart below depicts the lines of communication between RES and the Client for the management of the Project.



#### 8.4 Construction Project Directory

8.4.1 A Project Directory or "Site Contact List" will be created from Template <u>CO02-011660</u>, and will be maintained and circulated by the Project Manager (or Administrative designee).

## 9.0 CONTROL OF QUALITY

### 9.1 Quality Procedures

- 9.1.1 RES Americas Quality Procedures detail how the overall planning and administration of the quality system activities are managed.
- 9.1.2 Lists of Quality Procedures that are applicable to the Project are filed in Appendix A8.

#### 9.2 Work Instructions

- 9.2.1 Work instructions detail how a specific task is carried out. Work Instructions are also known as Method Statements.
- 9.2.2 RES Americas shall perform work in accordance with existing RES Americas Work Instructions (see Appendix A8).
- 9.2.3 RES Americas may also produce as necessary project specific Work Instructions using the Template for Writing Work Instructions (01478-00098). These shall be reviewed, approved, and issued in accordance with RES Americas procedures.
- 9.2.4 Subcontractors shall be required to provide Work Instructions sufficient to control their work. Copies of all Sub-Contractor Work Instructions shall be supplied to the RES Americas Project Manager for review and approval before any work is undertaken.
- 9.2.5 The Project Manager (or designee) assisted by the Project Safety Supervisor shall review and authorize, in writing, all work instructions/method statements supplied by Subcontractors.
- 9.2.6 A copy of all Subcontractor Letters of Authorization shall be retained by RES Americas.
- 9.2.7 A file containing copies of all Work Instructions supplied to RES Americas by Subcontractors, or task or site specific procedures produced by RES Americas shall be maintained on site.

#### 9.3 Contract Reviews

- 9.3.1 In order to assure that contract and customer expectations are being met Contract Review Meetings (Initial and Final) shall be held as detailed in RES Americas procedure USQM 006, Contract Review (01478-000046).
- 9.3.2 Contract kickoff meetings shall also be held with each subcontractor utilizing the same process.

- 9.4 Control of Measuring and Testing Equipment
  - 9.4.1 Measuring and test equipment shall be controlled in order to ensure that equipment conforms to specified requirements.
  - 9.4.2 All such equipment shall be uniquely numbered.
  - 9.4.3 Calibration of Measuring and Testing equipment shall be in controlled in accordance with USQM-015, Calibration of Measuring and Test Equipment (01478-000045).
  - 9.4.4 Subcontractors shall be held to similar controls as those or RES Americas.
- 9.5 Nonconformance Identification and Control
  - 9.5.1 Materials or product (components, units, parts etc.) identified as nonconforming at any stage shall be controlled in accordance with RES Americas procedure USQM-011, Corrective and Preventive Action and Control of Non-conformance Procedure (01478-000043).
- 9.6 Corrective and Preventative Measures
  - 9.6.1 USQM-001, Corrective and Preventive Action and Control of Non-conformance Procedure (01478-000043) assure tracking and control of corrective actions for nonconforming product or work.
  - 9.6.2 Corrective Actions for Safety and Environmental Program items are tracked through the respective Safety and Environmental Logs maintained by the Safety Supervisor and Environmental Supervisor, respectively.

#### 9.7 Document Control

9.7.1 Quality documentation and records providing objective evidence of activities performed, and results achieved, are controlled by application of USQM-007, Control of Documents (01478-000041).

#### 9.8 Audits

- 9.8.1 The Manager, HSQE will establish an audit schedule for the project in consultation with the VP, HSQE and the VP, Construction Projects.
- 9.8.2 Planned audits of project activities shall be undertaken by the Manager, HSQE and/or designated auditors who shall be independent of the functions being audited.
- 9.8.3 Audits shall be conducted in accordance with USQM-005, Auditing Procedure (01478-000017).

### 9.9 Project Records

- 9.9.1 Following completion of the Project, required archive records shall be filed in Job Books in accordance with Contract requirements.
- 9.9.2 The filing structure for hard copy records should mirror the record structure in the ECM.

- 9.10 Project Completion/Turnover
  - 9.10.1 The turnover of the completed Project to the Client shall be carried out in accordance with the Procedure for Handing Over Completed Projects.
  - 9.10.2 This procedure shall be tailored as required by the Projects Contract.
- 9.11 Tests
  - 9.11.1 Any tests required in accordance with the project Contract shall specified in the Construction Inspection and Test Plan (I&TP)
  - 9.11.2 The I&TP documentation is assembled as the Project develops and contains the frequency of inspections and tests as well as all inspection and test records.
- 9.12 Certificates
  - 9.12.1 The Client, or their Representative, will issue project certificates in accordance with the projects Contract.
  - 9.12.2 These shall be stored in Appendix A10

#### 10.0 APPENDIXES

- 10.1 Appendix A1 Schedule of Project Drawings
  - 10.1.1 This Appendix is designated for the management of Project Drawings. It includes a mechanism for storage and maintenance of Drawing Issue Record Sheets for Series 0 through 4 plus a place for External Drawings.
- 10.2 Appendix A2 List of Contract Documents
  - 10.2.1 This Appendix is to list (and attach if practical) the main Contract for the Project. Typically, reference is made to the contract also noting its location.
- 10.3 Appendix A3 Construction Project Directory
  - 10.3.1 The Project Directory, often referred to as the "Site Contact List," is part of the RES Admin Guide. This Appendix serves as a place for the master copy to be filed. The actual directory itself shall be created from Template <a href="CO02-011660">CO02-011660</a> (Located in the Attachments section of the Admin Guide).
- 10.4 Appendix A4 Project Reports
  - 10.4.1 Project progress reports made to the Client.
- 10.5 Appendix A5 Plan of the Day Meetings (PODs)
  - 10.5.1 POD meeting records shall be filed in this location if used. Weekly files shall be kept at the RES main office.
- 10.6 Appendix A6 Requests for Information (RFIs) and logs

10.6.1 **Request for Information (RFI)**: used between RES and the Client, Subcontractor, or other entity to request information and approval on any changes that result in changes physically or financially for the receiving party on the project (Example: asking Client if a different color is ok for the O&M building paint)

#### 10.6.2 RFI Folder Structure:

- a) Client RFIs
  - (1) Incoming Client RFI Register (document)
  - (2) Outgoing Client RFI Register (document)
  - (3) Incoming RFIs
  - (4) Outgoing RFIs
- b) Subcontractor RFIs
  - (1) Incoming Subcontractor RFI Register (document)
  - (2) Outgoing Subcontractor RFI Register (document)
  - (3) Incoming RFIs
  - (4) Outgoing RFIs
- c) Misc. RFIs
  - (1) Incoming Misc. RFI Register (document)
  - (2) Outgoing Misc. RFI Register (document)
  - (3) Incoming RFIs
  - (4) Outgoing RFIs
- 10.7 Appendix A7 Handover Certificates
  - 10.7.1 This appendix is used for storage of any Handover Certificates for the Project or any letters recording that the Client has taken over the completed Project.
- 10.8 Appendix A8 Quality Procedures Relevant to the Project
  - 10.8.1 Although it is not required to physically store each procedure in this appendix, a list is provided as reference. This list should be reviewed periodically to ensure it is up to date with the ECM.
- 10.9 Appendix A9 Document Transmittals
  - 10.9.1 *Transmittals are* used to transmit documentation (either electronic or hard copies) between RES and the Client, Subcontractor, or other entity (Example: IFC Foundation drawings to Sub)
  - 10.9.2 Transmittals Folder Structure:
    - a) Client Transmittals
      - (1) Client Transmittal Register (document)
      - (2) Incoming
      - (3) Outgoing

- b) Subcontractor Transmittals
  - (1) Subcontractor Transmittal Register (document)
  - (2) Incoming
  - (3) Outgoing
- c) Internal Transmittals
  - (1) Internal Transmittal Register (document)
  - (2) Incoming
  - (3) Outgoing
- d) Misc. Transmittals
  - (1) Misc. Transmittal Register (document)
  - (2) Incoming
  - (3) Outgoing
- 10.10 Appendix A10 Contract Certificates supplied by the Client
  - 10.10.1 All certificates or letters of confirmation provided by the Client (those other than taking over certificates, see Appendix A7) shall be filed here.
- 10.11 Appendix A11- Site Subcontractor's Certificates of Insurance (COI)
  - 10.11.1 All Subcontractors should be aware that their COI needs to be sent directly to Risk Management in our Broomfield Office.
  - 10.11.2 If a COI is received on site, it needs to be sent directly to Risk Management for processing.
  - 10.11.3 The sites should not be saving these to the ECM or updating the database.
    - a) Note: This list is in effort to ensure all Subcontractors on site have submitted and had approved their COI. This appendix is not meant to hold copies of COIs whatsoever. COIs are held exclusively by the Risk Management Department. COIs shall only be printed and entered into Project Documentation for Job Book creation at the end of a Project and only after confirmation has been received from Risk Management that all COIs are current and up to date.

- 10.12 Appendix A12 Quality Nonconforming Reports
  - 10.12.1 This Appendix will serve as a location for storage and tracking of all Quality Reports.
  - 10.12.2 A register is also required for this appendix which is based on Template: <u>01478-000644</u>.
- 10.13 Appendix B1 Weekly Progress Reports to RES
  - 10.13.1 Based on template, CO02-014344
- 10.14 Appendix B2 Contract Review Minutes
  - 10.14.1 These records shall be filed in this location.
- 10.15 Appendix B3 Technical Enquiry Forms (TEFs)
  - 10.15.1 TEFs are used between Construction sites and Engineering for approval on any and all changes to the original design or equipment on a project prior to implementation no changes can happen unless a TEF has been used and is approved by both the Construction Site and Engineering (Example: needing to move a culvert because of rock change of design)
    - a) TEF Folder Structure:
      - (1) TEF Register (document)
      - (2) TEF 001 Description (example folders for each TEF under Register)

# Appendix A1 - Schedule of Project Drawings

### PROJECT INTERNAL DRAWING REGISTER



	NOTE: THIS IS A LIYING DOCUMENT AND SUJBECT TO CHANGE VITHOUT NOTICE AT ANY TIME.									
Series 1	Revision	Title	Date	Issued /Notes	Purpose	By	Revision Date	Approval Date		
Series 2	Revision	Title	Date	Issued /Notes	Purpose	By	Revision Date	Approval Date		
Series 3	Revision	Title	Date	Issued /Notes	Purpose	Ву	Revision Date	Approval Date		
Series 4	Revision	Title	Date	Issued /Notes	Purpose	В	Revision Date	Approval Date		

## **Appendix A2 – List of Contract Documents**

This appendix is used for storage of the executed EPC or BOP (electronically only).

## **Appendix A3 – Project Directory**

res	AMERICAS		P Revi	t Site Contact roject# ised: <i>date</i>	List
			gency Response		
	r all emergenc	ies (Ambulance, Fir	e, Police) dial <mark>911</mark>		RES Construction Site Office
Police Station Fire Station		address	non-emergency	phone number	O & M Building Address:
Hospital					O & M Bullully Address:
Environmental Spills					Laydown Yard Address:
State Troopers/Police					
Poison Control					Substation Address:
NAME	COMPANY	POSITION	OFFICE #	MOBILE #	E-MAIL
			RES Contacts		
	RES	RES Site Office	Phone Number	Fas Number	
	-				
		C	lient Contacts		
			+		
		Subco	ntractor Contacts		
		Oth	er Site Contacts		
			+		



## PROJECT NAME

PROJECT REPORT

:	Report no:
:	Report month:

### **Executive Summary**

### This Month's Highlights

- Highlight 1
- Highlight 2
- Highlight 3

#### This Month's Key Issues

- Issue 1
- Issue 2
- Issue 3

### Safety

Accident and incident statistics for this period and to date are:

Туре	Lost Time	Injury (Medical Aid)	Minor Injury (First Aid)	Damage	Near Miss
Current Period					
Project To Date					

TRIR = #

Total recordable Incident Rate = (Lost Time + Medical Aid) \* 200,000 / Total Man Hours

RES Safety Index = #

((Lost Time \* 64) + (Injury \* 16) + (Minor Injury \* 4) + (Damage \* 1) + (Near Miss \* -0.25)) / Man Hours \* 1000

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Safety		5 ald a	Safata Baa	h	e found in Ex	Libia 4						
Week's Issues:	.ripuon o	weeks	Salety Kep	ortcan b	e lound in Ex	mort						
•												
•												
• Week's Highligh	te.											
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### **Schedule Status**

Project duration	# weeks
No. of weeks into contract	# weeks
Contract time passed (%)	%

	Weighted	Percent Complete				
Key Activities (Construction)	%	Contract Schedule	Construction Schedule	Actual		
Design Engineering	2.5%	60.0%		50.0%		
Roads & Crane Pads	15.0%	55.0%		50.0%		
Foundations	15.0%	75.0%		50.0%		
Collection System	15.0%	40.0%		50.0%		
Overhead Line	7.5%	29.0%		50.0%		
Substation	15.0%	85.0%		50.0%		
Switchyard	10.0%	96.0%		50.0%		
O&M Building	2.5%	65.0%		50.0%		
WTG Delivery, Erection, & MCC	15.0%	25.0%		20.0%		
Completion	2.5%	15.0%		50.0%		
	Over	Overall Actual Percent Complete				

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## **Progress Report**

## **Construction Status**

Certificates	Total	Submitted	Signed
Foundation Completion Certificate			
Mechanical Completion Certificate			
Electrical Works Completion Certificate			
Project Mechanical Completion Certificate			
Project Substantial Completion Certificate			
Project Final Completion			

### Comments:

- .
- •
- •

#### Roads & Crane Pads

	F	Roads & Crane	Pads					
Item	Item Weighted % Budget Total Total Completed Remaining							
Roads	75%		Roads		50.0%			
Rough Grade	30%	10	5	5	50.0%			
Sub Grade	30%	10	5	5	50.0%			
1st Lift	10%	10	5	5	50.0%			
2nd Lift	10%	10	5	5	50.0%			
Shoulders	10%	10	5	5	50.0%			
Ditches	10%	10	5	5	50.0%			
Crane Pads	25%	Crane Pads			50%			
Cut & Subgrade Compacted	60%	10	5	5	50.0%			
Material Placed & Compacted	40%	10	5	5	50.0%			
			Roads & Crane	Pads Progress	50.0%			

### Roads

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#### Crane Pads

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#### Foundations

Foundations								
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete			
Excavations	10%	10	5	5	50.0%			
Mud Mats	5%	10	5	5	50.0%			
Bases	40%	10	5	5	50.0%			
Pedestals	20%	10	5	5	50.0%			
Transformer Pad	5%	10	5	5	50.0%			
Backfilled	15%	10	5	5	50.0%			
Ground Ring	5%	10	5	5	50.0%			
			Founda	tion Progress	50.0%			

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#### **Collection System**

		Collection Sy:	stem		
Item	Weighted %	Quantity	Total Received	Total Remaining	Percent Complete
Deliveries	30.0%		Deliveries		50.0%
Grounding Transformers	5.0%	10	5	5	50.0%
Pad Mount Transformer	20.0%	10	5	5	50.0%
DLO Cable	15.0%	10	5	5	50.0%
MV Cable	40.0%	10	5	5	50.0%
Fiber	5.0%	10	5	5	50.0%
Ground Cable	5.0%	10	5	5	50.0%
Junction Boxes	5.0%	10	5	5	50.0%
Rubber Goods	5.0%	10	5	5	50.0%
Installations	50.0%		Installations		50.0%
Trench	50%	10	5	5	50.0%
MV & Fiber/Ground Cable	25%	10	5	5	50.0%
DLO Cable	10%	10	5	5	50.0%
Grounding Transformers	2%	10	5	5	50.0%
Pad Mount Transformer	9%	10	5	5	50.0%
Junction Boxes	496	10	5	5	50.0%
Terminations	20.0%		Terminations		50.0%
Grounding Transformers	25.0%	10	5	5	50.0%
Pad Mount Transformer	25.0%	10	5	5	50.0%
Junction Boxes	25.0%	10	5	5	50.0%
Turbine	25.0%	10	5	5	50.0%
			Collection Syst	em Progress:	50.0%

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### Overhead Line

		Overhead Lir	nes		
Item	Weighted %	Budget	Total Received	Total Remaining	Percent Complete
Poles/Conductor Delivered	20.0%	10	5	5	50.0%
Poles Set	40.0%	10	5	5	50.0%
Cable Pulled	30.0%	10	5	5	50.0%
Clipped & Sagged/Terminated	10.0%	10	5	5	50.0%
			Overhead	Line Progress	50.0%

<sup>\*</sup>picture\*

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### Substation

		Substation	n		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Deliveries	20%		Deliveries		50.0%
Structural Steel	15.0%	10	5	5	50.0%
Main Transformer	30.0%	10	5	5	50.0%
Control House	15.0%	10	5	5	50.0%
Relay Panel	15.0%	10	5	5	50.0%
Arrestors	5.0%	10	5	5	50.0%
Switches	10.0%	10	5	5	50.0%
Breakers	10.0%	10	5	5	50.0%
Construction	80%		Construction		50%
Grading & Drainage	15.0%	10	5	5	50.0%
Foundations	15.0%	10	5	5	50.0%
Underground/Grounding	10.0%	10	5	5	50.0%
Structural Steel Work	10.0%	10	5	5	50.0%
Equipment Installation	10.0%	10	5	5	50.0%
Control Building/Wiring	10.0%	10	5	5	50.0%
Transformer Fit Out	10.0%	10	5	5	50.0%
Commission	10.0%	10	5	5	50.0%
Fence, Gravel, & Clean Up	10.0%	10	5	5	50.0%
	•		Substa	tion Progress	50.0%

<sup>\*</sup>picture\*

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### Switchyard

		Substatio	n		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Deliveries	20%			50.0%	
Structural Steel	20.0%	10	5	5	50.0%
Control House	20.0%	10	5	5	50.0%
Relay Panel	20.0%	10	5	5	50.0%
Arrestors	10.0%	10	5	5	50.0%
Switches	15.0%	10	5	5	50.0%
Breakers	15.0%	10	5	5	50.0%
Construction	80%		Construction		50%
Grading & Drainage	20.0%	10	5	5	50.0%
Foundations	20.0%	10	5	5	50.0%
Underground/Grounding	10.0%	10	5	5	50.0%
Structural Steel Work	10.0%	10	5	5	50.0%
Equipment Installation	10.0%	10	5	5	50.0%
Control Building/Wiring	10.0%	10	5	5	50.0%
Commission	10.0%	10	5	5	50.0%
Fence, Gravel, & Clean Up	10.0%	10	5	5	50.0%
			Substa	tion Progress	50.0%

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### O&M Building

		O&M Buildi	ng		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Design	5.0%	10	5	5	50.0%
Delivery	10.0%	10	5	5	50.0%
Building OnSite & Erected	10.0%	10	5	5	50.0%
Grading & Drainage	5.0%	10	5	5	50.0%
Foundations - Floor Slab	5.0%	10	5	5	50.0%
Steel Structure	10.0%	10	5	5	50.0%
Cladding	10.0%	10	5	5	50.0%
Internal Walls & Ceiling	10.0%	10	5	5	50.0%
Fit Out Electrical & Plumbing	15.0%	10	5	5	50.0%
Cleaning/Decorating	10.0%	10	5	5	50.0%
External Work	10.0%	10	5	5	50.0%
			O&M Buil	ding Progress	50.0%

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## Turbine Deliveries, Erection, and MCCs

		Turi	oines			
Item	Weigl Without Commissionin g	with Commissioning	Budget	Total Received	Total Remaining	Percent Complete
Deliveries	20.0%	20.0%		Deliveries		20.0%
Base	10	10.0%		2	8	20.0%
Mid	10	.0%	10	2	8	20.0%
Тор	10	.0%	10	2	8	20.0%
Hub	10	.0%	10	2	8	20.0%
Nacelle	35	.0%	10	2	8	20.0%
Blades	25	25.0%		2	8	20.0%
Erection	45.0%	40.0%		Erection	20.0%	
Base	10	10.0%		2	8	20.0%
Mid	10	.0%	10	2	8	20.0%
Тор	10	.0%	10	2	8	20.0%
Nacelle	20	.0%	10	2	8	20.0%
Rotor	20	.0%	10	2	8	20.0%
Electrical Build-out	30	.0%	10	2	8	20.0%
Mechanical Completions	35.0%	30.0%	м	echanical Compl	etions	20.0%
Walk-down	50	.0%				
Submitted	25	.0%	10	2	8	20.0%
Signed	25	.0%	10	2	8	20.0%
Commissioning	0.0%	10.0%		Commissionin	g	
Commissioned	60	.0%			0	
Submitted	20	.0%			0	
Signed	20	.0%			0	
				Turb	ines Progress	20.0%

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### **⊕**ompletion

		Completic	on		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Site Restoration	50.0%			50.0%	
Reseeding	50%	10	5	5	50.0%
Roads	50%	10	5	5	50.0%
Job Books	25.0%	10	5	5	50.0%
As-Builts	25.0%	10	5	5	50.0%
			Comple	tion Progress	50.0%

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l						Cond				
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						High	Temp.			:
l							Wind Gust			:
							p. Observed (in) Weather Delay	s to Date		
						Predp. Delay Days				
⊢			Mon D	anner C Mar Haum		Wind Delay Days		General N	letes	_
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Non -	RES Managed Contractors									
			_							
	Totals									
			* Hours	updated Weekly						
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Environme	rod									
Quality										
Cultural					c:-:I					
	MATERIAL				Civil					
Org	Activity Description	Pleaned	Unit	#VALUE!	DATE	SYALUEI	Yesterday's	Total to	Remains	. %
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	Aggregate - Class 5 Comments									
	ROADS									
Org	Activity Description	Required	Unit	#YALUEI	DATE	#VALUE!	Yesterday's Production	Total to Data	Remains	Comm
	Laydown Area									
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	Rock Entrance									
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	Road Suborade Place Base Aggregate									
	Upgrading exhiting gravel road All aggregate combined									
	Entrances									
	Comments									
	FOUNDATIONS						Ventorio	To Date		
Org	Activity Description	Required	Unit	#VALUE!	DATE	PVALUE	Yesterday's Production	To Date Total	Remains	Comp.
	Turbine Ste Stripping - WTG Foundation Excitation									
	Mud Met Reber Bottom Met									
	Embedment Ring/Anchor Bolts Conduit Installed									
	Rebar Top Mat Foundation Base Pedestal Rebar									
	Pedestal Poured									
	Backell Enundation									

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## Appendix A5 – Plan of the Day (POD) Meetings

Foundation Completion Carts.									
Foundation Completion Carts. Foundation Completion Carts.									-
Pour Stair Pads Grout WTG Base							_	_	-
Tension Anchor Bolts									
Comments									
O&M Building	1								
Activity Description	Required	Unit	<b>OVALUE</b>	DATE	#VALUE!	Yesterday's	To Date	Remains	
Earthworks						Production	Total		Comp
Foundation									
Deliver Building									-
Building Endosed Building Interior Framing	<del>                                     </del>								_
Building Sectrical									
Building HVAC Plumbing								_	-
Building Interior Trim &									
Septic System									
Water Well Storage Shed		-							-
Fence and Drum Storage									
Yard Rock									
*									
Comments									
Crane Pade & Hub F	Pade								
Prepare Turbine Site									
Prepare Crane Pad Subgrade Compact and Finish Crane Pad									-
SUBSTATION									_
						Vestorskook	To Date		
<b>Activity Description</b>	Required	Unit	<b>OVALUE!</b>	DATE	<b>OVALUE</b>	Production	To Date Total	Remeins	Con
Deliver Structural Steel									-
Deliver Transformer Deliver Control Building							<del></del>		+
Deliver Switches									
Delver Breakers									
Grading & Dreinage Work Pour Foundations							<del></del>	<del></del>	<del>-</del>
Install Below Grade Conduit									
Erect Steel Structures									
Install Outside Equipment Control Building/Minno	_	_						_	-
Transformer Fit Out									
Testing & Commissioning		_							₩
Fence, Gravel & Cleanup									_
Comments									
Collection Syst									
Activity Description	Required	Unit	<b>OVALUE</b>	DATE	<b>FVALUE</b>	Yesterday's Production	Total to	Remains	% Con
Activity Description  Deliver Grounding Transformers	Required	Unit	#YALUE!	DATE	evalue:	Yesterday's Production	Total to Data	Remains	Con
Activity Description Deliver Grounding Transformers Install Grounding Transformers	Required	Unit	PYALUE	DATE	€VALUE!	Yesterday's Production	Total to Data	Remains	Con
Activity Description Deliver Grounding Transformers Install Grounding Transformers Deliver Junction Boxes	Required	Unit	eyalud	DATE	<b>∌</b> YALUEI	Yesterday's Production	Total to Date	Remains	Con
Activity Description Deliver Grounding Transformers Install Grounding Transformers Deliver Junction Boxes Clear Right of Wey Excepted Cable Trench	Required	Unit	#YALUEI	DATE	FYALUE	Yesterday's Production	Total to Deta	Remeins	Con
Activity Descripcion Deliver Grounding Transformers Irratal Grounding Transformers Deliver Junction Boxes Gear Rosts of Way Browning Cable Transh Irratal My, Ground Cable, &	Required	Unit	øYALUE	DATE	øVALUEI	Yesterday's Production	Total to Data	Remelne	Com
Deliver Grounding Transformers Install Grounding Transformers Deliver Jusciano Boxes Claim Florit-of-Wer Porsulate Calife Transformers Tarstal MV, Ground Cable, & Bacdfill of Transh Place DUO	Required	Unit	#YALUE	DATE	PYALUE	Yesterday's Production	Total to Data	Remains	Con
Activity Description Deliver Grounding Transformers Install Grounding Transformers Deliver Junction Boxes Claim Rutherfollower Excellent Rutherfollower Excellent Rutherfollower Excellent Rutherfollower Excellent Trench Place DLO Transfel Fiber Transfel Fiber	Required	Unit	PYALUB	DATE	PYALUE	Yesterday's Production	Total to Date	Remains	Com
Activity Constitution Deliver Grounding Transformers Install Grounding Transformers Deliver Junation Bosts Class Robit of Wate Excessing Cells Transformers Excessing Cells Transformers Install My, Glound Cable, & Backfill of Transformers Place DLO Install Fiber Set Junition Bosts Termination Bosts Termination Bosts	Required	Unit	PYALUE	DATE	€YALUEI	Yestanday's Production	Total to Date	Remains	Com
Activity Description Deliver Grounding Transformers Install Extraording Transformers Onliver Juntition Briss Onliver Juntition Briss Deliver Juntition Briss Deliver Juntition Briss Deliver Grown Carlot Briss (1994) Description Carlot Briss (1994) Description Carlot Description Transfer My, Ground Gable, 8 Description Transfer My, Deliver Briss Terminus Juntion Boxes Terminus Carlot Terminus Carl	Required	Unit	#YALUE	DATE	₹YAUG	Yestarday's Production	Total to Data	Remains	Com
Activity Description Delver Grounding Treatment Install Grounding Treatment Delver Jurisdon Bows Delver Jurisdon Bows Loser Boste of Welve Roceston Gibbs Trench Parisd My, Ground Gable, B Backflir of Trench Paris McG. Loser Trench Rece McG. Loser Trench Terminate Daton Bows Terminate Jurisdon Bows Terminate Grounding Terminate Grounding Terminate Grounding Terminate Grounding	Required	Unit	PYALUB	OATE	*YALUB	Yestenday's Production	Total to Data	Remains	Com
Activity Description Dehet Granding Transformers Install Grounding Transformers Dehet Juniston Boxes Dehet Juniston Boxes Dehet Juniston Boxes Dehet Juniston Boxes Description Gelde Trench Place DLO Lesial Field Description Boxes Description Boxe	Required	Unit	♦YALUE	DATE	øγкша	Yesterday's Production	Total to Data	Remains	Con
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Deher Granding Transformers Deher Granding Transformers Install Grounding Transformers Install Grounding Transformers Oeher Juntion Boxes Oeher Juntion Boxes Deher Juntion Boxes Backfill of Trench Transla MV, Grand Gable, 6 Backfill of Trench Transla MV, Grand Gable, 6 Backfill of Trench Trensla MV, Grand Gable, 6 Extransla Boxes Terminate Double Gable Terminate Double Terminate Double Terminate Double Terminate Double Terminate Terminate Terminate Double Terminate Terminate Terminate Terminate Comments  Turbine Deliver  Activity Description Deher Power Unit Deher Back Deher Looper Md Deher Looper Md Deher Md	Required			Turbines		Yesterday's Production  Yesterday's  Yesterday's  Production			Con
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Deher Granding Transformers Deher Granding Transformers Install Grounding Transformers Install Grounding Transformers Oeher Juntion Boxes Oeher Juntion Boxes Deher Juntion Boxes Backfill of Trench Transla MV, Grand Gable, 6 Backfill of Trench Transla MV, Grand Gable, 6 Backfill of Trench Trensla MV, Grand Gable, 6 Extransla Boxes Terminate Double Gable Terminate Double Terminate Double Terminate Double Terminate Double Terminate Terminate Terminate Double Terminate Terminate Terminate Terminate Comments  Turbine Deliver  Activity Description Deher Power Unit Deher Back Deher Looper Md Deher Looper Md Deher Md	Required			Turbines		Yesterday's Production			Con
Activity Description Deher Grounding Transformers Install Grounding Transformers Deher Juriston Bows Description Gransformers Description Gransformers Description Gransformers Description Of Transformers Description Description Terminate Description Terminate Description Terminate Description Terminate Description Terminate Description Terminate Description Comments  Turbine Deliver Activity Description Deher Power Unit Deher Power Unit Deher Macdie Deher Power	Required			Turbines		Yesterday's Production  Yesterday's  Yesterday's  Production			Con
Activity Description Deher Granding Transformers Grand Grounding Transformers Online Sundan Granding Transformers Online Sundan Granding Deher Sundan Golden Black Here Black	Required			Turbines		Yesterday's Production			Con
Activity Description Deher Granding Transformers Grand Grounding Transformers Online Sundan Granding Transformers Online Sundan Granding Deher Sundan Golden Black Here Black	Required  Figure 1  Required			Turbines		Yesterday's Production			Con
Activity Description Dehet Granding Transformers Install Grounding Transformers Install Grounding Transformers Dehet Junition Bows Dehet Junition Bows Backfill of Trench Patel My, Ground Cable, 6 Backfill of Trench Patel My, Ground Cable, 6 Backfill of Trench Patel My, Grand Cable, 6 Backfill of Trench Patel My, Grand Cable, 6 Backfill of Trench Patel My, Granding Terminate Bounding Terminate Double Terminate Double Terminate Double Terminate Double Terminate Double Comments  Comments  Turbine Deliver Activity Description Dehet Patel Dehet My Deh	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Con
Activity Description Deher Grounding Transformers Entail Grounding Transformers Deher Juriston Bows Deher Juriston Bows Deher Juriston Bows Bows Deher Juriston Bows Description Globs Transh Transial My, Ground Casiss, is Dackfill of Transh Place DCG Losse Transh Description Terminate Dccin Terminate D	Required  Figure 1  Required	Unit		Turbines		Yesterday's Production  Yesterday's  Production  Yesterday's  Production	Total to Data		Con
Activity Description Dehet Granding Transformers Dehet Granding Transformers Install Grounding Transformers Dehet Juniston Boxes Dehet Juniston Boxes Dehet Juniston Boxes Dehet Juniston Boxes Description Gelde Transh Brace DLO Install Fiber Est Juniston Boxes Deministration Boxes Dehet Boxes Dehe	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Con
Activity Description Deher Granding Transformers Install Grounding Transformers Install Grounding Transformers Online Suntan Ground Transformers Online Suntan Golden Backfill of Trench Place DLO Install Fisher Set Janction Books Terminat Suntan Books Terminat Suntan Books Terminat DLO in Turbine Terminate DLO in Turbine Comments  Turbine Deliver Activity Constitution Deliver Books Comments  Turbine Deliver Activity Constitution Deliver Books Comments  Turbine Installat Activity Constitution Install Fourtr Unit Install Fourtr Unit Install Fourtr Unit Install Books	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Con
Activity Description Deher Grounding Transformers Deher Grounding Transformers Deher Juriston Bows Deher Juriston Bows Deher Juriston Bows Deher Juriston Bows Description Gelder Trench Place BLOD Traist I Place Deher Description Trench Traist I My, Ground Cable, 8 Description Traist I Place Description Traiston Traiston Traiston Trench Traiston Trench Trench Traiston Trench Tre	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Corr
Activity Description Dehet Granding Transformers Install Grounding Transformers Install Grounding Transformers Dehet Juniston Bows Dehet Juniston Bows Backfill of Trench Plated McJ. Backfill of Trench Plated McJ. Install Fiber Get Juniston Bows Terminat Do. In Turbine Terminate Do. In Turbine Terminate Do. In Turbine Terminate Do. Comments  Turbine Deliver Activity Description Dehet Power Unit Dehet Fiber Dehet Lower McJ. Dehet Risk Comments  Turbine Installat Activity Description Install Fower Unit Install Fower Unit Install Fower Unit Install Description Install Fower Unit Install Lower McJ. Inst	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Corr
Activity Description Deher Grounding Transformers Install Grounding Transformers Deher Jurisdon Bows Description Ground Caste, it Dackfill of Transh Place Doo Transh My Constant Caste, it Dackfill of Transh Decarding Transh Decarding Transh Terminate Door Terminate Door Terminate Grounding Comments  Turbine Deliver Activity Description Deher Passe Unit Deher Passe Unit Deher Passe Deher Bid Deher Mid Deher Bid Deher Mid De	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Com
Activity Description Dehet Graunding Transformers Install Grounding Transformers Install Grounding Transformers Dehet Juniston Boxes Dehet Juniston Boxes Bacifili of Trench Place Box Bernald Box Be	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Sign Com
Activity Description Deher Grounding Transformers Entall Grounding Transformers Deher Juriston Bows Description Of Transformers Terminate Double Description Terminate Double Description Terminate Double Transformers Description Of Ortufas Comments  Turbine Deliver Activity Description Deher Power Livit Deher Nacolle Deher Place	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Control
Activity Description Dehet Graunding Transformers Install Grounding Transformers Install Grounding Transformers Dehet Juniston Boxes Dehet Juniston Boxes Bacifili of Trench Place Box Bernald Box Be	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	Con
Activity Description Deher Grounding Transformers Entall Grounding Transformers Deher Juriston Bows Description Of Transformers Terminate Double Description Terminate Double Description Terminate Double Transformers Description Of Ortufas Comments  Turbine Deliver Activity Description Deher Power Livit Deher Nacolle Deher Place	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	We Control
Activity Description Deher Grounding Transformers Install Grounding Transformers Deher Jurisdon Bows Description Deher Description Deher Description Deher Description Deher Budge	Required  Frequired  Required	Unit	#YALUG	Turbines	#YALUE	Yesterday's Production	Total to Data	Remine	

Page 2 of 2



### PROJET NAME WIND PROJECT

## REQUEST FOR INFORMATION

RFI No:			Date:		Page:	l of l
From:			Phone:		Company:	
To:			Phone:		Company:	
Response Re	quested By:					
Subject:						
			Req	uest/Statement		
			Response	to Request/Statement		
				<b>I</b>		<b>-</b>
Response by		_	Date:		Company:	
Use continue	ition sheets if	necessar	y and as app	ropriate		

10.16 Page 1 of 1

## **Appendix A7 – Handover Certificates**

This appendix is used for storage of any Handover Certificates for the Project or any letters recording that the Client has taken over the completed Project. There are no Handover Certificates for the project, per the Contract.

Handover is basically when the project reaches Substantial Completion. There is a certificate for this which is located under Appendix A10- Contract Certificates supplied by the Client.

## **Appendix A8 - Project Quality Procedures**

DOCUMENT	Doc No:
Quality Manual	01478-000692
USQM – 001 US Quality Policy	<u>01478-000284</u>
USQM - 002 Company Scope, Structure, Organization and Profile	<u>01478-000285</u>
USQM – 003 Authorities and Responsibilities	<u>01478-000286</u>
USQM – 005 Auditing Procedure	<u>01478-000017</u>
USQM – 006 Contract Review	<u>01478-000046</u>
USQM – 007 Document Control	<u>01478-000041</u>
USQM - 008 Preparation and Issuance of a RES Americas Procedure	<u>01478-000759</u>
USPM – 011 Corrective/Preventive Action and Control of Non-Conformance	<u>01478-000043</u>
USQM – 012 Education & Training	<u>01478R00006</u>
USQM – 013 Management Systems Communications	<u>01478-000289</u>
USQM – 014 Client Satisfaction and Performance Measurement	<u>01478-000015</u>
USQM – 015 Calibration of Measuring & Testing Equipment	<u>01478-000045</u>
USQM – 018 Management Review	<u>01478-000292</u>

## Appendix A9 – Document Transmittals



11101 West 120th Avenue Suite 400 Broomfield, CO 80021 USA

Tel: +303 439 4200 Fax: +303 439 4299

### PROJECT NAME

#### DOCUMENT TRANSMITTAL FORM

	Transı	nittal No:			
Transmitte	d to	Organization	Electronic copy	Hard o	.01
Transmitte		Organization	Literature copy	maru	,
From		Organization	Transmit	ttal date	
		uments and/or drawings:			
Number	Issue	Title		Copies	S
	+				_
	+ + -				_
	+				
					_
					_
					_
		6 1 1			
Tu f	– for informa	Status legend	Rev – for comment ar	nd review	_
			107 101 0011111111111111111111111111111		
Inj		Comments			
Inj					

10.17

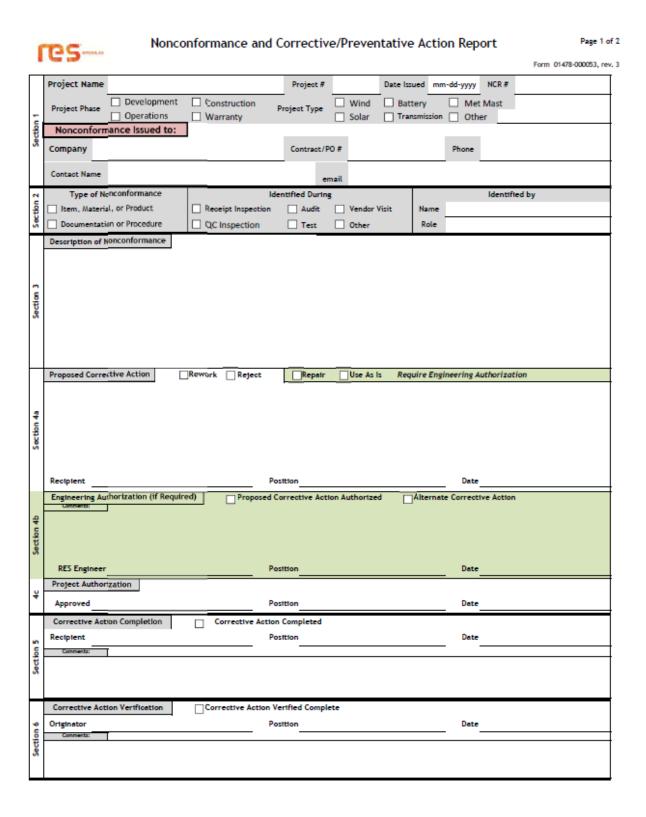
## **Appendix A10 – Certificates Supplied by Client**

All certificates or letters of confirmation provided by the Client (those other than taking over certificates, see Appendix A9) shall be filed here.

## **Appendix A11 – Certificates of Insurance**

All Subcontractors should be aware that their COI needs to be sent directly to Risk Management in our Broomfield Office. If a COI is received on site, it needs to be sent directly to Risk Management for processing. The sites should not be saving these to the ECM or updating the database. Contact Risk Management for a copy of Subcontractor's COI.

#### Appendix A12 - Quality Nonconforming Reports



## Appendix A12 – Quality Nonconforming Reports



#### Nonconformance and Corrective/Preventative Action Report

			Form 01478-00	00053, re
Г	Actions To Prevent Recurrence			
7				
Section 7				
3				
	Recipient	Position	Date	
	Preventative Action Agreed	Preventative Action Agreed		
Section 8	Originator	Position	Date	
Sect	Comments:			
$\vdash$	Preventative Action Completion	Preventative Action Completed		
			2.0	
Section 9	Recipient Comments:	Position	Date	
Ŕ				
$\vdash$	Preventative Action Verification	Preventative Action Verified Complete		
	Preventative Action Verification	Preventative Action verified Complete		
	Originator Comments:	Position	Date	
0				
Section 10				
Sec				
L	CLOSEDUT.			
	CLOSEOUT NCR/ CPAR Closed  RES SRP	Position	Date:	
	Comments:	Position	Date	
ion 11				



#### PROJECT NAME WIND PROJECT

#### WEEKLY PROJECT REPORT

Weekly report no:	
Report for week period ending	
COB Friday:	
Calendar week no:	

## **Executive Summary**

## This Week's Highlights

- Highlight 1
- Highlight 2
- Highlight 3

#### This Week's Key Issues

- Issue 1
- Issue 2
- Issue 3

#### **Financial Status**

Description	EPC or BOP
Original Contract Price	\$
Change Orders to date	\$
Contract Price	\$
Invoiced to date (including retainage)	\$
Balance to finish (including retainage)	\$
Forecasted Costs	\$
Targeted Margin	\$
Forecasted Margin	\$
Budgeted Margin	\$



#### Safety

Applent and incident statistics for this period and to date are:

Туре	Lost Time	Injury (Medical Aid)	Minor Injury (First Aid)	Damage	Near Miss
Current Period					
Project To Date					

TRIR = #

Total recordable Incident Rate = (Lost Time + Medical Aid) \* 200,000 / Total Man Hours

RES Safety Index = #

((Lost Time \* 64) + (Injury \* 16) + (Minor Injury \* 4) + (Damage \* 1) + (Near Miss \* -0.25)) / Man Hours \* 1000

#### <u>Safety</u>

\*Full description of week's Safety Report can be found in Exhibit 1

Week's Issues:

- •
- •
- •

Week's Highlights:

- •
- .

#### **Environmental**

\*Full description of week's Environmental Report can be found in Exhibit 2

Туре	Major Incident	Minor Incident	Near Miss
Current Period			
Project to Date			

Week's Issues:

- •
- •
- •

Week's Highlights:

- •
- •
- •

Project Name:												
	RES Issued NCRs		RES Issued CPARs			Client Issued NCRs			Client Issued CPARs			
Туре	Issued	Open	Closed	Issued	Open	Closed	Issued	Open	Closed	Issued	Open	Closed
Current Period												
Project to Date												
RES NCRs Issued De	etails:											
RES CPARs Issued D	etails:											
Week's Issues:												
Week's Highlight	ts:											



## Schedule Status

Project duration	# weeks
No. of weeks into contract	# weeks
Contract time passed (%)	%

	Waightad	Percent Complete				
Key Activities (Construction)	Weighted %	Contract Schedule	Construction Schedule	Actual		
Design Engineering	2.5%	60.0%		50.0%		
Roads & Crane Pads	15.0%	55.0%		50.0%		
Foundations	15.0%	75.0%		50.0%		
Collection System	15.0%	40.0%		50.0%		
Overhead Line	7.5%	29.0%		50.0%		
Substation	15.0%	85.0%		50.0%		
Switchyard	10.0%	96.0%		50.0%		
O&M Building	2.5%	65.0%		50.0%		
WTG Delivery, Erection, & MCC	15.0%	25.0%		20.0%		
Completion	2.5%	15.0%		50.0%		
	Over	Overall Actual Percent Complete				



## **Progress Report**

## **Permit Status**

Permit Type / Description	County/State	Responsible Group	Date Needed By	Status

- Permit Notes 1
- Permit Notes 2
- Permit Notes 3

#### **Procurement Status**

	SUBCONTRACTORS								
	PO # / SUBCONTRACT #	SUPPLIER	ACTUAL AWARD DATE	BUDGET AMOUNT	ACTUAL PO AMOUNT	COMMENTS			
Site Investigation									
Thermal Resistivity									
Electrical Resistivity									
Road Works									
Foundation Works									
O&M Building									
Collector System									
Substation									
Overhead Lines									
Turbine Erection									
Fiber Optic Terminator									
<u> </u>									



|--|--|--|--|--|--|--|--|

SUPPLIERS							
	PO # / SUBCONTRACT #	SUPPLIER	ACTUAL AWARD DATE	BUDGET AMOUNT	ACTUAL PO AMOUNT	COMMENTS	
MAIN Transformer							
Substation Equipment							
Substation Steel							
Pad Mounted Transformer							
Grounding Transformer							
MV Cable							
FAA Lighting							
Junction Boxes							
Electrical Rubber Goods							
Fiber Optic Cable							
DLO Cable							
Office Complex							

## **Construction Status**

Certificates	Total	Submitted	Signed
Foundation Completion Certificate			
Mechanical Completion Certificate			
Electrical Works Completion Certificate			
Project Mechanical Completion Certificate			
Project Substantial Completion Certificate			
Project Final Completion			

#### Comments:

- •
- •
- •



#### Roads & Crane Pads

	R	oads & Crane	Pads		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Roads	75%		Roads		50.0%
Rough Grade	30%	10	5	5	50.0%
Sub Grade	30%	10	5	5	50.0%
1st Lift	10%	10	5	5	50.0%
2nd Lift	10%	10	5	5	50.0%
Shoulders	10%	10	5	5	50.0%
Ditches	10%	10	5	5	50.0%
Crane Pads	25%		Crane Pads		50%
Cut & Subgrade Compacted	60%	10	5	5	50.0%
Material Placed & Compacted	40%	10	5	5	50.0%
			Roads & Crane	Pads Progress	50.0%

#### Roads

\*picture\*

- Highlight 1
- Highlight 2

#### **Crane Pads**

- Highlight 1
- Highlight 2



#### **Foundations**

Foundations										
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete					
Excavations	10%	10	5	5	50.0%					
Mud Mats	596	10	5	5	50.0%					
Bases	40%	10	5	5	50.0%					
Pedestals	20%	10	5	5	50.0%					
Transformer Pad	5%	10	5	5	50.0%					
Backfilled	15%	10	5	5	50.0%					
Ground Ring	5%	10	5	5	50.0%					
		•	Founda	tion Progress	50.0%					

- Highlight 1
- Highlight 2



#### Collection System

		Collection Sy	stem		
Item	Weighted %	Quantity	Total Received	Total Remaining	Percent Complete
Deliveries	30.0%		Deliveries		50.0%
Grounding Transformers	5.0%	10	5	5	50.0%
Pad Mount Transformer	20.0%	10	5	5	50.0%
DLO Cable	15.0%	10	5	5	50.0%
MV Cable	40.0%	10	5	5	50.0%
Fiber	5.0%	10	5	5	50.0%
Ground Cable	5.0%	10	5	5	50.0%
Junction Boxes	5.0%	10	5	5	50.0%
Rubber Goods	5.0%	10	5	5	50.0%
Installations	50.0%		Installations		50.0%
Trench	50%	10	5	5	50.0%
MV & Fiber/Ground Cable	25%	10	5	5	50.0%
DLO Cable	10%	10	5	5	50.0%
Grounding Transformers	2%	10	5	5	50.0%
Pad Mount Transformer	9%	10	5	5	50.0%
Junction Boxes	4%	10	5	5	50.0%
Terminations	20.0%		Terminations		50.0%
Grounding Transformers	25.0%	10	5	5	50.0%
Pad Mount Transformer	25.0%	10	5	5	50.0%
Junction Boxes	25.0%	10	5	5	50.0%
Turbine	25.0%	10	5	5	50.0%
			Collection Syst	em Progress:	50.0%

- Highlight 1
- Highlight 2



#### Overhead Line

Overhead Lines									
Item	Weighted %	Budget	Total Received	Total Remaining	Percent Complete				
Poles/Conductor Delivered	20.0%	10	5	5	50.0%				
Poles Set	40.0%	10	5	5	50.0%				
Cable Pulled	30.0%	10	5	5	50.0%				
Clipped & Sagged/Terminated	10.0%	10	5	5	50.0%				
Overhead Line Progress									

- Highlight 1
- Highlight 2



## Substation

		Substatio	n		
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Deliveries	20%		Deliveries		50.0%
Structural Steel	15.0%	10	5	5	50.0%
Main Transformer	30.0%	10	5	5	50.0%
Control House	15.0%	10	5	5	50.0%
Relay Panel	15.0%	10	5	5	50.0%
Arrestors	5.0%	10	5	5	50.0%
Switches	10.0%	10	5	5	50.0%
Breakers	10.0%	10	5	5	50.0%
Construction	80%		50%		
Grading & Drainage	15.0%	10	5	5	50.0%
Foundations	15.0%	10	5	5	50.0%
Underground/Grounding	10.0%	10	5	5	50.0%
Structural Steel Work	10.0%	10	5	5	50.0%
Equipment Installation	10.0%	10	5	5	50.0%
Control Building/Wiring	10.0%	10	5	5	50.0%
Transformer Fit Out	10.0%	10	5	5	50.0%
Commission	10.0%	10	5	5	50.0%
Fence, Gravel, & Clean Up	10.0%	10	5	5	50.0%
			Substa	ation Progress	50.0%

- Highlight 1
- Highlight 2



## Switchyard

Substation										
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete					
Deliveries	20%		Deliveries		50.0%					
Structural Steel	20.0%	10	5	5	50.0%					
Control House	20.0%	10	5	5	50.0%					
Relay Panel	20.0%	10	5	5	50.0%					
Arrestors	10.0%	10	5	5	50.0%					
Switches	15.0%	10	5	5	50.0%					
Breakers	15.0%	10	5	5	50.0%					
Construction	80%		Construction		50%					
Grading & Drainage	20.0%	10	5	5	50.0%					
Foundations	20.0%	10	5	5	50.0%					
Underground/Grounding	10.0%	10	5	5	50.0%					
Structural Steel Work	10.0%	10	5	5	50.0%					
Equipment Installation	10.0%	10	5	5	50.0%					
Control Building/Wiring	10.0%	10	5	5	50.0%					
Commission	10.0%	10	5	5	50.0%					
Fence, Gravel, & Clean Up	10.0%	10	5	5	50.0%					
Substation Progress										

- Highlight 1
- Highlight 2



#### **O&M Building**

O&M Building										
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete					
Design	5.0%	10	5	5	50.0%					
Delivery	10.0%	10	5	5	50.0%					
Building OnSite & Erected	10.0%	10	5	5	50.0%					
Grading & Drainage	5.0%	10	5	5	50.0%					
Foundations - Floor Slab	5.0%	10	5	5	50.0%					
Steel Structure	10.0%	10	5	5	50.0%					
Cladding	10.0%	10	5	5	50.0%					
Internal Walls & Ceiling	10.0%	10	5	5	50.0%					
Fit Out Electrical & Plumbing	15.0%	10	5	5	50.0%					
Cleaning/Decorating	10.0%	10	5	5	50.0%					
External Work	10.0%	10	5	5	50.0%					
			O&M Buil	Iding Progress	50.0%					

- Highlight 1Highlight 2



#### Turbine Deliveries, Erection, and MCCs

		Turk	oines			
Item	Weig Without Commissionin g	with Commissioning	Budget	Total Received	Total Remaining	Percent Complete
Deliveries	20.0%	20.0%		Deliveries		20.0%
Base	10	.0%	10	2	8	20.0%
Mid	10	.0%	10	2	8	20.0%
Тор	10	.0%	10	2	8	20.0%
Hub	10	.0%	10	2	8	20.0%
Nacelle	35	.0%	10	2	8	20.0%
Blades	25	.0%	10	2	8	20.0%
Erection	45.0%	40.0%		Erection		20.0%
Base	10	.0%	10	2	8	20.0%
Mid	10	.0%	10	2	8	20.0%
Тор	10	.0%	10	2	8	20.0%
Nacelle	20	.0%	10	2	8	20.0%
Rotor	20	.0%	10	2	8	20.0%
Electrical Build-out	30	.0%	10	2	8	20.0%
Mechanical Completions	35.0%	30.0%	М	echanical Comple	etions	20.0%
Walk-down	50	.0%				
Submitted	25	.0%	10	2	8	20.0%
Signed	25	.0%	10	2	8	20.0%
Commissioning	0.0%	10.0%		Commissionin	g	
Commissioned	60	.0%			0	
Submitted	20	.0%			0	
Signed	20	.0%			0	
				Turbi	nes Progress	20.0%

- Highlight 1
- Highlight 2



#### Completion

		Completio	n			
Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete	
Site Restoration	50.0%		Site Restoration		50.0%	
Reseeding	50%	10	5	5	50.0%	
Roads	50%	10	5	5	50.0%	
Job Books	25.0%	10	5	5	50.0%	
As-Builts	25.0%	10	5	5	50.0%	
Completion Progress						

\*picture\*

- Highlight 1
- Highlight 2

#### Met Mast

- \*picture\*
- Highlight 1
- Highlight 2

	. 5 . 1				Meeting Date			
Initial Cont								
Project Name					Project Number			
Location:	State/Provi	nce		Project Mailing Address				
US								
Canada								
Other								
Project Type	Contract Typ	e		Client	Contract Start Date			
Wind	EPC							
Solar	ВОР				Target Completion Date			
Transmission	Other							
Required Attende	es: Name			Position	,			
				Lead SRP (Senior Responsible				
				Project Manager (PM)				
				Assistant PM (APM)				
				Project Construction Manager (CM)				
				Project Civil Manager (CivM)				
				Project Electrical Manager (EM)				
				Project Turbine Manager (TM)				
				Project Superintendent (as applicable)				
				Project Safety Supervisor				
				Project Environmental Supervisor				
				Project QA/QC Coordinator				
				Project Administrator				
				SRP - HSQE Manager (or desi	gnee)			
				Lead Civil Engineer				
				Lead Electrical Engineer				
				Lead Mechanical/Solar Engir				
				SRP - Procurement (or design				
				SRP - Construction Accounting	, , , , , , , , , , , , , , , , , , ,			
	SRP- RES Americas Development ( developed project) and/or Pre-Co				nent (if RES Americas Pre-Construction Group			
				SRP - Contracts Group				
				SRP - Legal Department				
				SRP - Estimating Group				

#### Initial Contract Review Form

1.0	Contract Information										
		Cl	ient Contacts								
	Name			Phone	•						
1.1											
	RES Contacts										
1.2											
	Are there any Limited Notices to	Proceed o	r other pre-construction	contra	acts?	YES	NO				
	Contract or I	NTP Number			Va	lue					
1.3	Conductor		10								
				YES	NO	Date					
		Received									
1.4	Has the contract	Been sign									
		Been sign	ed by Client?								
1.5	Has RES received Full Notice to P	roceed (N	TP)?								
	Are there any special terms or co	nditions n	ot typical to RES?								
	If yes, provide specifics below:										
1.6											
						YES	NO				
1.7	Contract Checklist distributed by	Legal?									
	Questions or concerns regarding	items on t	he Contract Checklist								
1.8											
1.0											

#### Follow up Actions

Item #	Action Required	Responsible Party	Target Date

#### Initial Contract Review Form

2.0	Finance/Project Accounting					
	Has project accountant been appointed					
2.1	Name	Email	Phone			
2.2	Has project budget been provided to Project accountants?					
2.3	Have all Limited Notices to Proceed or other pre-construction contracts been reconciled to project books?					
	Comments					
2.4						

#### Follow up Actions

Item #	Action Required	Responsible Party	Target Date

3.0	Risk Management							
	What insurance coverage and limits are re-	quired for this	Lin	nits	Ins	ura	nce In I	Place?
	work?		- Lin		YE	S	Da	te
	Workers Compensation (WC)					$\dashv$		
	General Liability (GL)					$\dashv$		
3.1	Auto Liability (AL)					$\dashv$		
	Umbrella and Excess Liability (UMB/XS)					$\dashv$		
	Professional Liability (PL)  Builders Pisk (BR)					$\perp$		
	Builders Risk (BR)  Pollution Liability (CPL or PLL)					$\perp$		
	Pollution Liability (CPL or PLL)					$\perp$		
	Who is procuring Builder Risk (BR) Insurance	e?	RES	Client				
3.2	mo is processing bunder hish (bit) insurance	~ .				$\perp$		
	If not RES, has RES be provided a copy of the BR policy?							
	Does the Client or a 3 <sup>rd</sup> party require a Certificate of Insurance (COI)?				Date Sent		Sent	
	List designated recipients below				L,	$\perp$		
3.3	Contact or Company Name	Email or Address					Phone	
	Are there any surety bond requirements for If so, detail terms, conditions and amounts belo	•						
3.4	Terms and Conditions		Su	m of rety rided?	Amount			
3.8	How many RES company vehicles will be on	Site?						
3.9	Are any auto ID cards needed and are they vehicle's green packet?	maintained wit	hin the					
3.10	Will any personal vehicles be used for work-related purposes on site, and if so, has the personal insurance info and MVR been submitted?							
3.11	List project trailers & storage containers be	elow:						

	Туре	Size	Purpose	Date Onsite		
	Any other property or contractor's equipment that will be used for this Project? (i.e. yellow iron, trailers, ATV's).  If so, list below.					
3.12	12					
3.13	Has RES or REC equipment, power units and yellow iron been properly maintenance-serviced, licensed/registered and insured prior to use at the job-site?					

#### Follow up Actions

Item #	Action Required	Responsible Party	Target Date

4.0	HSQE						
4.1	Safety						
	Has project Safety Supervisor been appoi	inted?		YES			
	Name	Email	Phone				
	naire	Eman	Pilotie				
4.1.1							
	When will the Safety Supervisor be on sit	When will the Safety Supervisor be on site?					
4.1.2	Safety Program File status or date of app	roval:					
4.1.3	Does the state where the project is being	g constructed have its own OSHA ru	les?				
4.1.5	Are there any additional program requirements that will need to be addressed?  (List below under 4.1.4)						
	Are there any special contract requireme	ents for Health & Safety Program?					
	(List Below)						
	(ESC DEIOW)						
4.1.4							
4.1.4							
	Has an occupational facility been identifi	ed for work related injuries?					
	(List below)	_					
4.1.5							
4.2	Quality						
	Has a project QAQC Coordinator been ap	pointed?					
424	Name	Email	Phone				
4.2.1							
	When will the QA/QC Coordinator be on site?						
4.2.2	Construction Quality Plan status or date of approval:						
400	Will any project specific procedures, wor	k instructions, or templates be req	uired?				
4.2.3	(If known, list below)						

#### Initial Contract Review Form

	Discipline		Торіс	Respon Pers			
4.2.4	Construction Inspection	& Test Plan statu	is or date of approval:				
4.3	Environmental						
	Has a project Environm	ental Supervisor t	peen appointed?				
	Name		Email	Pho	ne		
4.3.1							
	When will the project F	nen will the project Environmental Supervisor be on site?					
	when will the project Environmental supervisor be on site:						
4.3.2	Who prepared the Storr	Prevention Plan (SWPPP)?	RES	Client			
4.3.3	Who will be responsible	npliance to the SWPPP?					
4.3.4	Construction Environme	ental Plan status o	or date of approval:	-			
4.3.5	Has the Project Spill Pr	evention and Resp	oonse Plan (SPAR) been issued?				
4.3.6	Has the Project Spill (SPCC) been issued?	Prevention, Con	trol, and Countermeasures Plan				
4.3.7	Do we have the Permitt	ing Conditions?					
	Are there any environm (If so, list below)	ental restrictions	?				
Has a project Environmental Supervisor been appointed?  Name  Email  Phone  When will the project Environmental Supervisor be on site?  Who prepared the Storm Water Pollution Prevention Plan (SWPPP)?  4.3.2 Who prepared the Storm Water Pollution Prevention Plan (SWPPP)?  4.3.3 Who will be responsible for verifying compliance to the SWPPP?  4.3.4 Construction Environmental Plan status or date of approval:  4.3.5 Has the Project Spill Prevention and Response Plan (SPAR) been issued?  4.3.6 (SPCC) been issued?  4.3.7 Do we have the Permitting Conditions?  Are there any environmental restrictions?							
	Is an environmental cor	sultant necessary	to provide support to Project Mana	ager?			
430	(If so, has one been contracte	d?)					
4.3.7	Name		Email	Pho	ne		

#### Follow up Actions

Item #	Action Required	Responsible Party	Target Date

5.0	Procurement							
5.1	5.1 Subcontracts							
5.1.1	Have all subcontracto	ors been selected?						
	List all Scopes of Work & Subcontractor contract status below:							
	Scope	Company Name	Information / Documents Needed	PICS Rating	Date Issued	Date Signed	COI Received	EMR/CoC Received
5.1.2								

#### Initial Contract Review Form

5.2	5.2 Materials Procurement							
	List below the known materials that RES will procure for this project.							
	Material Description	Supplier	PO Issue Date	Quantity Required	Delivery Target Date			
5.2.1								
5.2.2	Are all key contractors and sup	pliers on the Approved Supplier List?						

#### Follow up Actions

Item #	Action Required	Responsible Party	Target Date

6.0	Project	Coordination					
	List items received from previous projects below:						
	Item		Originating Project		Date Received Onsite		
	Storage Con	tainer / Connex					
	Plotter						
6.1	IT Box						
	Multi-Purpos	se Printer					
	Radio						
	Furniture						
	Other						
6.2	Has a local	Administrative Assistant been hi	ired?				
	Name:			Contact number	:		
6.3	Have arrangements been made for internet service?						
	Provider:			Install Date:			
6.4	Have arrangements been made for phone service?						
	Provider:			Install Date:			
6.5	Have the co	omms been coordinated with SCA	ADA Enginee	ring?			
6.7		rary air cards be required? long & how many?)					
6.8	Have the project specific ECM file folders been setup for the project?						
6.9	Additional F	Additional Requirements / Comments					

Item Number	Action Required	Responsible Party	Target Date

7.0	Engineering						
	Is RES engineering this project?					YES	NO
7.1	If no, list details of the	responsi	ble engineering	company below	:		
	Company Name		Main C	ontact	F	Phone Number	
	Are there any project s	pecific E	ingineering requ	irements?		YES	NO
7.2	(If so, list below)						
						YES	NO
7.3	Has RES Engineering re	ceived a	drawing schedu	ile?			
	List RES Engineered drawing details below:						
	Scope	Lea	d Engineer	Status		Target IFC Is	ssue Date
7.3							
	List 3 <sup>rd</sup> Party Engineere	d drawir	ng details below	:	'		
	Scope Status Reviewed by RES			RES	Target IFC Issue Date		
7.4							
/							
	Additional Comments						
7.5							

Item Number	Action Required	Responsible Party	Target Date

8.0	Discussion		
Item Number	Risk/Concern	Mitigation	Responsible Party



## TECHNICALENQUIRY FORM No.: Project Number - XXX

SECTION 1- to be completed by Originator					
Project No XXXX	Name "ProjectName"				
TEF originated by Name:	Date sent to the Recipient:				
Recipient(s) of the TEF  Name:	Company:				
Details of Technical Enq (attach further pages if re					
Response requested by (	date) :				
	SECTION 2 - to be completed by Recipient				
Response to Technical Enquiry :					
Signature of Recipient of					
SECTION 3 - to be completed by Originator  Response Accepted/Rejected (delete as applicable)					
Response Accepted/Rejec Reason for rejection (if a	•				
Signed by Originator	Date				

# P-4 RES Quality Manual



# **RES Americas Quality Manual**

Document: 01478-000692

Revision: 02

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HSQE PROCEDURE			
TITLE:	DOC No: 01478-000692	REV No: 02	
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## **Revision History**

Revision #	Date	Nature of Revision
02	6/1/15	Updated Executive Leadership

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#### 1.0 QUALITY POLICY

The RES Quality Policy is incorporated here by reference, as the Policy is subject to separate review and approval: USQM - 001 RES Americas Quality Policy - reference number 01478-000284

#### 2.0 QUALITY MANAGEMENT SYSTEM

In fulfillment of the RES Americas Quality Policy, RES Americas has established and documented a Quality Management System (QMS) to identify and document the processes RES Americas uses to deliver its products and services, and to control the development and delivery of these products and services to assure customer satisfaction and stakeholder value.

The RES Americas Quality Management System (QMS) consists of a Quality Manual addressing the details and scope of the RES Americas QMS, and various companywide and departmental procedures and documents that serve to control the processes used to deliver our products and services, and to assure achievement of the desired levels of quality.

#### 3.0 QUALITY MANUAL

#### 3.1 Purpose

This RES Americas Quality Manual shall establish and outline the fundamental elements of the quality management system that will assure compliance with the Quality Policy objectives of RES Americas. Adherence to the Quality Requirements established in this Manual by all employees of RES Americas shall allow RES Americas to fulfill its mission as a quality leader in the renewable energy industry.

#### 3.2 Scope

Unless specifically noted herein, this procedure shall apply to all Work conducted by/for Renewable Energy Systems Americas Inc. and any of its affiliate or subsidiary companies hereafter referred to in this procedure as the "RES Americas".

#### 3.3 Company Structure

#### 3.3.1 The executive leadership of RES Americas is:

Glen Davis	Chief Executive Officer
Andrew Fowler	Chief Operating Officer
Paul Walker	Chief Financial Officer
Robert Morgan	Chief Strategy Officer
Brian Evans	Chief Development Officer
Andrew Oliver	Chief Technology Officer
Marcia Emmons	Executive Vice President & General Counsel
Douglas Nieb	Executive Vice President, Human Resources

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#### 3.4 RES Americas Office Locations

3.4.1 RES Americas operates at the following locations across the Americas:

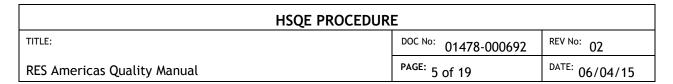
UNITED STATES
CORPORATE HEADQUARTERS
Renewable Energy Systems Americas Inc. 11101 W. 120 <sup>th</sup> Ave Suite 400
Broomfield, CO, USA 80021
US Regional Development Offices
RES Americas 330 2 <sup>nd</sup> Ave. South, Suite 820 Minneapolis, MN, USA 55401
RES Americas 9050 Capital of Texas Highway North, Suite 390 Austin, TX, USA 78759

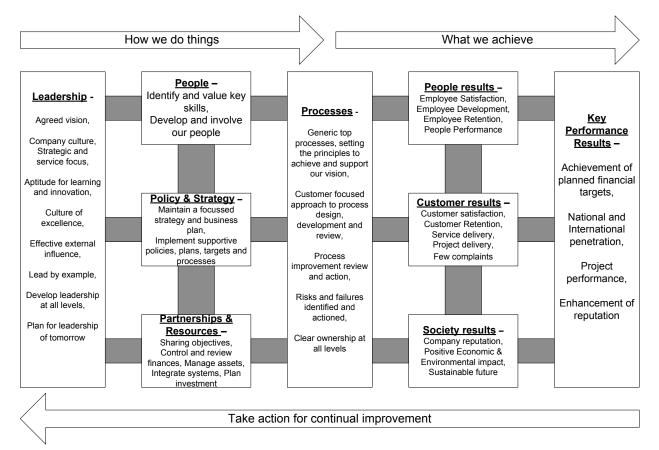
CANADA	
Renewable Energy Systems Canada Inc. 300 Leo-Pariseau, Suite 2516 Montreal, QC, Canada H2X 4B3	
RES Canada Construction (Ontario) Inc. 1040 S. Service Road East, Suite 200 Oakville, ON, Canada L6J 2X7	

CHILE	
RES Chile SPA	
Andres Bello 2115, Oficina 1001, piso 10	
Providencia, Santiago, Chile	

## 3.5 RES Americas - Overall Quality Assurance Process

3.5.1 RES Americas adheres to the model of a process based approach, and the Plan-Do-Check-Act (PDCA) methodology that is promoted by ISO 9001 (2008). The high level model below portrays RES Americas approach to quality management and continuous quality improvement.





#### 3.6 Quality Program Scope and Requirements

3.6.1 The following quality program requirements form the basis of the RES Americas Quality Management System (QMS), and shall direct the establishment, implementation, and maintenance of procedures and documents to fulfill the quality objectives of RES Americas.

#### 3.6.2 General

- a) RES Americas shall develop procedures for the realization of quality in products and services from development and planning stages through to construction and maintenance & operations. The procedures shall:
  - (1) Identify the quality requirements for the product/service. These requirements shall include customer requirements, statutory and regulatory requirements, contract requirements, and stakeholder and organizational requirements.
  - (2) Establish processes and controls to assure that quality requirements are considered and understood prior to commitment to supply, and are defined and effectively during product fulfillment. This includes consideration that RES Americas has the ability to meet the stated

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requirements, and that any differences in quality expectations are understood and resolved prior to contract signing.

- (3) Establish acceptance criteria to allow for verification of quality requirements at appropriate times during product/service fulfillment and at delivery, including acceptance criteria for requirements that may not be customer specified but are necessary for the specified or intended use of the product or delivery of the service.
- (4) Require review, verification, validation, monitoring, measurement, inspection, and/or test as appropriate, to assure attainment of the specified quality requirements.
- (5) Establish documents and records that provide evidence that processes were applied and quality requirements were achieved.

#### 3.6.3 Resource Management

 a) RES Americas shall determine, deploy, and regularly evaluate the level and suitability of resources required to effectively and efficiently administer the QMS. Considerations will include system effectiveness, process improvements, and customer satisfaction.

#### 3.6.4 Human Resources

- a) All RES Americas personnel performing work affecting the quality of the products and services provided shall be competent on the basis of appropriate education, training, skills, and experience.
- b) RES Americas shall establish and implement processes to:
  - (1) Define the necessary competence for personnel performing work affecting the quality of the products and services delivered by RES Americas.
  - (2) When necessary, provide training, re-training, or other actions to achieve and assure the required level of competence, including evaluations of the effectiveness of the actions taken.
  - (3) Assure that personnel are aware of the relevance and importance of their activities, and how they contribute to the achievement of RES Americas quality objectives.
  - (4) Document and maintain records demonstrating education, training, skills, and experience for all personnel performing work affecting quality.

#### 3.6.5 Infrastructure & Work Environment

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- a) RES Americas shall determine, provide, and maintain the necessary infrastructure to facilitate and assure the achievement of quality in the products and services provided. This shall include:
  - (1) Buildings, workplaces, and associated utilities.
  - (2) Process equipment including necessary hardware and software.
  - (3) Supporting equipment and services including transportation, IT, and communications.
- b) RES Americas shall provide and manage a suitable work environment that assures the ability to achieve product and service quality expectations.

#### 3.6.6 Control of Development and Design

- a) RES Americas shall control development and design activities to assure the quality and reliability of the final product. This will include controls to assure that interfaces between different RES Americas departments and/or with external organizations are managed to assure effective communication and clear assignment of responsibility.
- b) Development and design process controls shall include:
  - (1) Designation of stages within development or design, with review, verification, validation, and authorization steps as appropriate to assure stated quality, customer, contract, and business objectives are being considered.
  - (2) Delineation of responsibilities and authorities for each stage of development or design.
  - (3) Clear delineation of input requirements to be considered during development or design, and documented review of such inputs for adequacy. Typical inputs to consider include:
  - (4) Functional and performance requirements
  - (5) Statutory and regulatory requirements
  - (6) Business requirements
  - (7) Customer and contract requirements
  - (8) Information derived from previous developments or designs
  - (9) Other requirements essential for product/service quality

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(10) Clear delineation of the desired output(s) from the development or design processes in a format suitable for verification against the specified inputs thereby enabling approval prior to release.

#### 3.6.7 Development of Design Outputs

- a) Development or design outputs shall be of a format that allows for:
  - (1) Verification that all input requirements are met.
  - (2) Use by other departments for further activities including permitting, design, engineering, pre-construction, bidding/estimating, contract preparation, procurement, construction, and/or operations & maintenance.
  - (3) Identification of acceptance criteria for developed or designed product, including delineation of characteristics essential for safe and proper use or operation.

#### 3.6.8 Development or Design Reviews

- a) Develop or design reviews shall:
  - (1) Be planned and conducted as appropriate to assure that the process is advancing in accordance with stated requirements.
  - (2) Allow for identification and resolution of any problems before the final product is delivered.
  - (3) Participants in development or design reviews shall represent all departments concerned with the output.
  - (4) Planned reviews shall be documented and records retained to evidence elements considered and actions taken.

#### 3.6.9 Development or Design Verification

- a) Verification is a composite or total review of the output that provides for alternate analyses, calculations, or proof testing in addition to a typical design review. The intent is to assure that the outputs of the development or design process meet the specified inputs requirements.
- b) Development or design verification shall be planned, performed, documented, and records of the results and any required actions retained.

#### 3.6.10 Development or Design Validation

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- a) Validation is a further step to assure that the finished product or service fully achieves its intended purpose or application. Ideally validation is performed prior to final delivery of the product or service, but may require post installation proof or performance testing.
- b) Development or design validation shall be planned, performed, documented, and records of the validation process and any required actions retained.

#### 3.6.11 Development or Design Changes

- a) Changes, whether initiated during the process or resulting from reviews, verification, or validations, shall be identified and recorded.
- b) Changes shall be controlled the same as the original development or design, i.e., changes shall be reviewed, verified, and validated.
- c) Reviews of changes shall evaluate the effect of the change on the original plan, and on any plans, parts, or products already delivered.
- d) Records of changes and their review, verification, and validation shall be retained.

#### 3.6.12 Control of Procurement

- a) RES Americas shall control the process for the procurement of products or services that that make up, in part or in total, or contribute to the product or service being delivered by RES Americas.
- b) Procurement of product and services shall be controlled to the extent necessary to assure that the purchased product or contracted service conforms to specified requirements including technical and performance requirements.
- Product and service suppliers shall be evaluated and selected based on their ability to supply product or perform service in accordance with RES Americas requirements.
- d) Criteria for selection, evaluation, and continued or re-evaluation shall be established, documented, and communicated.
- e) Records of supplier evaluations and any actions resulting from such evaluations shall be maintained.
- f) Procurement of Products
  - (1) Purchasing information shall describe the product to be purchased including, as appropriate:

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- a. Technical requirements
- b. Performance requirements
- c. Manufacturing (in-process and/or final) inspection or test requirements
- d. Qualification requirements for personnel involved in manufacturing, inspection, or test.
- e. Supplier quality management systems requirements or expectations
- f. Documentation, certification, and/or records requirements for product(s).

#### (2) Product Inspection

a. Inspections shall be planned and performed to verify that the product meets specified purchase requirements. This generally is accomplished by documented receiving inspections but may include in-process manufacturing inspection and/or pre-shipment product inspection or performance testing.

#### g) Procurement of Services

- (1) The procurement of services by RES Americas shall be planned and controlled to assure that all relevant requirements for the service(s) are fulfilled. Such controls shall include:
  - a. Documentation describing the service(s) to be provided.
  - b. Procedures or work instructions, as necessary, to govern the provision of the required service(s).
  - c. Delineation of suitable or required equipment for provision of the service(s).
  - d. Delineation of any necessary measuring and test equipment, including calibration and certification requirements.
  - e. Personnel qualification requirements, including required training, licensing, and/or certification records.
  - f. Management program requirements including Health & Safety, Environmental, and Quality program requirements.

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- g. Any other functional, performance, regulatory, statutory, business, customer, or RES Americas requirements for the service(s) to be provided.
- h. Delineation of documentation and records required as a deliverable for the service(s) to be provided.

#### 3.6.13 Quality Control

a) RES Americas shall plan, execute, document, and retain records evidencing quality control inspections and/or tests performed to verify the adequacy of a service provided.

#### (1) Verification

- a. Inspections shall be conducted to verify that the acceptance criteria established for the installed product or delivered service has been achieved.
- b. Documentation shall be prepared to record the results of such inspections, including recording of any identified nonconforming items.
- c. Records of quality control inspections shall be retained.

#### (2) Validation

- a. Validation of an installed product or delivered service shall be conducted whenever appropriate, including whenever the adequacy of the product or service cannot be readily or definitively determined by inspection alone, or when a deficiency may only become apparent after the product has been used or the service has been delivered.
- b. Validation shall demonstrate the ability of the product or service(s) to achieve planned results.
- c. Validation shall include:
- d. Defined criteria for review and approval of the validation process
- e. Approval of equipment (when required) for validation
- f. Qualification of personnel
- g. Use of specific methods and/or procedures
- h. Documentation and records requirements

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- i. Re-validation process (as necessary).
- (3) Identification and Traceability
  - a. When appropriate, RES Americas shall establish controls to identify and trace a product from conception through final installation.
  - b. Identification and traceability shall be by means of a unique identification.
  - c. Documentation shall be generated, and records maintained as appropriate.

#### (4) Customer Property

- a. RES Americas shall establish processes to safeguard, secure, and control the use of customer property, including intellectual property, while in RES Americas possession.
- b. Loss of any customer property will be immediately reported to the customer.
- c. Records of customer property in RES Americas control will be maintained.

#### 3.6.14 Control of Measuring & Test Activities and Equipment

- a) RES Americas shall assure that processes are established and documented to assure that monitoring and measurement activities can and are carried out in a manner consistent with monitoring and measurement requirements specified, and that appropriate monitoring and measurement equipment is specified.
- b) Measuring & Test Equipment (M&TE)
  - (1) When necessary to assure valid results, measuring & test equipment shall:
    - a. Be calibrated or verified, or both at specified intervals or prior to use against measurement standards traceable to international or national measurement standards. Where no standards exist, the basis used for calibration or verification shall be documented.
    - b. Be adjusted or re-adjusted as necessary to meet standards prior to use.
    - c. Have identification that demonstrates its calibration status.

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- d. Be safeguarded from adjustments that would invalidate any measurement result.
- e. Be protected from damage or deterioration during handling, maintenance, or storage.

#### c) Measurement Validity

(1) If a piece of measuring & test equipment is found to be nonconforming prior to use, RES Americas shall assess and record the validity of any previous measurements, and take appropriate actions on any affected product.

#### d) Records

(1) Records of the results of calibrations and verification for RES Americas measuring & test equipment, and/or any such equipment used for RES Americas products shall be maintained.

#### e) Computer Software

(1) RES Americas shall establish processes to confirm that computer software used in the monitoring and measurement of specified requirements satisfies the intended application, both prior to use and as necessary at other stages.

#### 3.6.15 Control of Nonconformances

- a) RES Americas shall establish processes to assure that products or services that do not conform to stated requirements are identified and controlled to prevent their use or delivery.
- b) A documented procedure shall be established and implemented to specify the controls, responsibilities, and authorities for identifying nonconformances and for addressing resolution.
- c) Resolution of nonconformances shall be by one or more of the following actions:
  - (1) Immediate action to eliminate the detected nonconformity. (REJECT)
  - (2) Taking action to correct, if possible, the nonconforming aspect or element, thereby resolving the nonconformance. (REPAIR)
  - (3) Authorizing it use, release, or acceptance under concession by the original approving authority, and when applicable, the customer. (USE AS IS)

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- d) When the conforming product is corrected it shall be subject to reverification to demonstrate conformity to the original requirements.
- e) Records of nonconformances and actions taken, including concessions obtained, shall be retained.

#### 3.6.16 Control of Documents

- RES Americas shall establish processes to identify and control documents that assure and evidence conformance with the stated quality requirements of RES Americas.
- b) A documented procedure shall be established delineating the controls, responsibilities, and authorities for:
  - (1) Reviewing for adequacy, and approving documents prior to use.
  - (2) Revision control, including controls for revising documents and for assuring that only the most current approved revision is used for work activities.
  - (3) Document legibility and identification, including identification of obsolete documents.
  - (4) Document distribution and availability at work stations, and document retention.
  - (5) External document receipt, distribution, and controlled use.

#### 3.6.17 Control of Records

- a) RES Americas shall establish processes to identify and control the retention of records that provide evidence of conformance with the stated quality requirements of RES Americas.
- b) A documented procedure shall be established to delineate the controls for record identification, control, storage, protection, retrieval, retention, and disposition.
- c) Records shall remain legible, readily identifiable, and retrievable.

#### 3.6.18 Monitoring and Measurement

- a) Process Monitoring and Measurement
  - (1) Methods for monitoring, and as applicable, measuring quality assuring processes to demonstrate the ability of the processes to achieve planned results, shall be established.

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- (2) When planned results are not achieved, appropriate corrective actions shall be taken.
- b) Product Monitoring and Measurement
  - (1) Methods for monitoring and, as applicable, measuring the characteristics of a product or service to assure conformance to stated quality requirements shall be established. This may necessitate multiple monitoring or measurements at stages during product realization.
  - (2) Evidence of conformity to established acceptance criteria shall be documented and retained.
  - (3) Records shall evidence the responsibility and authority for authorizing release of a product.
- c) Customer Satisfaction
  - (1) Customer satisfaction shall be determined by various means including interviews, report cards, etc. to enable RES Americas to realize whether customer requirements have been achieved.
  - (2) Appropriate records shall be retained
- 3.6.19 Quality Management Program Assessment
  - a) RES Americas shall establish processes for determining, collecting, measuring, evaluating, and analyzing the suitability, performance, and effectiveness of its QMS. At a minimum, these processes will include the following:
    - (1) Internal Audits
    - (2) Internal audits shall be conducted at planned intervals to determine whether the QMS:
      - a. Conforms to the stated requirements of the RES Americas Quality Policy, and Quality Manual.
      - b. Is being effectively implemented and maintained.
    - (3) A documented audit program shall be established to include:
      - a. Delineation of responsibilities and authorities for planning and conducting audits, including review of past audits.
      - b. Qualification of auditors.

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- c. Frequency of audits taking into consideration the status and importance of the processes and activities to be audited (i.e., those impacting quality).
- d. Delineation of audit format including criteria, scope, and methods.
- e. Delineation of the nature of audit records, including objective evidence of quality.
- f. Process for audit follow-up, including verification of corrective actions, and actions to preclude recurrence.
- (4) Records of audits and their results shall be maintained.
- (5) Management of audited departments/groups within RES Americas shall participate in internal audits, cooperate with assigned auditors, apply resources as necessary to facilitate efficient performance of audits, and assure that agreed corrective actions and actions to preclude recurrence are promptly performed.

#### 3.6.20 Communication

- a) RES Americas shall develop and implement processes for effectively communicating with customers in relation to:
  - (1) Product or service information, including quality expectations.
  - (2) Contract considerations including enquiries, status, and changes.
  - (3) Feedback including complaints.

#### 3.6.21 Process Improvement

- RES Americas shall establish processes to continually improve the effectiveness of its QMS, and the quality of its products and delivery of its services.
- b) Documented procedures shall be established and implemented to assure corrective actions taken address both the immediate cause of the nonconformance, and the root cause so that actions can be taken to prevent future occurrences.
- c) Records of process improvements, including corrective actions, actions taken to prevent recurrence, and verifications shall be retained.

#### 3.6.22 Management Review

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- a) RES Americas leadership shall review the status and effectiveness of the QMS at planned intervals to assure its continued suitability, adequacy, and effectiveness.
- b) This review will including assessing opportunities for improvement, and/or the need for changes to the Quality Policy, the Quality Manual, or process procedures.
- c) Records of Leadership reviews will be retained.

#### 3.7 Company Procedures

- 3.7.1 RES Americas controls its work processes through the use of documented procedures.
- 3.7.2 The RES Americas Quality Management procedures (USQM) provide instruction for quality processes applicable to all RES Americas employees regardless of title or function within the company.
- 3.7.3 Within each functional department at RES Americas, procedures are also used to define and control to the extent appropriate, the departments own quality processes, documentation, and records.

#### 3.7.4 QMS Procedures

a) Below is a list of the USQM procedures in use at RES Americas. At RES Americas, the "Quality Manual" has been understood to comprise all USQM procedures by reference.

Document Title	Reference Number	Applicability
USQM - 001 RES Americas Quality Policy	01478-000284	All departments
USQM - 002 Company Scope, Structure, Organization & Profile	01478-000285	All departments
USQM - 003 Authorities & Responsibilities	01478-000286	All departments
USQM-005 Auditing Procedure	01478-000017	All departments
USQM-006 Contract Review	01478-000046	As appropriate
USQM-007 Control of Documents	01478-000041	All departments
USQM-008 Preparation and Issuance of a RES Americas Procedure	01478-000759	All departments

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USQM-011 Corrective/Preventive Action & Control of Non-Conformance	01478-000043	All departments
USQM-012 Education & Training	<u>01478R00006</u>	HR and Management
USQM-013 Management Systems Communication	01478-000289	HSQE and Management
USQM-014 Client Satisfaction and Performance Measurement	01478-000015	As appropriate
USQM-015 Calibration of Measuring & Testing Equipment	01478-000045	As appropriate
USQM-018 Management Review	01478-000292	Management

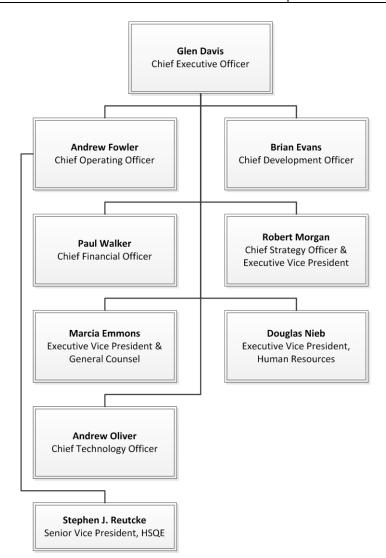
#### 3.7.5 Departmental Procedures

a) These are controlled by the respective functional departments. These procedures define work of the department, but can also define how any staff member must work to the RES Americas standard for that function. Below is a list of functional departments within RES Americas.

Development	Technical
Engineering	Human Resources
Construction	IT (Group Business Systems)
Procurement	Legal
Operations (Generation)	Finance & Accounting
HSQE	Corporate Affairs / Marketing

# 3.8 Company Organization Chart

HSQE PROCEDURE			
TITLE:	DOC No: 01478-000692	REV No: 02	
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# Property Valuation Study

# REAL ESTATE CONSULTING REPORT

Of

Influence of Wind Farms
On Residential Real Estate Values
Proposed Ball Hill Wind Energy Project
Towns of Hanover and Villenova
Chautauqua County, New York

For

Brian Evans, President RES America Developments, Inc. 11101 West 120<sup>th</sup> Avenue, Suite 400 Broomfield, Colorado

Effective Date of Valuation
July 22, 2016

Prepared by: Darrel R. Lloyd, Jr. IREM SOLUTIONS 586 North French Road, Suite 1 Amherst, NY 14228 File: 16-396



Providing real estate appraisals and compliant solutions

July 28, 2016

Brian Evans, President RES America Developments, Inc. 11101 West 120<sup>th</sup> Avenue, Suite 400 Broomfield, Colorado 80021

Re: Real Estate Consulting Report

Influence of Wind Farm on Residential Real Estate Value

Proposed Ball Hill Wind Energy Project

Towns of Hanover and Villenova, Chautauqua County, New York

Dear Mr. Evans:

The purpose of the assignment is to update a previous report prepared by Darrel R. Lloyd Jr. dated June 3 2008. The scope of that report was to determine if wind farm development impacts residential real estate values in the surrounding market area.

The June 3, 2008 report concluded there is no conclusive evidence which would indicate any impact or potential impact on residential real estate values in the market area analyzed due to being in close proximity or in the view shed of an operational wind farm.

Four studies were performed on comparable operational wind farms within New York State. Two of the wind farms are located in Madison County, New York and two are located in Wyoming County, New York.

This report will update these studies with sales data which has occurred from 2008 to 2016. Additionally, current literature will be researched and reviewed in assisting the conclusions drawn from this report.

#### **Project Description:**

The Ball Hill Wind Energy Project is an approximately 100 megawatt wind energy project proposed for an area located within two towns in the northeastern portion of Chautauqua County, New York. The proposed project will consist of a total of 29 turbines located on approximately 5,569 acres (includes all easements and setbacks necessary for project construction). The turbines are proposed to be located in the Town of Hanover and the Town of Villenova.

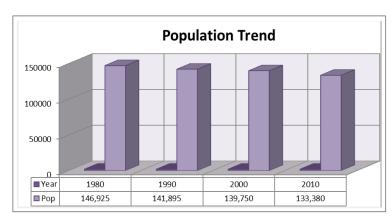
#### **Chautauqua County Area Data:**

Chautauqua County is located in the southwestern-most portion of New York State on the eastern/southern shore of Lake Erie. Located on the western/northern shore of Lake Erie. across the lake, is Canada. Chautauqua County is bordered by Erie County, NY to the northeast, Cattaraugus County, NY to the east, Warren County, PA to the south, and Erie County, PA to the southwest. West of Chautauqua County on the western boundary of Erie County, PA is the State of Ohio.



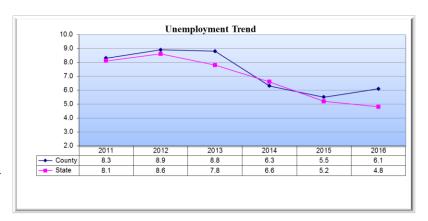
Chautauqua County contains approximately 1,065 square miles of area with elevations from 573 feet above sea level to 2,190 feet. The topography of the region conforms to four major features. The first is the Lake Erie Plain. This area forms the northern border of Chautauqua County and extends inland distances varying from 3 to 9.5 miles from Lake Erie. This area is relatively flat with an elevation above sea level of approximately 573-900 feet. Immediately to the south and east is the Allegany Escarpment; a long steep series of hills which ascends from the Lake Erie Plain. The Allegany Plateau is the third feature, and consists of rolling hills that are deeply gored by valleys containing the Cassadaga and Conewango Creeks and Chautauqua Lake. This area makes up approximately 80% of the county. Chautauqua Lake, which is centrally located, is the most prominent geographic feature in the county as well as the center of recreation. The lake is approximately 20 miles long with 50 miles of shoreline. Chautauqua County has a total of six lakes and approximately 50 miles of Lake Erie shoreline.

**Population -** According to the U.S. Census Bureau, the 2010 population of Chautauqua County is 133,380 a 3.5% decrease from 2000. It has steadily declining been since reaching its peak in 1970. The adjacent chart shows the population trend since 1980. Chautauqua County has the third largest population in Western New York, ranking behind Erie and Niagara counties to the north.



#### **Economic Indicators**

Employment – According to the U.S. Department of Labor, the 2016 unemployment rate for Chautauqua County was 6.1%, higher than the New York State rate of 4.8%. Since 2011, the unemployment rate in the county has been slightly higher than the state's rate with the exception of 2014. The adjacent chart shows the unemployment trend since 2011.



**Employment Base** – A diverse business community provides the backbone of Chautauqua County's economy.

The food processing industry alone employs approximately 2,100 people. Food processing and food related manufacturers produce ice cream, canned fruit, canned vegetables, preserves, chocolate and cocoa products, cookies, milk, and frozen foods for institutional and restaurant use.

Non-food manufacturers and other industries provide furniture, plastic products, glass products, tool & die, machining, metal stamping, steel and iron, automotive products, refractory's, bearings, lumber products, precision measuring, metal, hardware, machinery and electronics. Chautauqua County has four separate industrial parks, covering  $397\pm$  acres, all of which are ready for additional growth.

Communications, technology, health care, education, retail, tourism and other service related fields support Chautauqua County's economy and continue to grow as well. Rounding out the economy are hundreds of locally owned and operated small to medium size companies.

The largest manufacturing employers in the county are MRC Bearings, Bush Industries and Cummins Engines Company. In the service area, the largest employers are WCA Hospital in Jamestown, Chautauqua County, Jamestown Public Schools, SUNY College at Fredonia, and Jamestown Community College.

Agriculture plays a significant role in Chautauqua County's economy. Chautauqua County is also known for its grape farms. The primary varieties of grapes grown are Concord and Niagara, which are used to produce juice, jams, jellies and wine. Chautauqua County is the largest grape producing county in New York State.

Chautauqua County's tourism industry generates approximately \$100 million annually in local visitor spending. Considering multiplier effects, tourism impacts the economy by \$145 to \$160 million annually and employs approximately 6,000 persons.

**Employment -** The following table is based on 2014 Census Bureau data and lists the major employment sectors and approximate number of employees.

Subject	Number	Percent
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	1,458	2.5
Construction	2,977	5.1
Manufacturing	10,084	17.4
Wholesale trade	1,103	1.9
Retail trade	6,592	11.4
Transportation and warehousing, and utilities	2,316	4.0
Information	730	1.3
Finance, insurance, real estate, and rental and leasing	1,964	3.4
Professional, scientific, management, administrative & waste		
management services	3,113	5.4
Educational, health and social services	16,092	27.7
Arts, entertainment, recreation, accommodation and food services	5,474	9.4
Other services (except public administration)	3,631	6.3
Public administration	2,531	4.4

### **Median Household Income - \$42,720**

Median Home Price - \$84,100

Source: Census Bureau 2014

#### **Transportation:**

Highway System – Major Highways in the county include the New York State Thruway (I-90), Southern Tier Expressway (I-86 and State Route 17), US Routes 20 and 62, and State Routes 5, 60, 394, and 430. Interstate 90 runs in a southwest/northeast direction, along the Lake Erie shoreline, at the northern edge of the county. It leads southwest through



Erie, PA and Cleveland, OH; as well as northeast towards Buffalo before pointing due east through Rochester, Albany, and beyond. Interstate 86 (SR 17) travels east/west across New York State near the southern state border. In Chautauqua County, it leads west toward Erie, PA and travels east through Jamestown, into Cattaraugus County, and beyond.

US Route 20 and SR 5 both run parallel to I-90 through the county. State Route 60 is the main, north/south thoroughfare in the county connecting Dunkirk, Fredonia, I-90, and the northern part of the county with Jamestown, I-86, and the southern part of the county. US Route 62 is a north/south road located in the southeastern part of the county. It leads south through Warren, PA and beyond; as well as north, through northwestern Cattaraugus County and continuing through the city of Buffalo. State Route 394 and 430 follow the southern and northern shorelines of Chautauqua Lake, respectively.

*Rail service* - Rail service is provided by CSX, Norfolk Southern & Western New York and Pennsylvania Rail Road. Bus service is provided by Niagara Scenic, Jamestown Area Regional Transit System (JARTS), and Chautauqua Area Regional Transit System (CARTS)

Air Service - Air transportation needs are met predominantly by the Buffalo Niagara International Airport located approximately 42 miles north of Dunkirk and 62 miles north of Jamestown. Chautauqua County has two smaller regional airports located in Jamestown and Dunkirk. The Jamestown Airport has commuter service affiliated with major airlines to Buffalo and other larger cities in the area. Charter service and aircraft rental is also available. The Dunkirk/Chautauqua County Airport provides a limited amount of commercial airline service primarily on a charter basis.

*Waterways* – The main geographic features of the county are the two major lakes: Erie and Chautauqua. Chautauqua Lake is centrally located in the county, about 17 miles in length, and offers about 40 miles of shoreline. The Lake Erie shoreline at the northern border is also about 40 miles in length.

Education - There are 19 public school systems located within Chautauqua County, as well as many private and parochial schools. In addition, the Board of Cooperative Educational Services (BOCES) offers a wide range of educational, administrative and support services to the community with two technical schools located in Ashville and Fredonia. Higher educational needs are supplied by the State University of New York College at Fredonia (four year), Jamestown Community College (two year), and Jamestown Business College. Fredonia State had a fall 2011 enrollment of 5,725 students (graduate and undergraduate) and offers baccalaureate degree programs in education, liberal arts, music, and technology. Jamestown Community College is part of the State University of New York system, and had a fall 2011 enrollment of 3,926 (both full and part time). Jamestown Business College primarily offers associate degrees and certificate programs.

*Health Care* - Health care needs are met at four acute care hospitals, totaling 545 beds. The largest is WCA Hospital in Jamestown, with 337 beds. Brooks Memorial Hospital in Dunkirk has 157 beds. Two others, Lakeshore Health Care Center and Westfield Memorial Hospital have significantly fewer beds, with the Lakeshore facility being oriented more towards long term care. In addition to acute care hospitals, there are nine licensed nursing homes in Chautauqua County with a total of 1,270± beds. Three of these facilities are located in the Dunkirk/Fredonia area. The balance is in the southern portion of the county. There are also numerous licensed companies and agencies that provide skilled nursing or medical care in homes under physician supervision.

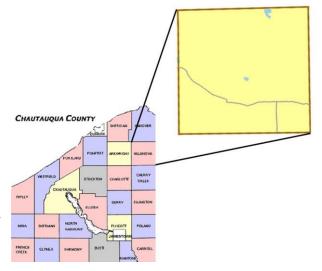
#### **Conclusion:**

Overall, the county of Chautauqua is characterized as a rural area. Over 90% of its area is devoted to agricultural and productive forestland. The two largest population centers are widely spaced and are dependent to some degree on other larger nearby metropolitan areas for services. Both population and employment numbers are expected to stabilize and possibly show a modest increase this decade. There appears to be little demand for additional real estate development, residential, commercial or industrial. At present, demand and supply are in balance with property values are generally stable. New development that may occur will primarily be for owner occupancy.

#### Town of Villenova Area Data:

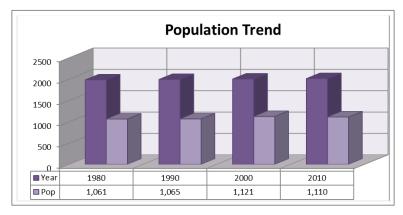
#### **Location:**

The Town of Villenova is located on the eastern border of Chautauqua County and is southeast of the City of Dunkirk, New York. It has a land area of 36.2 square miles, of which 36.1 square miles is land and 0.12 square miles is water. Villenova is proximate to the Jamestown-Dunkirk-Fredonia metro area. The east town line is shared with the Town of Dayton in Cattaraugus County and the Town of Arkwright is to the west. To the north is the Town of Hanover, and the Town of Cherry Creek is to the south.

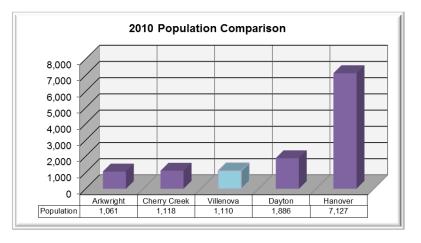


**Population -** According to the U.S. Census Bureau, the 2010 population for the Town of Villenova was 1,110, a 1.0% decrease over the previous decade; however the town's population has increasing been slightly since 1950. The adjacent graph shows the population trend since 1980.

Source: U.S. Census Bureau



Population Comparison - The Town of Villenova is a rural town with very little population. It's location in Chautauqua County places it near to other towns with similar population statistics. The Town of Hanover has a population that far exceeds that of the surrounding towns and includes the population of the Villages of Silver Creek and Forestville, which make up nearly half the population. The Town of Dayton has the second

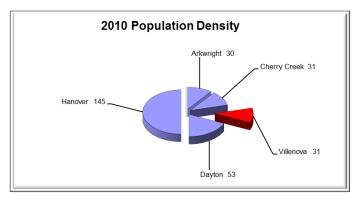


largest population, followed by the remaining towns as indicated by the adjacent graph.

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**Population Density** - The Town of Villenova has a population density of 31 people per square mile, similar to the Town of Arkwright and Cherry Creek. Hanover has the highest population density of 145 people per square mile. The following graph represents a comparison between Villenova and its surrounding municipalities.

Source: U.S. Census Bureau



**Employment -** The following is based on 2014 Census Bureau data and shows the percentage of workers from the town of Villenova and the business sector they are employed in.

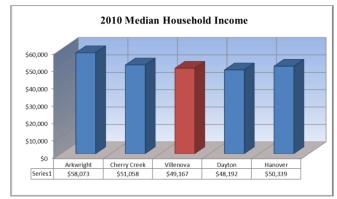
INDUSTRY	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	43	9.8
Construction	48	11
Manufacturing	73	16.7
Wholesale trade	9	2.1
Retail trade	46	10.5
Transportation and warehousing, and utilities	11	2.5
Information	6	1.4
Finance, insurance, real estate, and rental and leasing	12	2.7
Professional, scientific, management, administrative, and waste		
management services	16	3.7
Educational, health and social services	108	24.7
Arts, entertainment, recreation, accommodation and food services	26	5.9
Other services (except public administration)	20	4.6
Public administration	20	4.6
Source: U.S. Census Bureau		

The educational, health, and social services sector is the most dominant employer in the area. The manufacturing sector is the second largest.

## **Buying Power:**

The 2010 Census Bureau median household income for the Town of Villenova was \$35,208. The following compares the 2010 median household income for the Town of Villenova in relation to its surrounding towns. *Source: U.S. Census Bureau* 

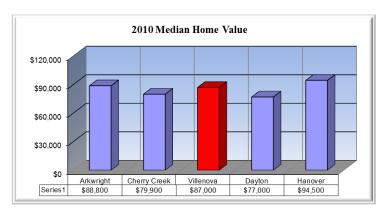
The residents in the town of Arkwright have the largest amount of disposable income in the area, and the residents of Dayton have the least. Villenova falls in the middle range of the towns.



**Housing -** The 2010 median home value in the Town of Villenova was \$87,700. The following Graph compares the 2010 median home value for Villenova and the surrounding towns.

Source: 2000 U.S. Census

The people in the Town of Arkwright paid the most for their homes, followed closely behind by the Town of Villenova. The people in Dayton paid the least for their homes at \$77,000.



**Transportation -** The main route running through Villenova is New York State Route 83, which travels in an east-west direction and then in a north-south direction at Balcom Corners.



Airports certified for carrier operations nearest to Villenova include:

- > Chautauqua Airport
- County/Jamestown Airport (approximately 19 miles)
- ➤ Buffalo Niagara International Airport (approximately 47 miles)
- ➤ Niagara Falls International Airport (about 51 miles)

Additional public-use airports nearest to Villenova Include:

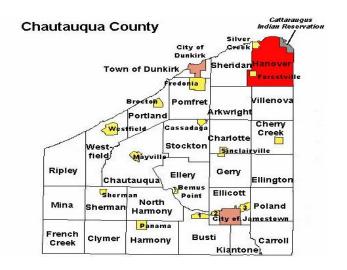
- Chautauqua County/Dunkirk Airport (approximately 13 miles)
- ➤ Gowanda Airport (approximately 14 miles)
- ➤ Randolph Airport (approximately 19 miles)

#### **Conclusion:**

The Town of Villenova's main attraction is its rural setting. The population should remain fairly stable well into the next decade. Only limited commercial or industrial growth is forecast.

#### Town of Hanover Area Data:

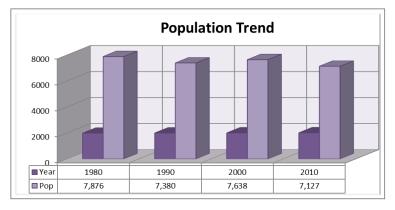
Location - The Town of Hanover is on the south shore of Lake Erie situated at the northeast corner of Chautauqua County. Hanover is bordered by the Towns of Arkwright and Villenova to the south, and the Town of Sheridan to the west. The town is also bordered by the Cattaraugus Indian Reservation, Erie County and Perrysburg, to the east. Hanover encompasses an area of 49.3 square miles, which is divided into 5,109 land parcels. Located within the town are the Villages of Silver Creek and Forestville.



**Population** – According to the U.S Census Bureau, the 2010 population in the town of Hanover was 7,127, a decrease of 6.7% from the 2000 with a population of 7,638. The adjacent graph shows the population trend since 1980.

Source: U.S Census Bureau

The town's population dropped (6.3%) in the 1980's, however the trend reversed itself in the 1990's with

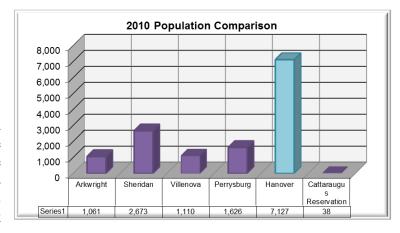


the population growing by 3.5%. Overall the population of the town has remained relatively stable over the last 40 years.

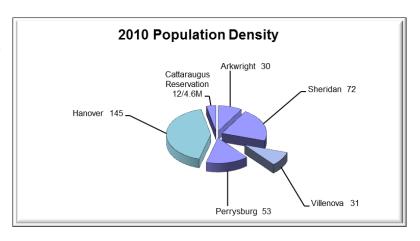
**Population Comparison** - The adjacent chart compares the 2010 population of the town of Hanover its surrounding municipalities.

Source: U.S Census Bureau

The larger population of the town of Hanover can be attributed to the easier access to the interstate highway system, which provides for easy commuting to both the Buffalo and Fredonia-Dunkirk areas.



Population Density - The 2010 population density for the town of Hanover was 145 persons per square mile, followed by the Town of Sheridan with a population density of 72. The population density for the Cattaraugus Reservation reflects the portion located in Cattaraugus County with a population density of 12 persons per in this 4.6 mile area. The adjacent chart compares the



population density of Hanover and neighboring towns.

**Employment -** The following chart shows the percentage breakdown of employment sectors in the town according to the 2014 U. S. Census Bureau.

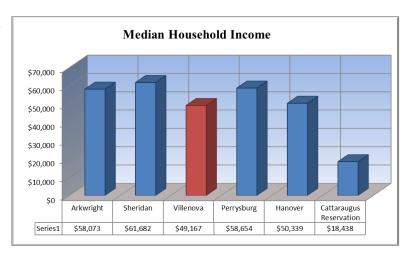
INDUSTRY	Hanover	Silver Creek	Forestville
Agriculture, forestry, fishing and hunting, and mining	2.9	0	1.2
Construction	7.4	6.3	2.7
Manufacturing	13.5	14.1	16.4
Wholesale trade	2.7	2.4	0.6
Retail trade	10.5	8.7	15.8
Transportation and warehousing, and utilities	4.9	4.8	3.6
Information	1.0	1.4	0.0
Finance, insurance, real estate, and rental and leasing	4.3	2.1	2.1
Prof., scientific, management, admin. & waste management services	2.0	2.5	2.4
Educational, health and social services	22.5	26.3	28.9
Arts, entertainment, recreation, accommodation and food services	12.1	14.0	8.0
Other services (except public administration)	5.6	7.2	7.1
Public administration	10.5	10.3	11.3

The table above illustrates that the manufacturing and health service sectors makeup approximately 40% of the overall employment in the town and villages. The large manufacturing base is supported by several employers in the area; some of the largest being Belden & Blake Corp., Iroquois Natural Gas, Gernatt Asphalt Products, Schreiner Oil & Gas Inc. and the Great Lakes Energy Partnership. Several of these companies also have retail sales; to include the energy, oil and gas companies. These sectors account for a significant portion of the retail trade in the area.

**Buying Power -** The 2014 median household income in the Town of Hanover was \$50,339. The adjacent chart shows this income in relation to the surrounding towns

Source: U.S. Census Bureau

The median household income of the town is slightly lower than the surrounding towns with the exception of the Cattaraugus Indian reservation, which tends to have very high unemployment rates and low-income levels.

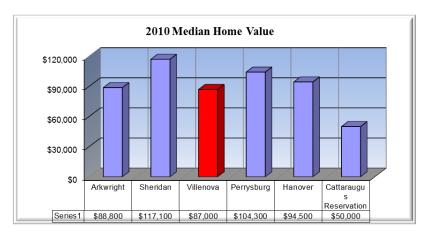


Silver Creek - The 2014 median household income for the Village of Silver Creek was \$42,798.

Forestville - The 2014 median household income for the Village of Forestville was \$49,191.

Housing - According to the 2014 Census Bureau, the median home value in the town was \$94,500. The majority of the housing units in the town are owner occupied. The adjacent chart compares the median home value in the town of Hanover with surrounding towns.

Silver Creek - The 2014 median home value for this village was \$73,600 and approximately 70.4



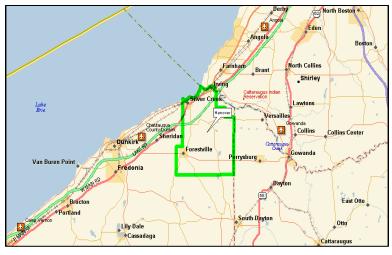
percent of the homes were owner occupied.

Forestville – The 2014 median home value in Forestville was \$88,200 and approximately 67.8 percent of the homes were owner occupied.

The Native American community, just across Cattaraugus Creek from Hanover, is seeing an increase in their economy. This trend is mainly due to their ability to sell items such as gasoline and cigarettes tax free on their reservation; as well as revenue from the gaming industry located on the reservation.

**Transportation -** The main traffic corridor in the town is Interstate highway 90 running east/west. The town is also served by state highways 5 and 20 that also run east-west and state highway 39 that runs north-south. Overall the easy access to I-90 gives the northern portion of the town a good transportation system.

Most development activity in Hanover has occurred along Routes 5 & 20, near the Thruway. There is



little other new development in the commercial area of the village. While Silver Creek is a rural commercial village it has easy access to the I-90 (NYS Thruway) about half a mile to the northeast. The Thruway provides good access to the Buffalo metropolitan area, approximately 40 miles (35 minutes) to the north and to Dunkirk and Fredonia, approximately 12 miles (10 minutes) to the south.

Alleghany Road is a local connecting corridor between the lakeshore resort areas and Silver Creek on the north, and rural communities to the south, including Forestville and Perrysburg. The Cattaraugus Indian Reservation is about one mile northeast of Silver Creek, where Routes 5 and 20 split. Routes 5 and 20 are State highways into Erie County from the southwest. State Routes 5 and 20 both parallel Lake Erie, and at one time were primary east-west. These routes join in Silver Creek, and are one highway into Erie County and the Buffalo metropolitan area to the east. These routes contributed to growth in communities like Silver Creek but are now primarily scenic tourist routes. An exit to the New York State Thruway (I-90) is located on Routes 5 & 20, in the town, just north of the village. A number of industries are located in these Northern Chautauqua County communities.

#### **Conclusion:**

This town and its villages are likely to remain a mostly rural area due to its distance from Buffalo. The area does offer limited seasonal recreational activities associated with Lake Erie. Overall the town and villages should remain generally stable with respect to population, commercial and economic base.

#### Market Area Analysis:





The subject market area is considered relatively similar to the four comparable wind farms being considered in this analysis. The market area has varied terrain and is predominately rural in character. With the exception of small localized community centers, the area is largely undeveloped. Large tracts of agricultural land cover the area with lands unsuitable for agricultural use being primarily mature deciduous woodlands. With the exception of the more developed community centers, the area contains minimal low-density single-family residential structures and farmsteads. The terrain is varied with little level land and it is characterized by undulating hills, ridges and smaller rounded hillocks.

The transportation infrastructure in the market area is considered average. There are several county routes and town roads that provide access throughout the market area.

Residential uses are either clustered at various crossroad hamlets or are very sparsely located on individual parcels. Residences are often located roadside, however many are located on isolated lots not viewable from local roads. These rural homes range in quality and condition from well-maintained single-family frame construction to older homes exhibiting significant signs of deferred maintenance. There are also a number of seasonal homes, camps and cabins interspersed throughout the market area. New residential development is limited in the market area.

#### **Review of Available Literature:**

In preparation for our analysis, a review of literature concerning property value impacts related to wind farm development was undertaken. With the somewhat recent development of wind farms as an alternative energy source in the United States, limited research has been done. The literature on wind energy facilities and surrounding property values that have been conducted can be grouped into two categories: survey based studies and transaction based studies.

Survey based studies are generally question based studies that involve soliciting feedback from assessors, real estate agents and residents in areas affected by, or proposed to be affected by, wind farm development. They are generally subjective and offer insights on community attitudes, however their reliance on qualitative data limit their usefulness in ascertaining true property value impacts and this has led to varied conclusions.

A brief description of each study, its conclusions and flaws are presented below:

The most well-known wind farm study is <u>The Effect of Wind Development on Local Property Values</u> produced in May 2003 by the Renewable Energy Policy Project (REPP). This report studied eleven wind farms located in California, New York, Texas, Vermont, Wisconsin, Pennsylvania and Iowa. The report reviewed approximately 25,000 residential sales within the five-mile view shed of the various wind farms and compared them to sales in a similar "control area" outside of the view shed. The study employed simple regression analysis to look at the rate of change in property values in both the view shed and control area over the entire study period, before the wind farms came on line and after the wind farms came on line. The general conclusion of this study was that "the statistical analysis does not support a contention that property values within the view shed of wind developments suffer or perform poorer than in a comparable region" and even states that "for the great majority of projects (wind farms) the property values rose more quickly in the view shed than they did in the comparable community." This studies method has been criticized for several reasons:

There is no effort to discern which properties within the 5-mile view sheds have an actual view of the wind farm. The analysis does not control for distance to the turbines. There is no attempt to sort out inappropriate (non-arms-length) transactions.

A second wind farm study is <u>A Real Estate Study of the Proposed White Oak Wind Energy Center</u> produced in 2007 by Poletti and Associates, Inc. This study focuses on two wind farms located in Wisconsin and Illinois. It reviews approximately 300 residential land and home sales and takes a similar approach to the REPP report with two key differences. It eliminates non-arms-length sales and excludes sales of homes built prior to 1960 in an effort to control for residential dwelling specific characteristics like construction quality, amenities and condition.

The report's conclusion was that "there was no significant difference in price per square foot for residences within the target area (view shed) when compared to those within the control area" and "similarly, analysis of vacant agricultural land and small and medium sized residential tracts indicated that there was no significant difference in the price per acre for these types of properties". Criticism of this study lies in two areas:

There is no effort to discern which properties within the 5-mile view sheds have an actual view of the wind farm.

The analysis does not control for distance to the turbines.

A transaction based study is the <u>Impacts of Windmill Visibility on Property Values in Madison County, New York</u> produced in 2006 by Ben Hoen of the Bard Center for Environmental Policy. This report analyzed 280 arms-length residential home sales within five miles of the Fenner wind farm between 1995 and 2005. A visit to each home was made and an unbiased scoring method was used to quantify the degree to which each of the houses could see the wind farm and the distance from the home to the turbines was calculated. These and other characteristics were incorporated into an econometric model to ascertain if the properties sales prices were uniquely affected by windmill visibility. This in depth report found no measurable effect of windmill visibility on property values and even indicated that this evidence holds when concentrating on homes within one-mile of the turbines and on those that sold immediately following construction of the facility in 2001. This is by far the most extensive and soundly designed study completed to date.

#### **Updated Literature:**

<u>Relationship between Wind Turbines and Residential Property Values in Massachusetts</u> is a Joint Report of University of Connecticut and Lawrence Berkeley National Laboratory dated January 9, 2014

To determine if wind turbines have a negative impact on property values in urban settings, this report analyzed more than 122,000 home sales, between 1998 and 2012, that occurred near the current or future location of 41 turbines in densely-populated Massachusetts communities.

The results of this study do not support the claim that wind turbines affect nearby home prices. Although the study found the effects from a variety of negative features (such as electricity transmission lines and major roads) and positive features (such as open space and beaches) generally accorded with previous studies, the study found no net effects due to the arrival of turbines in the sample's communities. Weak evidence suggests that the announcement of the wind facilities had a modest adverse impact on home prices, but those effects were no longer apparent after turbine construction and eventual operation commenced. The analysis also showed no unique impact on the rate of home sales near wind turbines.

A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States dated August 2013 and prepared jointly by Ben Hoen†, Ryan Wiser, Peter Cappers of Lawrence Berkeley National Laboratory; Jason P. Brown; Federal Reserve Bank of Kansas City; Thomas Jackson, AICP, MAI, CRE, FRICS of Real Analytics Inc. and Texas A&M University and Mark A. Thayer; San Diego State University.

This study concluded "previous research on the effects of wind energy facilities on surrounding home values has been limited by small samples of relevant home-sale data and the inability to account adequately for confounding home-value factors and spatial dependence in the data. This study helps fill those gaps. We collected data from more than 50,000 home sales among 27 counties in nine states. These homes were within 10 miles of 67 different wind facilities, and 1,198 sales were within 1 mile of a turbine—many more than previous studies have collected. The data span the periods well before announcement of the wind facilities to well after their construction. We use OLS and spatial-process difference-in-difference hedonic models to estimate the home-value impacts of the wind facilities; these models control for value factors existing before the wind facilities' announcements, the spatial dependence of unobserved factors effecting home values, and value changes over time. A set of robustness models adds confidence to our results. Regardless of model specification, we find no statistical evidence that home values near turbines were affected in the post-construction or post-announcement/pre-construction periods."

The windy city: Property value impacts of wind turbines in an urban setting dated October 2013 and prepared by The Department of Environmental and Natural Resource Economics, University of Rhode Island.

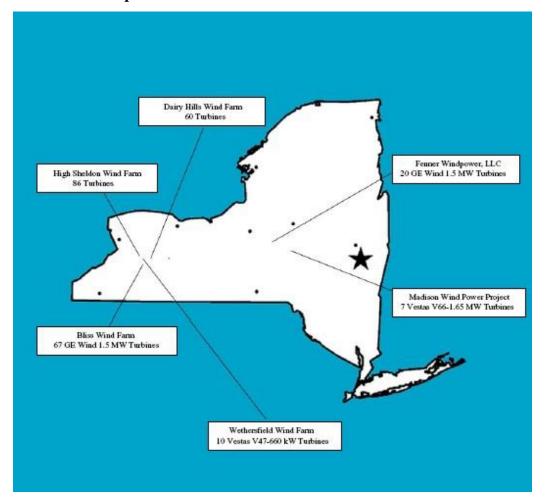
This paper examined the impact of wind turbines on house values in Rhode Island. In contrast to wind farms surrounded by sparse development, in Rhode Island single turbines have been built in relatively high population dense areas. As a result, we observe 48,554 single-family, owner-occupied transactions within five miles of a turbine site, including 3254 within one mile, which is far more than most related studies. We estimate hedonic difference-in-differences models that allow for impacts of wind turbines by proximity, viewshed, and contrast with surrounding development. Across a wide variety of specifications, the results suggest that wind turbines have no statistically significant negative impacts on house prices, in either the post public announcement phase or post construction phase.

#### **Conclusions:**

The various studies reviewed offer varied conclusions. Transaction based studies, however, have consistently produced results that demonstrate no apparent effect of wind farm development on property values for surrounding areas.

Our analysis will consider sales data within an approximate five square mile area surrounding four existing wind farms located throughout New York State. Surrounding land uses are predominately agricultural with interspersed residential development along the roadside. The following wind farms were considered.

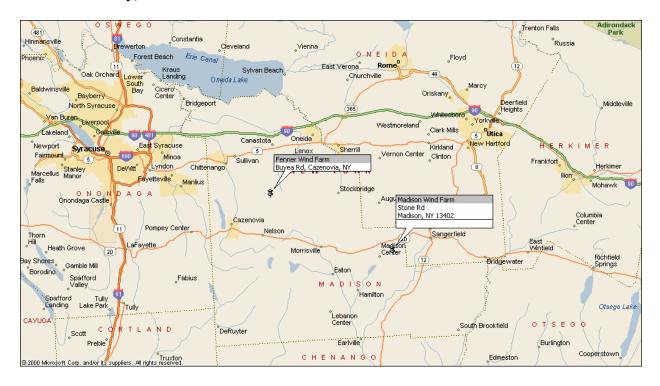
# **Windfarm Location Map:**



Below is a basic overview of the wind farms utilized in our analysis.

Project Name	Madison Wind Power	Wethersfield Wind Farm	Fenner Windpower	Noble Bliss Windpark
Town	Madison	Wethersfield	Fenner	Eagle
County	Madison	Wyoming	Madison	Wyoming
<b>Project Owner</b>	Horizon Wind	Enel North America	Enel North	Noble Power LLC
	Energy		America	
# of Turbines	7	10	20	67
Turbine Type	Vestas V66-1,650 kw	Vestas V47-660 kw	GE Wind-1,500 kw	GE Wind-1,500 kw
Rotor	216.5 ft. (66m)	154 ft. (47m)	231 ft. (70.5m)	253 ft. (77.1)
Diameter				
Hub Height	220 ft. (67m)	213 ft. (65m)	213 ft. (65m)	262 ft.
Total Turbine	339.25 ft.	290 ft.	328.5 ft.	388.9 ft.
Height				

# Madison & Fenner Wind Farms Madison County, New York



# Wethersfield Wind Farm & Noble Bliss Windpark Wyoming County, New York



# Madison Wind Farm Madison County, New York



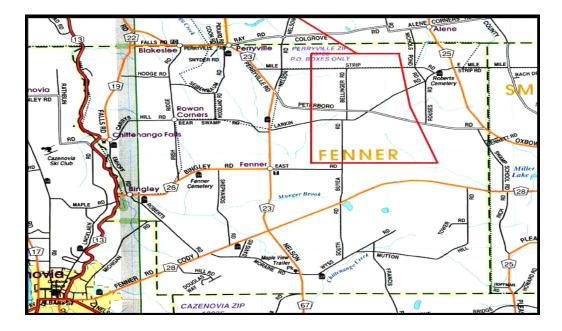


The Madison Wind Farm is located in the Town of Madison, Madison County, New York. This project was New York's first commercial wind farm and has been on line since September 2000. The site consists of seven (7) 220-foot high turbine towers & 216-foot rotor diameter. Total turbine height is 339.25 feet.

## Fenner Wind Farm Madison County, New York



The Fenner Windpower Project is located at the Town of Fenner, Madison County, New York. The Project encompasses an area of approximately 2,000 acres of leased land. This wind farm and has been on line since November 2001. The site consists of twenty (20) 213-Foot High turbine towers & 231 foot rotor diameter. Total turbine height is 328.5 feet.



## Wethersfield Wind Farm Wyoming County, New York



The Wethersfield Wind Farm is a 10 turbine, 6.6 MW wind energy farm located in the Town of Wethersfield, in Wyoming County, New York. The 310 acre Wethersfield site is located along one of the highest ridges in Wyoming County. The wind energy project came online in October 2000. The site consists of ten (10) 213-Foot High turbine towers & 154 foot rotor diameter. Total turbine height is 290 feet.



## Noble Bliss Windpark Wyoming County, New York



Source: Sherry Grugel

The Noble Bliss Windpark is a 67 turbine park, on approximately 93 acres, encompassing a 5,071 acre area in the Town of Eagle, Wyoming County. The project was recently completed in the fall of 2007 and went online in the spring of 2008. The wind turbines are General Electric 1.5 Megawatt turbines, approximately 253 feet tall, in an MTS configuration, with T-Flange generators. The project area spans a wide variety of land, with a mixture of 2,532 acres of agricultural land, 2,475 acres of forested land, and 49 acres of wetlands.



Source: Sherry Grugel

## **Scope of Work:**

Real estate values are influenced by many factors external to the property itself. These factors are divided into four major categories: social trends, economic trends, governmental controls and regulations and environmental conditions. Social trends consist of population characteristics which could influence property values due to sudden shifts in population and household size dictating demand to specific locations and size of dwellings. Economic trends consider relationships between supply and demand and the economic base of the region. Governmental controls and regulation consider zoning, building codes, utilities, as well as local, state and federal policies. Environmental forces which could influence property values include climate conditions, topography, noise, surrounding land uses as well as other factors. It is fundamental to this type of analysis to understand all of the value-influencing forces which effect property values.

The primary conditions specific to wind farms which may impact surrounding property values include the view shed, noise and shadow flicker from the blades.

The category fundamental to this analysis are environmental concerns, which considers surrounding land uses. This analysis will address the impact of a wind farm in close proximity to residential development. Externalities can impact housing values in several ways; i.e., unpleasant odors, excessive noise, health and safety concerns and view. The existence of the wind farms do not produce odors, nor have they been proven to cause any health and safety concerns, therefore, the only external influence common to a wind farms is view, noise and potential shadow flicker.

In the June 2003 study, a qualitative analysis in the form of relative comparison was utilized by comparing sales 5 years prior to the construction of the respective wind farms to sales subsequent to the construction and operation of the wind farm. The market area considered approximately a five mile radius surrounding the respective wind farms. The five mile radius was considered applicable due to the view shed of these properties ranging great distances in some instances. The second technique is called paired sales analysis. This technique compares sales and re-sales of the same property before and after the construction of the respective wind farms. In order to determine if the wind farm had an influence on real estate values, a specific residential sale prior to the construction of the wind farm was compared to its subsequent sale after the date of construction. Market sales and re-sales were researched and analyzed within the respective market areas from January 1995 to December 2007 as provided by municipal records and local realtors.

This report will consider any new sales data that has occurred since December 2007 and correlate the findings to the previous study to determine if sales prices have been impacted since our last report. Additionally any re sales of properties considered in the previous study will be reviewed.

## Wethersfield Wind Farm Wyoming County, New York

The Wethersfield Wind Farm came online in October 2000. Sales data from 1995 to 1999 in the subject market area was compared to sales data from 2000 to 2007.

The following results were drawn from the previous study.

## SALES 1995-1999

County	Municipality	SBL	Address	Street	Land Area	SF	SaleDate	SalePrice	Year Built	Price/SF
Wyoming	Wethersfield	107-2-19	4344	HERMITAGE	N/A	N/A	10/2/1995	\$32,000	N/A	N/A
Wyoming	Orangeville	951-7	3344	ORG-CTR RD	2.00	1,336	5/6/1996	\$63,900	1976	\$47.83
Wyoming	Orangeville	942-44	38	ORG-CTR RD	1.72	913	5/29/1996	\$45,000	1971	\$49.29
Wyoming	Orangeville	942-8	2865	DUNHAM RD	5.48	1,820	9/11/1996	\$94,500	1976	\$51.92
Wyoming	Orangeville	961-10	4286	LIBERTY ST RD	1.40	1,080	4/18/1997	\$58,000	1993	\$53.70
Wyoming	Orangeville	941-6.122	2982	DUNHAM RD	1.25	945	8/20/1997	\$39,900	1993	\$42.22
Wyoming	Orangeville	952-24	4080	QUAKERTOWN RD	N/A	1,856	9/19/1997	\$75,000	1975	\$40.41
Wyoming	Orangeville	941-4.1	2930	DUNHAM RD	9.63	2,016	3/25/1998	\$82,000	1970	\$40.67
Wyoming	Orangeville	941-9		SYLER RD	5.94	1,325	5/27/1998	\$41,000	1970	\$30.94
Wyoming	Wethersfield	1201-7.2	4759	HERMITAGE RD	17.14	2,134	7/16/1998	\$77,000	1900	\$36.08
Wyoming	Orangeville	942-12.2	3130	DUNHAM RD	9.07	1,671	8/12/1998	\$141,000	1983	\$84.38
Wyoming	Orangeville	942-50.12	2949	DUNHAM RD	5.56	1,344	1/21/1999	\$45,000	1983	\$33.48
Wyoming	Orangeville	942-5	2849	DUNHAM RD	3.43	1,480	6/3/1999	\$69,000	1974	\$46.62
Wyoming	Wethersfield	108.3-1-17	4173	WETHERSFIELD RD	0.67	1,168	6/16/1999	\$52,000	1900	\$44.52
Wyoming	Orangeville	942-22.2	3853	WEBER RD	0.88	1,800	9/30/1999	\$127,000	1991	\$70.56

Average = \$69,487 \$48.05 Median = \$63,900 \$45.57

## SALES 2000-2007

County	Municipality	SBL	Address	Street	Land Area	SF	SaleDate	SalePrice	Year Built	Price/SF
Wyoming	Orangeville	942-35	28	MEADOW LARK LN	2.07	800	4/2/2000	\$44,900	1975	\$56.13
Wyoming	Wethersfield	108.3-1-22	4261	HERMITAGE RD	0.76	1,601	5/8/2000	\$23,000	1920	\$14.37
Wyoming	Orangeville	951-4	3	CARDINAL DR	2.40	1,288	6/5/2000	\$70,000	1993	\$54.35
Wyoming	Orangeville	942-45	39	ORG-CTR RD	1.72	912	12/5/2000	\$44,000	1970	\$48.25
Wyoming	Orangeville	942-22.2	3853	WEBER RD	0.88	1,800	11/2/2001	\$110,000	1991	\$61.11
Wyoming	Orangeville	951-11	6	ROBIN LA	1.86	912	9/13/2002	\$53,000	1972	\$58.11
Wyoming	Wethersfield	108.3-1-30	4200	WETHERSFIELD RD	1.03	1,044	1/31/2003	\$55,000	1965	\$52.68
Wyoming	Wethersfield	1181-19.2	4027	SODOM RD	4.73	1,872	7/25/2003	\$85,000	1980	\$45.41
Wyoming	Orangeville	961-33.2	3801	HERMITAGE RD	0.33	960	3/19/2004	\$20,000	1930	\$20.83
Wyoming	Wethersfield	1062-8.2	3071	WETHERSFIELD RD	1.90	2,421	8/30/2004	\$157,000	1870	\$64.85
Wyoming	Wethersfield	108.3-1-4	4201	HERMITAGE RD	0.73	1,998	1/31/2005	\$76,000	1900	\$38.04
Wyoming	Wethersfield	108.3-1-30	4200	WETHERSFIELD RD	1.03	1,044	9/27/2005	\$65,000	1965	\$62.26
Wyoming	Wethersfield	1191-21.2	4596	HERMITAGE RD	1.39	2,400	10/11/2005	\$125,000	1995	\$52.08
Wyoming	Orangeville	961-5.11	3742	HERMITAGE RD	1.21	1,311	10/21/2005	\$117,500	1880	\$89.63
Wyoming	Orangeville	942-54.12	2953	DUNHAM RD	5.57	2,125	12/21/2005	\$140,000	1986	\$65.88
Wyoming	Orangeville	942-50.12	2949	DUNHAM RD	5.56	1,344	6/28/2006	\$96,000	1983	\$71.43
Wyoming	Wethersfield	120.00-1-4.112	4502	HERMITAGE RD	8.56	1,624	3/17/2006	\$50,000	1900	\$30.79
Wyoming	Orangeville	108.3-1-6	4217	HERMITAGE RD	0.50	1,480	6/2/2006	\$75,000	1900	\$50.68
Wyoming	Orangevile	82.00-2-44	22	DEER POND ACRES	6.10	1,024	6/28/2006	\$85,000	1984	\$83.01
Wyoming	Orangevile	94.00-2-50.12		DUNHAM RD	5.56	1,344	6/28/2006	\$96,000	1983	\$71.43
Wyoming	Orangevile	83.00-1-24.2	9	DEER POND ACRES	5.06	1,200	7/20/2006	\$97,000	1995	\$80.83
Wyoming	Orangevile	96.00-1-33.2	3801	HERMITAGE RD	0.33	960	9/1/2006	\$74,000	1930	\$77.08
Wyoming	Orangevile	82.00-2-32	3203	SYLER RD	1.10	1,266	10/20/2006	\$74,200	1980	\$58.61
Wyoming	Wethersfield	132.01-1-36	5129	SHEPPARD	0.48	1,160	1/18/2007	\$60,000	1900	\$51.72
Wyoming	Orangevile	81.00-3-16	2661	CENTERLINE RD	0.24	1,335	2/2/2007	\$54,902	1890	\$41.13
Wyoming	Orangevile	81.00-3-14	2671	CENTERLINE RD	0.46	2,504	4/20/2007	\$84,800	1890	\$33.87
Wyoming	Wethersfield	108.03-1-28	4180	WETHERSFIELD RD	1.17	1,200	6/5/2007	\$18,000	1900	\$15.00
Wyoming	Wethersfield	117.00-2-2		SODOM RD	2.66	780	6/22/2007	\$47,500	1959	\$60.90
Wyoming	Orangevile	94.00-2-10.113	3332	SYLER RD	14.86	1,196	7/10/2007	\$130,000	1985	\$108.70
Wyoming	Orangevile	105.00-3-7		HOLLOW RD	4.28	1,080	7/30/2007	\$73,000	1905	\$67.59
Wyoming	Orangevile	95.00-2-20	4011	QUAKERTOWN RD	1.41	1,344	7/31/2007	\$82,000	1950	\$61.01
Wyoming	Wethersfield	1072-14.112	4038	WETHERSFIELD RD	6.14	1,012	8/24/2007	\$81,000	1994	\$80.04
Wyoming	Orangevile	821-3	3133	ROYCE RD	3.55	2,464	9/27/2007	\$168,000	1971	\$68.18
Wyoming	Orangevile	951-17	13	ROBIN LA	2.07	2,135	11/30/2007	\$50,000	1982	\$23.42

Average = \$78,877 \$56.45 Median = \$74,600 \$58.36

## **Updated Sales Data**

## Sales 2008-2016

County	Municipality	SBL	Address	Street	Land Area	SF	Deed Date	Sale Price	Year Built	Price/SF
Wyoming	Wethersfield	1321-6	4324	BUG ROAD	0.92	1,904	4/10/2012	\$68,000	1900	\$35.71
Wyoming	Wethersfield	1191-14.2	3709	DEVINNEY	21.89	1,352	12/21/2015	\$112,500	1994	\$83.21
Wyoming	Wethersfield	1191-14.2	3709	DEVINNEY RD	21.89	1,352	7/16/2010	\$82,500	1994	\$61.02
Wyoming	Wethersfield	1191-2	3535	DEVINNEY RD	44.2	1,296	10/3/2014	\$128,000	1987	\$98.77
Wyoming	Wethersfield	132.1-1-24	4268 & 4266	DOLPH RD	1.02	1,088	11/10/2009	\$35,000	1900	\$32.17
Wyoming	Wethersfield	1321-10	5017	HERMITAGE RD	0.76	1,232	5/6/2011	\$66,000	2012	\$53.57
Wyoming	Wethersfield	1191-18	4438	HERMITAGE RD	4	2,146	9/13/2013	\$111,000	1892	\$51.72
Wyoming	Orangeville	961-5.11	3742	HERMITAGE RD	0	1,842	10/2/2013	\$117,500	1880	\$63.79
Wyoming	Wethersfield	1321-13	4974	HERMITAGE RD	0.92	1,964	12/3/2013	\$72,000	1910	\$36.66
Wyoming	Wethersfield	1191-21.111	4602	HERMITAGE RD	90.81	1,280	6/18/2015	\$280,000	2009	\$218.75
Wyoming	Orangeville	961-33.2	3801	HERMITAGE ROAD	0.33	960	8/31/2015	\$70,000	1930	\$72.92
Wyoming	Wethersfield	108.3-1-3	4183	HERMITAGE ROAD	1.88	1,248	10/28/2015	\$69,900	1900	\$56.01
Wyoming	Orangeville	841-31	4351	LIBERTY STREET RD	2.72	1,092	10/3/2014	\$75,000	1993	\$68.68
Wyoming	Wethersfield	1421-34	5749	MAXWELL RD	3.84	1,716	12/17/2008	\$60,000	1974	\$34.97
Wyoming	Wethersfield	1421-34	5749	MAXWELL RD	3.84	1,716	12/29/2010	\$15,000	1974	\$8.74
Wyoming	Wethersfield	1301-12	2834	PEE DEE RD	1.34	1,152	4/11/2014	\$50,400	1975	\$43.75
Wyoming	Wethersfield	1301-13	2834	PEE DEE RD	1.16	1,176	12/21/2015	\$105,000	1970	\$89.29
Wyoming	Wethersfield	1301-11	2860	PEE DEE ROAD LOT	1.29	1,176	5/5/2015	\$95,200	1994	\$80.95
Wyoming	Wethersfield	1421-47	5398	PLEASANT VALLEY	10.98	1,882	12/5/2013	\$92,000	1900	\$48.88
Wyoming	Wethersfield	1311-25	5249	POPLAR TREE RD	8.33	1,044	5/15/2008	\$177,500	1900	\$170.02
Wyoming	Wethersfield	1062-71	4100	POPLAR TREE RD	30.34	1,384	5/13/2011	\$40,000	1960	\$28.90
Wyoming	Wethersfield	1302-11	5120	POPLAR TREE RD	0.92	760	10/13/2011	\$45,000	1938	\$59.21
Wyoming	Wethersfield	1062-71.1	4100	POPLAR TREE RD	2.18	1,384	9/9/2013	\$130,000	1960	\$93.93
Wyoming	Wethersfield	1191-7	4685	POPLAR TREE ROAD	2.76	1,400	9/9/2014	\$85,600	1989	\$61.14
Wyoming	Wethersfield	1421-37.1	2830	ROUTE 78	2.91	1,950	10/19/2009	\$40,000	1900	\$20.51
Wyoming	Wethersfield	1421-37.1	2830	ROUTE 78	2.91	1,950	8/11/2014	\$20,000	1900	\$10.26
Wyoming	Wethersfield	1311-28	3816	ROUTE 78	104.91	2,727	9/19/2014	\$181,400	1920	\$66.52
Wyoming	Wethersfield	1311-33.11	3846	ROUTE 78	4.11	1,212	11/18/2015	\$20,000	1900	\$16.50
Wyoming	Wethersfield	1421-23.111	5797	ROUTE 362	3.26	1,320	5/15/2013	\$140,000	1986	\$106.06
Wyoming	Wethersfield	1421-23.11	5797	ROUTE 362	79.96	1,320	2/3/2011	\$84,374	1986	\$63.92
Wyoming	Wethersfield	1321-23	5344	SHEPPARD RD	4.26	3,120	5/13/2013	\$150,000	1900	\$48.08
Wyoming	Wethersfield	1321-23	5344	SHEPPARD RD	4.26	3,120	8/26/2013	\$150,000	1900	\$48.08
Wyoming	Wethersfield	1321-23	5344	SHEPPARD RD	4.26	3,120	3/30/2015	\$150,000	1900	\$48.08
Wyoming	Wethersfield	1181-19.2	4027	SODOM RD	4.73	1,872	12/13/2012	\$116,000	1980	\$61.97
Wyoming	Wethersfield	1072-17.112	4038	WETHERSFIELD ROA	6.14	1,968	11/13/2015	\$62,500	1994	\$31.76
Wyoming	Wethersfield	1431-2	5493	HUBBARD RD	80	720	7/3/2012	\$275,000	1975	\$381.94
							Average =	\$99,233		\$71.01
							Median =	\$84,987		\$57.61

As can be seen by the above sales data there appears to be no influence on property values with the continued operation of the wind farm since our last study. Average and median sales prices on a whole have increased indicating that the existence of the wind farm has not diminished real property values in this sub market.

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- Additionaliy	z saies ai	na re-saic	s or pro	perties w	ere considered	rrom	-ZUU8-ZUT6 8	is tollows:
1 Idditional	, bares as	iid io baic	D OI PIC	POI CIOD II	ore compracted	110111	-000 -010 t	to rome .

County	Municipality	SBL	Address	Street	Land Area	SF	Deed Date	Sale Price	Year Built	Price/SF
Wyoming	Wethersfield	1191-14.2	3709	DEVINNEY RD	21.89	1,352	7/16/2010	\$82,500	1994	\$61.02
Wyoming	Wethersfield	1191-14.2	3709	DEVINNEY RD	21.89	1,352	12/21/2015	\$112,500	1994	\$83.21
Wyoming	Wethersfield	1421-34	5749	MAXWELL RD	3.84	1,716	12/17/2008	\$60,000	1974	\$34.97
Wyoming	Wethersfield	1421-34	5749	MAXWELL RD	3.84	1,716	12/29/2010	\$15,000	1974	\$8.74
Wyoming	Wethersfield	1301-12	2834	PEE DEE RD	1.34	1,152	4/11/2014	\$50,400	1975	\$43.75
Wyoming	Wethersfield	1301-13	2834	PEE DEE RD	1.16	1,176	12/21/2015	\$105,000	1970	\$89.29
Wyoming	Wethersfield	1062-71	4100	POPLAR TREE RD	30.34	1,384	5/13/2011	\$40,000	1960	\$28.90
Wyoming	Wethersfield	1062-71.1	4100	POPLAR TREE RD	2.18	1,384	9/9/2013	\$130,000	1960	\$93.93
Wyoming	Wethersfield	1421-23.11	5797	ROUTE 362	79.96	1,320	2/3/2011	\$84,374	1986	\$63.92
Wyoming	Wethersfield	1421-23.111	5797	ROUTE 362	3.26	1,320	5/15/2013	\$140,000	1986	\$106.06
Wyoming	Wethersfield	1321-23	5344	SHEPPARD RD	4.26	3,120	8/26/2013	\$150,000	1900	\$48.08
Wyoming	Wethersfield	1321-23	5344	SHEPPARD RD	4.26	3,120	3/30/2015	\$150,000	1900	\$48.08

As is evident by the above correlated sales, there appears to be little to no effect on real estate values of the respective properties based on the continued operation of the facility. Of the 6 sales analyzed 4 increased in value, 1 decreased and 1 stayed the same. This analysis did not include an interview with the respective property owners at the time of sale to determine any underlying factors which may have additionally impacted sales prices. (i.e. capital improvements, additions, deferred maintenance). However, the sales data utilized is considered representative of the market as a whole and it is unlikely that every property had some or all of the previously mentioned underlying factors impacting their respective properties from sale to resale.

There are a limited number of properties with direct views of the wind farm due to extreme topography changes. Therefore the view shed, any noise level and potential for shadow flickers from the blades is mitigated. This is typical with wind farms due to the high elevations and rural nature of the project areas.

Overall, there is considered to be no stigma attached to the project due to the continual sale and resale of properties near the project and considering that the values have appreciated at similar rates when compared to the rest of the county. In conclusion it appears that the existence of the wind farm does not appear to have any impact on surrounding property values as a whole.

## Madison Wind Farm Madison County, New York

The Madison Wind Farm came online in September 2000. Sales data from 1995 to 1999 in the subject market area was compared to sales data from 2000 to 2007.

The following results were drawn from the previous study.

## SALES 1995-1999

County	Municipality	SBL	Address	Street	Land	SF	SaleDate	SalePrice	Year Built	Price/SF
Madison	Madison	114.6-1-17	7264	VALLEY RD	0.23	1,658	2/1/1995	\$22,000	1870	\$13.27
Oneida	Sangerfield	397.000-1-	715	MASON RD	100.50	2,072	4/5/1995	\$106,800	1840	\$51.54
Madison	Madison	1141-43	3753	SOLSVILLE	0.12	1,146	6/16/1995	\$37,000	1955	\$32.29
Madison	Madison	1142-19	7561	ROUTE 20	7.69	1,704	1/19/1996	\$150,000	1875	\$88.03
Madison	Madison	1021-15.13	4017	STRATFORD	2.44	2,722	3/1/1996	\$77,500	1902	\$28.47
Madison	Madison	1142-35	7490	ROUTE 20	0.45	1,359	3/8/1996	\$56,000	1875	\$41.21
Madison	Madison	1141-75.2	3652	MADISON	7.79	768	6/27/1996	\$135,000	1960	\$175.78
Madison	Madison	1261-36.3	3355	FREDERICK	3.15	2,160	8/19/1996	\$76,500	1970	\$35.42
Madison	Madison	114.19-1-36	3513	SOUTH ST	0.21	1,650	12/27/1996	\$40,700	1973	\$24.67
Madison	Madison	114.15-1-36	7337	ROUTE 20 E	0.21	1,832	6/24/1997	\$35,500	1885	\$19.38
Madison	Madison	1021-59	7481	WATER ST	3.31	2,269	8/22/1997	\$43,000	1850	\$18.95
Madison	Madison	1261-6.2	3631	RT 12B	4.77	2,320	9/19/1997	\$75,000	1878	\$32.33
Madison	Madison	114.15-1-7	7323	ROUTE 20 W	6.50	2,892	10/27/1997	\$80,000	1840	\$27.66
Madison	Madison	114.6-1-18	7267	VALLEY RD	0.29	1,538	1/20/1998	\$21,500	1875	\$13.98
Madison	Madison	114.15-1-55	7402	ROUTE 20 E	0.49	2,768	2/7/1998	\$20,000	1815	\$7.23
Madison	Madison	114.15-1-56	7400	ROUTE 20 E	0.35	1,596	2/7/1998	\$38,000	1815	\$23.81
Madison	Madison	1021-43	7470	BROOKSIDE	1.05	1,691	5/11/1998	\$59,900	1905	\$35.42
Madison	Madison	1021-47	7523	VALLEY RD	0.13	1,080	6/1/1998	\$33,200	1860	\$30.74
Madison	Madison	114.19-1-30	3571	SOUTH ST	0.26	1,115	7/15/1998	\$43,000	1920	\$38.57
Madison	Madison	1261-62	3247	CENTER RD	1.72	2,092	8/7/1998	\$68,600	1900	\$32.79
Madison	Madison	1141-16	3835	SOLSVILLE	0.50	1,508	9/8/1998	\$65,000	1972	\$43.10
Madison	Madison	1142-33	7484	ROUTE 20	1.72	2,379	3/8/1999	\$87,500	1900	\$36.78
Madison	Madison	1031-55	4239	CAMP RD	3.62	1,457	3/11/1999	\$66,000	1966	\$45.30
Madison	Madison	1261-56	3275	LOVEJOY	0.43	1,730	5/18/1999	\$45,000	1850	\$26.01
Madison	Madison	1021-14	4032	BIRD RD	2.16	720	6/14/1999	\$72,000	1977	\$100.00
Madison	Madison	1142-32	7478	ROUTE 20	0.54	1,287	8/31/1999	\$55,000	1840	\$42.74
Madison	Madison	1021-59	7481	WATER ST	8.00	2,269	9/30/1999	\$46,000	1850	\$20.27
Madison	Madison	114.19-1-11	7306	ROUTE 20 W	0.85	1,233	10/29/1999	\$50,000	1850	\$40.55
Madison	Madison	1271-15	3430	CENTER RD	3.08	1,254	12/9/1999	\$69,000	1974	\$55.02
Madison	Madison	1261-6.2	3487	RT 12B	4.77	2,320	12/10/1999	\$75,000	1878	\$32.33

 Average=
 \$61,657
 \$40.45

 Median =
 \$57,950
 \$32.56

## SALES 2000-2007

County	Municipality	SBL	Address	Street	Land Area	SF	SaleDate	SalePrice	Year Built	Price/SF
Madison	Madison	1021-34	4317	SOLSVILLE-	1.87	1,395	2/25/2000	\$50,000	1958	\$35.84
Madison	Madison	114.6-1-5	3885	AUGUSTA RD	0.56	1,920	4/28/2000	\$20,000	1890	\$10.42
Madison	Madison	114.19-1-15.1	7316	MAIN ST RT 20	0.42	2,160	5/10/2000	\$72,500	1810	\$33.56
Madison	Madison	1021-16.1	3963	AUGUSTA RD	0.90	1,680	5/12/2000	\$28,000	1990	\$16.67
Madison	Madison	1261-32.1	3381	FREDERICK RD	0.89	2,088	5/19/2000	\$110,000	1984	\$52.68
Madison	Madison	1141-42	7270	INDIAN	1.49	2,223	6/7/2000	\$77,500	1850	\$34.86
Madison	Madison	114.15-1-23	3712	NORTH ST	1.22	2,322	6/15/2000	\$87,400	1940	\$37.64
Madison	Madison	1151-1.1	3522	LOVEJOY RD	1.00	1,092	7/25/2000	\$72,500	1990	\$66.39
Madison	Madison	114.19-1-7	7280	RT 20	0.45	2,112	7/27/2000	\$63,000	1850	\$29.83
Madison	Madison	1021-16.1	3963	SOLSVILLE	0.90	1,680	10/5/2000	\$40,000	1990	\$23.81
Madison	Madison	1261-11	3200	WEST HILL ROAD	8.18	2,448	11/20/2000	\$148,000	1966	\$60.46
Madison	Madison	1261-61	3261	LOVEJOY RD	1.98	1,344	4/3/2001	\$82,000	1990	\$61.01
Madison	Madison	1031-23.11	4099	ST RTE 12B	1.59	1,906	4/17/2001	\$70,000	1850	\$36.73
Madison	Madison	114.15-1-29	3678	NORTH ST	0.34	1,374	6/8/2001	\$52,500	1850	\$38.21
Madison	Madison	114.15-1-61	7382	RT 20 E	0.25	1,651	7/23/2001	\$47,000	1850	\$28.47
Madison Madison	Madison Madison	114.15-1-43 1151-41	7377 3840	RT 20 CENTER RD	0.30 1.82	1,271 1,916	7/25/2001 10/19/2001	\$48,000 \$65,000	1830 1900	\$37.77 \$33.92
Madison	Madison	114.15-1-56	7400	RT 20 EAST	0.35	1,516	4/8/2002	\$62,000	1815	\$33.92
Madison	Madison	1031-41	4172	RT 12B	1.95	832	6/10/2002	\$68,500	1952	\$82.33
Madison	Madison	114.15-1-6	7321	ROUTE 20	0.50	2,240	7/31/2002	\$83,900	1890	\$37.46
Oneida	Sangerfield	397.000-1-32	805	PLEASANT	N/A	2,184	8/20/2002	\$76,000	1920	\$34.80
Madison	Madison	1151-27	3723	CENTER RD	1.75	1,728	11/14/2002	\$120,000	1850	\$69.44
Madison	Madison	1261-51	3200	W LAKE	2.57	1,108	11/19/2002	\$58,000	1967	\$52.35
Madison	Madison	114.15-1-25	3696	NORTH ST	0.22	1,566	3/10/2003	\$21,000	1920	\$13.41
Madison	Madison	114.19-1-54	3538	SOUTH ST	0.41	1,608	4/17/2003	\$40,000	1910	\$24.88
Madison	Madison	114.15-1-12	3665	NORTH ST	0.44	1,943	6/5/2003	\$90,000	1914	\$46.32
Madison	Madison	1031-56	4285	CAMP RD	0.41	922	8/12/2003	\$64,000	1960	\$69.41
Madison	Madison	1031-63	6676	SANGER HILL	1.36	1,326	11/13/2003	\$85,000	1835	\$64.10
Madison	Madison	114.19-1-42	3602	SOUTH ST	0.44	1,550	11/24/2003	\$60,000	1865	\$38.71
Madison	Madison	114.19-1-46	3502	SOUTH STREET	0.85	1,311	1/28/2004	\$80,400	1924	\$61.33
Madison	Madison	114.19-1-36	3513	SOUTH ST	0.21	1,650	2/23/2004	\$88,250	1973	\$53.48
Madison	Madison	1261-61	3261	LOVEJOY RD	1.98	1,344	2/23/2004	\$95,000	1990	\$70.68
Madison	Madison	1261-9.1	3353	WEST HILL RD	4.77	1,248	4/15/2004	\$78,500	1975	\$62.90
Madison	Madison	1141-33	3712	HORSESHOE	0.45	936	4/16/2004	\$90,000	1973	\$96.15
Madison	Madison	1142-19 1141-16	7561	STATE ROUTE 20,	7.69 0.50	1,704	4/30/2004 6/11/2004	\$260,000 \$67,000	1875 1972	\$152.58 \$44.43
Madison Madison	Madison Madison	114.15-1-5	3835 7317	SOLSVILLE RT 20	0.39	1,508 1,868	6/30/2004	\$95,000	1972	\$50.86
Madison	Madison	114.15-1-42	7373	RT 20	0.72	2,138	6/30/2004	\$70,000	1830	\$30.80
Madison	Madison	1261-38.11	3458	FREDERICK RD	7.38	1,644	8/13/2004	\$92,000	1988	\$55.96
Madison	Madison	114.19-1-42	3602	SOUTH ST	0.44	1,550	8/29/2004	\$110,000	1865	\$70.97
Madison	Madison	1142-31	7474	RT 20	0.12	768	9/29/2004	\$21,275	1935	\$27.70
Madison	Madison	1142-34	7490	ROUTE 20	0.45	1,359	9/29/2004	\$55,000	1875	\$40.47
Madison	Madison	114.19-1-7	7280	ROUTE 20W	0.45	2,112	11/5/2004	\$66,000	1850	\$31.25
Madison	Madison	114.15-1-54	7406	STATE RT 20	0.47	1,200	1/25/2005	\$71,500	1968	\$59.58
Madison	Madison	1031-40.2	4874	STATE RTE 12B	3.21	1,836	1/31/2005	\$55,000	1995	\$29.96
Madison	Madison	114.15-1-41	7363	ST RT 20	0.60	2,030	4/13/2005	\$31,500	1850	\$15.52
Madison	Madison	1031-23.13	4759	NYS RT 12B	1.39	1,906	4/26/2005	\$86,000	1850	\$45.12
Madison	Madison	1261-17.2	7124	HILLCREST RD	1.83	2,240	7/7/2005	\$82,500	1997	\$36.83
Madison	Madison	115-1-34	8141	ROUTE 20	2.48	2,542	10/17/2005	\$90,000	1805	\$35.41
Madison	Madison	114.19-1-35	3519	SOUTH ST.	0.10	814	10/21/2005	\$61,000	1948	\$74.94
Madison	Madison	114.15-1-47 126-1-70	7401 3134	Route 20 CENTER RD	0.32 1.41	1,845 1,271	11/15/2005 2/7/2006	\$59,000 \$67,500	1905 1880	\$31.98 \$53.11
Madison Madison	Madison Madison	114.19-1-56	3134 3524	SOUTH ST.	0.41	1,271	3/27/2006	\$67,500 \$86,000	1978	\$53.11 \$66.77
Madison	Madison	114.19-1-36	3692	NORTH ST.	0.41	1,288	7/28/2006	\$86,000	1978	\$18.99
Madison	Madison	138.00-1-28	3115	LAKE MORRAINE	4.3	888	8/2/2006	\$130,000	1961	\$146.40
Madison	Hamilton	154.00-2-49.118	5605	LAKE WORKAINE LAKEVIEW CT	2.9	2,400	8/15/2006	\$380,000	2005	\$158.33
Madison	Hamilton	154.00-2-49.5	5551	LAKEVIEW CT	2.34	2,340	8/17/2006	\$258,000	2003	\$110.26
Madison	Waterville	391.00-1-57	1394	BROTHERTOWN R	0.94	3,024	9/1/2006	\$141,000	1980	\$46.63
Madison	Hamilton	126.00-1-14	3161	W HILL RD	1.08	1,920	9/29/2006	\$99,000	1830	\$51.56
Madison	Madison	126.00-1-62	3139	CENTER RD	1.72	2,092	10/2/2006	\$162,500	1900	\$77.68
Oneida	Oriskany Falls	390.06-1-2.2	6320	BARKER RD	0.92	1,483	10/6/2006	\$73,140	2000	\$49.32
Madison	Madison	114.00-1-2	3920	STRATFORD ST	0.48	1,150	11/6/2006	\$75,000	2000	\$65.22
Madison	Madison	125.08-1-19	6845	US ROUTE 20	0.69	1,664	11/14/2006	\$107,900	1870	\$64.84
Madison	Sangerfield	391.00-1-12	7065	SANGER HILL RD	0.65	2,960	11/15/2006	\$96,500	1960	\$32.60
Madison	Madison	125.07-1-31	6763	US ROUTE 20	0.28	1,667	11/29/2006	\$70,000	1900	\$41.99
Madison	Waterville	391.00-1-20	1342	BROTHERTOWN R	0.48	1,404	1/3/2007	\$167,890	1974	\$119.58
Oneida	Oriskany Falls	381.00-1-39.7	101	PINEHURST LN	1.16	1,800	5/3/2007	\$250,000	2003	\$138.89
Madison	Hamilton	1381-55.12	5483	HILL RD	4.59	2,616	7/2/2007	\$395,000	1988	\$150.99
Oneida	Oriskany Falls	381.19-1-34	253	MAIN ST	2.8	2,592	7/17/2007	\$67,980	1910	\$26.23
Madison	Madison	1542-49.2	5124	HILL RD	0.81	1,440	7/30/2007 8/31/2007	\$130,000	1977	\$90.28
Madison	Madison	1261-42	3373	FREDERICK RD	0.53	1,216	8/31/200/ Average=	\$97,400 <b>\$93,648</b>	1948	\$80.10 \$56.07
							Average=	\$76,040		\$20.07 \$46.63

\$56.07 \$46.63 Average= Median = \$76,000

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## <u>Updated Sales Data - Sales 2008-2016</u>

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Madison	1271-29	3425	TINKER HOLLOW RI	0.82	1,797	2/3/2009	\$49,000	1850	\$27.27
Madison	Madison	1552-15.2	2746	QUARTERLINE RD	4.43	1,792	2/11/2009	\$82,900	2001	\$46.26
Madison	Madison	114.19-1-10	7296	RTE 20	1.38	1,866	6/1/2009	\$40,000	1890	\$21.44
Madison	Madison	114.15-1-6	7321	STATE ROUTE 20	0.5	2,240	7/7/2009	\$95,000	1890	\$42.41
Madison Madison	Madison Madison	1142-23 114.19-1-10	7581 7296	RTE 20 ROUTE 20	0.96 1.38	1,050 1,866	8/5/2009 10/9/2009	\$55,000 \$33,000	1945 1890	\$52.38 \$17.68
Madison	Madison	1261-38.11	3458	FREDERICK RD	7.38	1,644	12/30/2009	\$130,000	1988	\$79.08
Madison	Madison	114.15-1-57	7396	ROUTE 20	0.36	1,696	3/1/2010	\$88,000	1885	\$51.89
Madison	Madison	114.19-1-42	3602	SOUTH ST	0.44	1,550	4/30/2010	\$120,000	1865	\$77.42
Madison	Madison	1151-38	3948	STONE ROAD	2.6	1,758	4/30/2010	\$170,000	1993	\$96.70
Madison	Hamilton	1541-16.2	7224	MASON RD	0.78	1,046	5/14/2010	\$62,000	1930	\$59.27
Madison	Madison	1021-18	4028	AUGUSTA RD	0.45	1,536	8/4/2010	\$57,000	1860	\$37.11
Madison	Madison	1381-27.1	3119	LAKE MORAINE RD	0.58	1,680	10/12/2010	\$72,500	1960	\$43.15
Madison	Madison	1031-55	4349	CAMP RD	3.52	1,457	11/26/2010	\$82,500	1966	\$56.62
Madison	Madison	114.15-1-30	3674	NORTH ST	0.32	3,107	8/22/2011	\$79,000	1850	\$25.43
Madison	Madison	1271-14	3453	QUARTERLINE RD	1.94	1,960	9/29/2011	\$1,985	1985	\$1.01
Madison	Madison	1021-56.12	7339	VALLEY RD	2.95	2,240	10/26/2011	\$104,940	2000	\$46.85
Madison	Madison	114.15-1-58	7392	ROUTE 20	0.33	1,750	12/10/2011	\$97,500	1900	\$55.71
Madison	Madison	114.19-1-7	7280	RT 20	0.45	2,112	2/3/2012	\$118,614	1850	\$56.16
Madison	Madison	1271-14	3453	QUARTERLINE RD	1.94	1,960	5/21/2012	\$167,000	1985	\$85.20
Madison	Madison	1032-63	6676	SANGER HILL RD	0.35	2,022	6/14/2012	\$118,000	1835	\$58.36
Madison	Madison	114.15-1-57	7396	ROUTE 20	0.36	1,750	7/17/2012	\$89,000	1885	\$50.86
Madison	Madison	1142-30.2	7470	STATE ROUTE 20	1.08	1,647	9/14/2012	\$85,000	1875	\$51.61
Madison	Hamilton	1541-19	7179	MASON RD	0.33	850	11/1/2012	\$23,120	1948	\$27.20
Madison	Madison	1261-32.1	3473	FREDERICK RD	1.27	2,088	11/12/2012	\$152,000	1984	\$72.80
Madison	Madison	114.19-1-59	3504	SOUTH ST	3.72	3,000	1/16/2013	\$245,000	1802	\$81.67
Madison	Madison	1271-25.11	3257	QUARTERLINE RD	95.58	1,596	1/30/2013	\$143,000	1895	\$89.60
Madison	Madison	114.19-1-36	3513	SOUTH ST	0.21	1,650	5/17/2013	\$110,000	1973	\$66.67
Madison	Madison	1271-5.12	3325	PICKETT RD	5.2	1,984	7/3/2013	\$160,000	2004	\$80.65
Madison	Madison	1031-24	4779	NYS RTE 12B	48.29	4,432	10/24/2013	\$328,000	2007	\$74.01
Madison	Madison	1142-17	7549	US RT 20	0.99	1,561	11/18/2013	\$143,100	1988	\$91.67
Madison	Madison	1031-29	7854 7313	BONUS ALLEY RD ROUTE 20	0.34	1,881	5/27/2014	\$130,000	2005 1807	\$69.11
Madison Madison	Madison Madison	114.15-1-4 1262-38.11	3458	FREDERICK RD	7.38	2,208 1,644	6/11/2014 6/24/2014	\$90,000 \$117,925	1988	\$40.76 \$71.73
Madison	Madison	1381-27.1	3119	LAKE MORAINE RD	0.58	1,680	7/2/2014	\$149,000	1960	\$88.69
Madison	Madison	1151-25	3739	CENTER RD	33.2	1,092	10/23/2014	\$150,000	1981	\$137.36
Madison	Madison	114.19-1-37	3511	SOUTH ST	0.2	1,396	11/26/2014	\$80,000	1963	\$57.31
Madison	Madison	1271-3	3161	PICKETT ROAD	1.01	1,922	12/5/2014	\$108,000	1830	\$56.19
Madison	Madison	1381-27	3121	LAKE MORAINE RO.	0.71	2,015	12/29/2014	\$160,000	1820	\$79.40
Madison	Madison	1271-13	3563	QUARTERLINE ROA	1.07	1,830	1/27/2015	\$99,600	1968	\$54.43
Madison	Madison	114.19-1-10	7296	US ROUTE 20	1.38	1,866	8/27/2015	\$102,000	1890	\$54.66
Madison	Madison	1031-51.22	4125	CAMP ROAD	1.74	1,680	9/4/2015	\$157,900	2001	\$93.99
Madison	Hamilton	1541-19.1	7180	MASON ROAD	6.15	3,272	9/8/2015	\$415,000	2013	\$126.83
Madison	Madison	114.6-1-5	7247	VALLEY RD	0.56	1,920	9/10/2015	\$50,000	1890	\$26.04
Madison	Madison	1142-28	7452	STATE ROUTE 20	0.75	1,449	9/21/2015	\$80,000	1925	\$55.21
Madison	Madison	1032-79.21	8323	US STEAT ROUTE 20	27.03	2,056	10/27/2015	\$77,000	1860	\$37.45
Madison	Madison	1261-31.12	3425	BISHOP ROAD	10.72	2,322	11/2/2015	\$223,000	1989	\$96.04
Madison	Madison	114.15-1-58	7392	RT 20	0.33	1,750	11/16/2015	\$109,000	1900	\$62.29
Oneida	Oriskany Falls	381.019-4-4	165	SO MAIN ST	0	1,356	7/25/2008	\$65,000	1900	\$47.94
Oneida	Sangerfield	391.000-1-8.1	6878	SANGER HILL RD	5.4	1,500	8/4/2008	\$190,000	2004	\$126.67
Oneida	Waterville	392.010-3-7	217	MADISON ST	0.48	1,320	8/14/2008	\$51,500	1865	\$39.02
Oneida	Oriskany Falls	390.007-4-3	118	COOPER ST	0	1,960	9/23/2008	\$93,700	1930	\$47.81
Oneida	Oriskany Falls	381.019-4-2	256	MAIN ST	0	1,736	10/31/2008	\$100,700	1900	\$58.01
Oneida	Oriskany Falls	381.015-1-4	121	COLLEGE ST	0	1,272	11/13/2008	\$105,000	1954	\$82.55
Oneida	Oriskany Falls	381.020-1-1	165	N MAIN ST	0	2,318	11/26/2008	\$62,500	1900	\$26.96
Oneida	Oriskany Falls	381.019-4-38	112	S. MAIN ST.	0	1,584	1/8/2009	\$62,700	1948	\$39.58
Oneida	Oriskany Falls	381.019-4-25	222	MAIN ST	0	1,650	6/30/2009	\$40,700	1880	\$24.67
Oneida	Sangerfield	410.000-1-4	102	NYS RT 12 ES	2.5	1,614	7/28/2009	\$77,000	1890	\$47.71
Oneida	Sangerfield	404.000-1-28.2	315	STATE RT. 12	4.5	1,716	8/28/2009	\$94,000	1995	\$54.78
Oneida	Waterville	392.007-3-71		MAIN ST	0	1,269	11/2/2009	\$98,000	1865	\$77.23 \$43.04
Oneida	Waterville	392.007-3-55	144	MAIN ST MADISON ST	0 1.46	1,998	11/12/2009 2/18/2010	\$86,000	1900 2004	\$43.04 \$90.14
Oneida	Sangerfield Oriekany Falls	391.000-1-28.5	7266 102	MADISON ST	0	1,664	2/18/2010	\$150,000	1890	\$90.14 \$47.62
Oneida Oneida	Oriskany Falls Waterville	381.019-3-29 392.007-3-64	102	COOPER ST MAIN ST	0	1,617 1,920	2/23/2010 2/26/2010	\$77,000 \$40,000	1950	\$47.62 \$20.83
Oneida	Oriskany Falls	381.020-1-2	169	N MAIN ST	0	1,350	4/12/2010	\$97,400	1890	\$72.15
Oneida	Sangerfield	392.019-1-22	7655	US ROUTE 20	0.25	970	5/19/2010	\$40,000	1920	\$41.24
Oneida	Oriskany Falls	381.020-1-7	140	NORTH MAIN ST	0.23	2,016	6/24/2010	\$25,000	1860	\$12.40
	Orionany rans	301.020-1-7	170		Ü	2,010	5, 24, 2010	Ψ=2,000	1000	ψ12.TO

## Sales 2008-2016 (Cont'd)

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Oneida	Oriskany Falls	390.007-2-5	127	MADISON ST	0.5	1,432	11/10/2010	\$84,800	1930	\$59.22
Oneida	Oriskany Falls	381.019-1-5	107	COLLEGE ST	0	1,960	12/10/2010	\$52,000	1840	\$26.53
Oneida	Oriskany Falls	381.019-4-26	220	MAIN ST	0	1,480	2/2/2011	\$54,000	1900	\$36.49
Oneida	Sangerfield	391.000-1-55.7	1322	SAWMILL RD	1	1,232	2/28/2011	\$128,900	2006	\$104.63
Oneida	Oriskany Falls	390.007-2-15	151-153	MADISON ST	0	2,704	4/25/2011	\$39,000	1900	\$14.42
Oneida	Sangerfield	391.000-1-49	6779	US RT 20	1.31	1,440	5/11/2011	\$119,000	1959	\$82.64
Oneida	Waterville	392.010-1-32	182	MADISON ST	0	1,596	5/13/2011	\$128,000	1880	\$80.20
Oneida	Sangerfield	392.019-1-24	7645	US RT 20	0	2,256	8/2/2011	\$150,000	1925	\$66.49
Oneida	Oriskany Falls	390.007-3-11	158	MADISON ST	0	1,429	12/2/2011	\$70,000	1900	\$48.99
Oneida	Sangerfield	391.000-1-8.2	1387	SAWMILL RD	17.1	2,453	12/12/2011	\$235,000	1972	\$95.80
Oneida	Waterville	392.010-1-26	132	MADISON ST	0	2,851	2/24/2012	\$70,000	1840	\$24.55
Oneida	Sangerfield	391.000-1-28.3	7247	MADISON ST	1.2	1,245	4/4/2012	\$119,000	1936	\$95.58
Oneida	Oriskany Falls	381.019-2-26	174	N MAIN STREET	0.14	1,260	6/12/2012	\$38,500	1950	\$30.56
Oneida	Sangerfield	391.000-1-39.5	6934	US RT 20	2.21	1,744	4/9/2013	\$133,900	1940	\$76.78
Oneida	Sangerfield	391.000-1-57	1394	BROTHERTOWN	0	1,512	5/9/2013	\$95,000	1980	\$62.83
Oneida	Oriskany Falls	381.019-2-17	179	NORTH MAIN ST	0	2,024	5/17/2013	\$30,000	1880	\$14.82
Oneida	Oriskany Falls	381.019-3-7	118	MADISON ST	0	2,534	5/28/2013	\$87,874	1900	\$34.68
Oneida	Oriskany Falls	381.019-4-27	218	SOUTH MAIN STREE	0	2,040	6/15/2013	\$29,000	1950	\$14.22
Oneida	Waterville	392.010-3-4	349	MADISON ST	0.35	1,248	7/1/2013	\$145,000	1950	\$116.19
Oneida	Sangerfield	403.000-1-25	195	MASON RD	1.17	1,464	10/23/2013	\$255,000	1850	\$174.18
Oneida	Sangerfield	392.000-1-9	7439	MADISON ST	5.26	1,032	10/30/2013	\$113,300	1967	\$109.79
Oneida	Oriskany Falls	381.019-3-31	106	COOPER ST	0	900	12/12/2013	\$20,000	1925	\$22.22
Oneida	Sangerfield	392.000-2-31.2	7564	RT 20	0	1,568	6/25/2014	\$51,500	1990	\$32.84
Oneida	Waterville	392.010-1-39.3	350	MADISON ST	1.91	2,752	7/10/2014	\$270,000	2000	\$98.11
Oneida	Sangerfield	404.000-1-21	192	ST RT 12 ES	0	2,048	7/15/2014	\$77,000	1920	\$37.60
Oneida	Oriskany Falls	390.007-2-15	151-153	MADISON ST	0	2,704	8/5/2014	\$75,000	1900	\$27.74
Oneida	Sangerfield	391.000-1-55.8	7230	SAWMILL RD	27.7	2,440	10/17/2014	\$335,000	2009	\$137.30
Oneida	Waterville	392.010-3-13	183	MADISON ST	0	1,880	10/31/2014	\$133,000	1900	\$70.74
Oneida	Oriskany Falls	390.007-2-15	151 153	MADISON STREET	0	2,704	11/4/2014	\$22,500	1900	\$8.32
Oneida	Sangerfield	391.000-1-55.5	1336	SAWMILL ROAD	1	1,880	12/5/2014	\$163,085	1989	\$86.75
Oneida	Sangerfield	391.000-1-8.10	6860	SANGER HILL RD	2.3	1,328	12/24/2014	\$142,000	2013	\$106.93
Oneida	Oriskany Falls	381.019-1-16	213	MAIN ST	0	4,341	6/15/2015	\$145,000	1800	\$33.40
Oneida	Waterville	392.010-3-4	349	MADISON STREET	0	1,248	9/11/2015	\$144,160	1950	\$115.51
Oneida	Oriskany Falls	390.007-2-28	100	ELM AVE	0	1,392	12/11/2015	\$52,000	1900	\$37.36
Oneida	Waterville	392.010-1-25	126	MADISON STREET	0	2,895	1/19/2016	\$56,500	1900	\$19.52
							Average =	\$107,930		\$60.10
							Median =	\$95,000		\$55.21

As can be seen by the above sales data there appears to be no influence on property values with the continued operation of the wind farm since our last study. Average and median sales prices on a whole have increased indicating that the existence of the wind farm has not diminished real property values in this sub market.

Additionally sales and re-sales of properties were considered from 2008-2016 as follows:

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Madison	1261-38.11	3458	FREDERICK RD	7.38	1,644	12/30/2009	\$130,000	1988	\$79.08
Madison	Madison	1262-38.11	3458	FREDERICK RD	7.38	1,644	6/24/2014	\$117,925	1988	\$71.73
Madison	Madison	1381-27.1	3119	LAKE MORAINE RD	0.58	1,680	10/12/2010	\$72,500	1960	\$43.15
Madison	Madison	1381-27.1	3119	LAKE MORAINE RD	0.58	1,680	7/2/2014	\$149,000	1960	\$88.69
Oneida	Oriskany Falls	390.007-2-15	151-153	MADISON ST	0	2,704	4/25/2011	\$39,000	1900	\$14.42
Oneida	Oriskany Falls	390.007-2-15	151-153	MADISON ST	0	2,704	8/5/2014	\$75,000	1900	\$27.74
Madison	Madison	1271-14	3453	QUARTERLINE RD	1.94	1,960	9/29/2011	\$155,000	1985	\$79.08
Madison	Madison	1271-14	3453	QUARTERLINE RD	1.94	1,960	5/21/2012	\$167,000	1985	\$85.20
Madison	Madison	114.15-1-57	7396	ROUTE 20	0.36	1,696	3/1/2010	\$88,000	1885	\$51.89
Madison	Madison	114.15-1-57	7396	ROUTE 20	0.36	1,696	7/17/2012	\$89,000	1885	\$52.48

As is evident by the above correlated sales, there appears to be little to no effect on real estate values of the respective properties based on the continued operation of the facility. Of the 5 sales analyzed 4 increased in value and 1 decreased in value.

This analysis did not include an interview with the respective property owners at the time of sale to determine any underlying factors which may have additionally impacted sales prices. (i.e. capital improvements, additions, deferred maintenance). However, the sales data utilized is considered representative of the market as a whole and it is unlikely that every property had some or all of the previously mentioned underlying factors impacting their respective properties from sale to resale.

Overall, there is considered to be no stigma attached to the project due to the continual sale and resale of properties near the project and considering that the values have appreciated at similar rates when compared to the rest of the county. In conclusion it appears that the existence of the wind farm does not appear to have any impact on surrounding property values as a whole.

## Fenner Wind Farm Madison County, New York

The Fenner Wind Farm came online in November 2001. Sales data from 1995 to 1999 in the subject market area was compared to sales data from 2000 to 2007.

The following results were drawn from the previous study.

## SALES 1995-1999

County	Municipality	SBL	Address	Street	Land Area	SF	SaleDate	SalePrice	Yr Built	\$/SF
Madison	Smithfield	711-54	5447	BUYEA ROAD	0.86	1.224	2/7/1995	\$16,000	1870	\$13.07
Madison	Fenner	781-8	2893	BINGLEY	3.28	2,567	2/28/1995	\$165,900	1860	\$64.63
Madison	Smithfield	801-56	5275	BUYEA ROAD	2.17	872	4/23/1995	\$17,000	1928	\$19.50
Madison	Lincoln	601-26.13	RR 3	NELSON RD	2.87	2,428	5/26/1995	\$150,000	1994	\$61.78
Madison	Fenner	772-22.5	2434	CARY HL RD	6.86	1,847	6/23/1995	\$90,600	1977	\$49.05
Madison	Fenner	60.3-1-6	103C	PERRYVILLE RD	0.74	1,350	8/11/1995	\$54,000	1900	\$40.00
Madison	Fenner	871-44	4867	SOUTH	1.58	1,105	8/15/1995	\$64,000	1825	\$57.92
Madison	Fenner	791-21	5308	SWAMP SCHL	0.94	1,680	10/4/1995	\$72,500	1965	\$43.15
Madison	Fenner	772-14	5195	EMHOFF	1.50	1,875	10/20/1995	\$74,900	1890	\$39.95
Madison	Fenner	681-23.2	2489	CAREY HILL	2.52	1,280	10/31/1995	\$69,300	1995	\$54.14
Madison	Fenner	68.1-1-39.2	5615	RT 13	0.39	1,436	11/6/1995	\$75,000	1978	\$52.23
Madison	Fenner	871-18	4803	NELSON	0.76	2,728	3/1/1996	\$30,000	1801	\$11.00
Madison		881-24	3966	CODY RD	6.99	2,015	3/28/1996	\$87,500	1981	\$43.42
Madison	Lincoln	601-28	6003	NELSON RD	5.37	2.012	4/17/1996	\$125,000	1976	\$62.13
Madison	Fenner	791-19	5365	SWAMP SCHOOL RD	0.35	1,524	5/22/1996	\$69,900	1963	\$45.87
Madison	Fenner	701-48	3921	PETERBORO	1.14	1,824	7/17/1996	\$68,500	1981	\$37.55
Madison	Fenner	871-10.121	2910	FENNER RD	5.71	2,961	8/16/1996	\$180,000	1991	\$60.79
Madison	Fenner	881-12.2	4499	FRANCIS RD	28.49	1,300	8/20/1996	\$106,000	1990	\$81.54
Madison	Fenner	691-31.1	3181	LARKIN RD	4.80	960	8/23/1996	\$83,000	1989	\$86.46
Madison	Fenner	781-14	2786	BINGLEY	0.85	1,348	9/17/1996	\$85,000	1968	\$63.06
Madison	Smithfield	891-5.12	4675	RICH RD	4.72	2,150	10/4/1996	\$95,000	1908	\$44.19
Madison	Smithfield	891-28	4799	GILL ROAD	5.03	1,664	10/8/1996	\$78,000	1989	\$46.88
Madison	Lincoln	601-5.12	3097	INGALLS CORNERS RD	2.88	1,979	10/11/1996	\$120,000	1992	\$60.64
Madison	Fenner	871-67.8	3573	WYSS RD	0.92	640	11/21/1996	\$50,000	1977	\$78.13
Madison	Fenner	681-28.32	5421	IRISH RIDGE	2.85	1,920	11/22/1996	\$90,900	1992	\$47.34
Madison	Lincoln	611-14	6811	OXBOW	0.39	1,034	12/2/1996	\$38,500	1843	\$37.23
Madison	Fenner	701-18.118	6348	OXBOW RD	5.04	1,608	8/25/1997	\$86,400	1992	\$53.73
Madison	Fenner	871-61.3	4794	SOUTH ROAD	6.41	2.080	10/29/1997	\$95,500	1985	\$45.91
Madison		611-45.6	4136	WHITMAN	1.22	1,316	12/19/1997	\$90,000	1986	\$68.39
Madison	Lincoln	601-26.22	3151	RAY	1.51	1,632	12/23/1997	\$87,500	1973	\$53.62
		611-40	6734	OXBOW	0.89	2,716	12/23/1997	\$74,000	1974	\$27.25
Madison	Smithfield	801-5.13	5815	OXBOW	2.82	1.260	12/30/1997	\$35,000	1963	\$27.78
Madison	Fenner	781-32	5042	NELSON ROAD	5.46	1,453	3/24/1998	\$30,000	1850	\$20.65
Madison	Fenner	871-31.2	4875	BUYEA RD	1.70	2,164	5/29/1998	\$77,349	1932	\$35.74
Madison	Fenner	881-24	3966	CODY RD	6.99	2,015	6/8/1998	\$105,000	1981	\$52.11
Madison	Fenner	881-9	3663	MUTTON HILL RD	1.85	1,840	6/12/1998	\$42,500	1973	\$23.10
Madison	Fenner	772-17	5099	EMHOFF RD	2.00	1.159	6/29/1998	\$60,000	1969	\$51.77
Madison	Fenner	701-18.116	4027	MILESTRIP RD	1.93	1,158	7/2/1998	\$79,200	1993	\$68.39
Madison	Fenner	881-13.126	4538	FRANCIS RD	2.77	1,500	7/20/1998	\$72,500	1987	\$48.33
Madison	Lincoln	601-30	3038	RAY	0.90	920	7/23/1998	\$41,200	1850	\$44.78
Madison	Lincoln	611-22.1	3825	ALENE COR	8.01	1,776	7/28/1998	\$81,800	1951	\$46.06
Madison	Fenner	68.1-1-18	2424	STABLES	0.98	1,322	9/16/1998	\$54,500	1965	\$41.23
Madison	Fenner	701-43.1	5566	ROUSES	3.97	1,450	9/18/1998	\$84,000	1986	\$57.93
Madison	Smithfield	80.20-1-1	5173	SWAMP ROAD	6.13	1,743	9/24/1998	\$50,000	1850	\$28.69
Madison	Lincoln	611-40	6734	OXBOW	0.89	2,716	10/15/1998	\$82,800	1974	\$30.49
Madison	Smithfield	80.15-1-52	5256	PLST VLL Y	0.36	1,212	11/17/1998	\$50,000	1850	\$41.25
Madison	Smithfield	80.15-1-4.2	5323	OXBOW	1.07	2,138	12/17/1998	\$37,500	1860	\$17.54
Madison	Lincoln	601-9	3171	INGALLS CORNERS RD	0.63	1,104	5/6/1999	\$54,900	1959	\$49.73
Madison	Fenner	791-9	3813	CODY ROAD	4.15	1,202	6/29/1999	\$79,000	1970	\$65.72
Madison	Fenner	881-29.1	4269	MUTTON HILL ROAD	2.68	816	7/9/1999	\$70,000	1974	\$85.78
Madison	Fenner	871-10.121	2910	FENNER ROAD	5.71	2,961	7/27/1999	\$186,750	1991	\$63.07
Madison	Fenner	871-55.2	4631	SOUTH ROAD	4.68	2,905	9/10/1999	\$133,000	1971	\$45.78
Madison	Lincoln	601-26.14	3168	INGALS CRNERS	2.33	1,680	9/23/1999	\$89,409	1995	\$53.22
Madison	Fenner	772-52.11	5240	IRISH RIDGE ROAD	5.98	2,407	10/18/1999	\$75,000	1870	\$31.16
Madison	Fenner	881-27.12	4390	MUTTON HILL ROAD	1.17	995	10/18/1999	\$65,000	1974	\$65.33
Madison		701-47.2	3947	PETERBORO ROAD	1.01	2,388	11/22/1999	\$52,500	1880	\$21.98
						-,		+,-00		7

Average= \$78,193 \$47.65 Median = \$75,000 \$47.11

## SALES 2000-2007

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Yr Built	\$/SF
Madison	Smithfield	80.19-1-9	4538	ELIZABETH ST	1.15	420	1/18/2000	\$47,500	1940	\$113.10
Madison	Fenner	871-8	2894	MORAINE RD	0.94	2,380	1/20/2000	\$120,000	1974	\$50.42
Madison	Lincoln	601-5.13	3111	INGALLS CORNERS RD	21.03	1,710	3/10/2000	\$200,000	1900	\$116.96
Madison	Fenner	691-31.16	3061	BEAR SWAMP RD	4.76	1,404	3/14/2000	\$75,100	1988	\$53.49
Madison	Smithfield	711-47.12	4538	MILE STRIP RD	4.92	1,144	4/13/2000	\$63,680	1997	\$55.66
Madison	Fenner	68.1-1-25	5626	FOSSIL ROCK RD	4.28	1,710	5/1/2000	\$84,000	1956	\$49.12
Madison	Fenner	881-27.3	4272	MUTTON HILL ROAD	2.07	1,720	7/28/2000	\$84,200	1984	\$48.95
Madison Madison	Smithfield Fenner	711-47.3 781-47	4522 3517	MILE STRIP RD CODY RD	1.00 1.17	1,323 1,440	9/21/2000 10/4/2000	\$65,000	1974 1974	\$49.13 \$47.15
Madison	Fenner	881-13.123	3646	MUTTON HILL RD	0.91	1,380	10/4/2000	\$67,900 \$69,900	1974	\$50.65
Madison	Lincoln	601-26.22	3151	RAY RD	1.51	1,632	10/13/2000	\$87,000	1974	\$50.03
Madison	Fenner	691-31.7	5362	NELSON RD	5.71	1,322	3/29/2001	\$85,000	1900	\$64.30
Madison	Fenner	881-13.128	3662	MUTTON HILL RD	0.92	960	5/4/2001	\$40,000	1990	\$41.67
Madison	Fenner	781-8	2893	BINGLEY RD	3.28	2,567	5/18/2001	\$237,000	1860	\$92.33
Madison	Fenner	701-59	6200	OXBOW RD	7.58	1,680	5/31/2001	\$107,000	1970	\$63.69
Madison	Lincoln	601-5.12	3097	INGALLS CORNERS RD	2.88	1,979	6/6/2001	\$140,000	1992	\$70.74
Madison	Fenner	772-22.5	2434	CARNEY HILL RD	6.86	1,847	6/13/2001	\$108,000	1977	\$58.47
Madison	Smithfield	80.15-1-46	4708	PARK ST	0.49	2,642	7/18/2001	\$40,000	1797	\$15.14
Madison	Fenner	691-31.222	2965	BEAR SWAMP RD	1.89	1,976	8/6/2001	\$78,700	1995	\$39.83
Madison	Fenner	781-10	2829	BINGLEY RD	23.78	2,068	8/6/2001	\$147,000	1900	\$71.08
Madison	Smithfield	80.15-1-15.12	5304	PETERBORO ROAD	1.71	1,452	8/15/2001	\$90,000	1880	\$61.98
Madison	Smithfield	801-60	5183	BUYEA RD	0.68	960	8/23/2001	\$64,600	1970	\$67.29
Madison	Fenner	871-12	4595	DAVIS ROAD	1.19	2,480	8/31/2001	\$150,000	1803	\$60.48
Madison	Smithfield	891-8	4651	PLEASANT VALLEY RD	7.94	3,380	10/3/2001	\$150,000	1850	\$44.38
Madison	Fenner	772-10.1	5237	EMHOFF RD	2.26	1,740	10/24/2001	\$78,000	1954	\$44.83
Madison	Fenner	791-18.11	4042	PETERBORO RD	9.38	2,040	11/9/2001	\$146,150	1988	\$71.64
Madison Madison	Lincoln Fenner	611-34.4 781-31.12	6625 5116	OLD COUNTRY RD NELSON ROAD	23.96 1.06	620 1,488	11/27/2001 12/21/2001	\$67,000 \$79,900	1984 1976	\$108.06 \$53.70
Madison	Fenner	701-18.116	4027	E MILES STRIP ROAD	1.93	1,158	1/25/2002	\$99,500	1993	\$85.92
Madison	Lincoln	601-26.3	3179	RAY ROAD	1.52	1,666	1/29/2002	\$105,000	1976	\$63.03
Madison	Fenner	60.3-1-5	2752	PERRYVILLE RD	0.70	2,262	3/4/2002	\$72,000	1878	\$31.83
Madison	Fenner	701-55.2	5945	OXBOW RD	4.87	1,735	5/31/2002	\$111,200	1850	\$64.09
Madison	Fenner	781-48	3510	CODY ROAD	0.90	1,920	7/1/2002	\$116,500	1997	\$60.68
Madison	Smithfield	711-37	5928	BUYEA ROAD	2.03	864	7/10/2002	\$100,000	1998	\$115.74
Madison	Lincoln	611-45.6	4136	WHITMAN RD.	1.22	1,316	8/21/2002	\$97,500	1986	\$74.09
Madison	Lincoln	601-34.2	6104	NELSON ROAD	2.67	1,948	9/19/2002	\$120,000	1998	\$61.60
Madison	Fenner	871-61.4	4804	SOUTH RD	6.41	2,080	9/20/2002	\$139,000	1985	\$66.83
Madison	Lincoln	601-2.1	6006	QUARRY RD	0.91	1,440	9/30/2002	\$25,000	1974	\$17.36
Madison	Fenner	781-33	5030	NELSON RD	0.76	1,829	10/16/2002	\$79,500	1825	\$43.47
Madison	Fenner	881-27.42	4300	MUTTON HILL RD	7.00	1,008	10/16/2002	\$125,000	1984	\$124.01
Madison	Lincoln	601-26.22	3151	RAY RD	1.51	1,632	10/25/2002	\$108,000	1973	\$66.18
Madison	Smithfield	711-30.2	4691	E MILESTRIP RD	88.13	1,299	11/20/2002	\$115,000	1980	\$88.53
Madison	Smithfield	80.15-1-64	5223	SWAMP RD	1.74	1,880	4/30/2003	\$43,500	1850 1977	\$23.14
Madison Madison	Lincoln	611-45.2 871-62.11	6471 4691	OLD COUNTRY RD SOUTH RD	1.68 2.94	1,232 1,184	6/27/2003 7/1/2003	\$86,900 \$105,000	1977	\$70.54 \$88.68
Madison	Fenner Fenner	871-18	4803	NELSON RD	0.76	2,728	7/28/2003	\$56,700	1801	\$20.78
Madison	Fenner	68.1-1-16	2446	STABLES RD	0.74	1,627	8/1/2003	\$53,500	1985	\$32.88
Madison	Fenner	691-31.2	3151	LARKIN RD	4.45	1,344	9/8/2003	\$144,900	1988	\$107.81
Madison	Fenner	881-13.126	4538	FRANCIS ROAD	2.77	1,500	9/29/2003	\$75,500	1987	\$50.33
Madison	Fenner	772-40	2657	BINGLEY ROAD	1.85	2,073	10/24/2003	\$135,000	1870	\$65.12
Madison	Fenner	781-22.2	3022	BINGLEY	1.00	1,242	10/28/2003	\$72,500	1985	\$58.37
Madison	Fenner	701-23.1	3560	LARKIN RD	3.81	1,128	11/5/2003	\$120,000	1979	\$106.38
Madison	Fenner	871-61.3	4794	SOUTH RD	6.41	2,080	11/14/2003	\$142,000	1985	\$68.27
Madison	Smithfield	80.15-1-30	4619	PETERBORO ROAD	0.69	1,611	11/28/2003	\$51,500	1865	\$31.97
Madison	Lincoln	611-45.15	4141	WHITMAN ROAD	13.10	1,359	12/10/2003	\$125,000	1994	\$91.98
Madison	Fenner	871-10.4	4610	SHEPHARD ROAD	0.42	1,372	12/16/2003	\$161,000	1974	\$117.35
Madison	Fenner	701-18.119	4045	E MILESTRIP ROAD	4.72	1,120	12/22/2003	\$107,000	1993	\$95.54
Madison	Smithfield	80.20-1-6	5224	SWAMP RD	0.58	1,365	7/27/2004	\$80,000	1900	\$58.61
Madison	Fenner	871-17	4771	NELSON RD	0.95	1,144	8/4/2004	\$64,890	1977	\$56.72
Madison	Fenner	701-18.2	6414 5217	OXBOW RD	1.41	1,113	8/12/2004	\$80,000	1973	\$71.88
Madison Madison	Fenner Fenner	791-26.3 772-40	2657	SWAMP SCHOOL RD BINGLEY ROAD	0.53 1.85	1,536 2,073	9/24/2004 10/28/2004	\$37,000 \$158,000	1900 1870	\$24.09 \$76.22
Madison	Fenner	881-14.123	3743	MUTTON HILL ROAD	1.85	1,560	11/1/2004	\$138,000	1989	\$46.47
Madison	Fenner	881-13.123	3646	MUTTON HILL KOAD  MUTTON HILL&FRANCIS	0.91	1,380	11/30/2004	\$72,500	1989	\$46.47
Madison	Fenner	881-8	4614	FRANCIS RD	0.83	1,040	3/14/2005	\$79,900	1974	\$73.89
Madison	Smithfield	801-5.11	5801	OXBOW RD	1.31	1,812	5/2/2005	\$90,000	1800	\$49.67
Madison	Fenner	772-14	5195	ENHOFF RD	1.50	1,875	5/27/2005	\$93,000	1890	\$49.60
Madison	Smithfield	80.15-1-15.12	5304	PETERBORO RD	1.71	1,452	6/22/2005	\$107,000	1880	\$73.69
Madison	Smithfield	891-8	4651	PLEASANT VALLEY RD	7.94	3,380	6/30/2005	\$185,000	1850	\$54.73
Madison	Fenner	691-8	3085	PERRYVILLE RD	0.79	1,437	7/26/2005	\$119,800	1850	\$83.37
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## SALES 2000-2007 (Cont'd.)

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Lincoln	601-5.12	3097	INGALLS CORNERS RD	2.88	1,979	8/22/2005	\$196,000	1992	\$99.04
Madison	Smithfield	89.00-1-4	4747	RICH RD	96.07	1,535	8/29/2005	\$56,000	1870	\$36.48
Madison	Lincoln	611-34.4	6625	OLD COUNTY RD	23.96	620	9/22/2005	\$70,300	1984	\$113.39
Madison	Fenner	791-13.2	3837	CODY RD	2.73	1,260	10/21/2005	\$83,000	1966	\$65.87
Madison	Fenner	781-6.2	3019	BINGLEY RD	1.44	1,620	11/2/2005	\$124,900	1995	\$77.10
Madison	Smithfield	801-65.1	5302	BUYEA RD	22.54	1,040	11/23/2005	\$60,000	1998	\$57.69
Madison	Fenner	871-10.121	2910	FENNER RD	5.71	2,961	12/7/2005	\$310,000	1991	\$104.69
Madison	Fenner	791-29	4109	CODY RD	3.9	1,500	12/23/2005	\$116,600	1949	\$77.73
Madison	Lincoln	601-26.5	3144	INGALLS CORNERS RD	0.89	1,308	12/30/2005	\$79,900	1985	\$61.09
Madison	Fenner	691-31.2	3151	LARKIN RD	4.45	1,344	1/3/2006	\$189,900	1988	\$141.29
Madison	Smithfield	80.15-1-46	4708	PARK ST	0.49	2,642	1/30/2006	\$60,500	1797	\$22.90
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.33	1,525	4/4/2006	\$87,000	1960	\$57.05
Madison	Fenner	791-18.16	4042	PETERBORO RD	9.38	2,040	4/13/2006	\$170,000	1988	\$83.33
Madison	Lincoln	44.00-2-36.52	4009	SEEBER RD	1.67	1,744	4/18/2006	\$127,900	1999	\$73.34
Madison	Fenner	781-8	2893	BINGLEY RD	3.28	2,567	4/25/2006	\$210,000	1860	\$81.81
Madison	Smithfield	801-74	4642	GLASSFACTORY RD	1.58	1,196	5/2/2006	\$97,500	1974	\$81.52
Madison	Fenner	77.00-2-34.12	2507	BINGLEY RD	1.00	1,856	5/9/2006	\$155,000	1850	\$83.51
Madison	Fenner	691-31.18	3043	BEAR SWAMP RD	4.74	1,344	5/26/2006	\$27,000	1989	\$20.09
Madison	Fenner	772-38	2625	BINGLEY RD	2.75	2,272	6/12/2006	\$269,900	1978	\$118.79
Madison	Fenner	691-31.222	2965	BEAR SWAMP RD	1.89	1,976	6/15/2006	\$79,000	1995	\$39.98
Madison	Fenner	86.00-2-3	2454	BINGLEY RD	1.50	1,666	7/25/2006	\$119,000	1869	\$71.43
Madison	Fenner	681-10	2710	NYS RT 13	0.82	1,488	8/10/2006	\$45,000	1985	\$30.24
Madison	Fenner	77.00-2-8	1200	FALLS RD	0.75	1,932	8/24/2006	\$35,000	1930	\$18.12
Madison	Fenner	70.00-1-18.111	6330	OXBOW RD	5.19	1,768	8/29/2006	\$110,000	2000	\$62.22
Madison	Fenner	96.00-2-34	4364	NELSON RD	0.64	912	9/7/2006	\$108,000	1940	\$118.42
Madison	Lincoln	44.00-2-36.75	6828	FORBES RD	2.20	4,384	11/13/2006	\$385,000	2004	\$87.82
Madison	Fenner	70.00-1-18.115	6374	OXBOW RD	5.15	1,980	11/22/2006	\$179,500	2000	\$90.66
Madison	Lincoln	51.00-1-5.1	3265	COTTONS RD	0.54	1,148	11/22/2006	\$49,900	1920	\$43.47
Madison	Fenner	86.00-2-34.13	4570	ROBERTS RD	1.11	1,456	1/3/2007	\$142,000	1987	\$97.53
Madison	Fenner	77.00-2-52.11	5214	IRISH RIDGE RD	2.82	1,860	2/28/2007	\$245,000	2000	\$131.72
Madison	Lincoln	52.00-1-33.23	4021	CLOCKVILLE RD	5.54	2,056	3/22/2007	\$140,000	1995	\$68.09
Madison	Lincoln	44.00-2-42.52	4034	SEEBER RD	0.79	1,444	3/29/2007	\$93,000	1974	\$64.40
Madison	Fenner	77.00-2-28.1	5082	EMHOFF RD	2.22	1,428	5/7/2007	\$131,000	1986	\$91.74
Madison	Fenner	87.00-1-24	3201	CODY RD	3.49	1,346	5/10/2007	\$126,000	1969	\$93.61
Madison	Smithfield	71.00-1-47.3	4522	E MILESTRIP RD	1	1,323	5/11/2007	\$72,500	1974	\$54.80
Madison	Lincoln	44.00-2-11.2	7586	OXBOW RD	0.61	1,344	6/14/2007	\$114,000	1991	\$84.82
Madison	Lincoln	601-26.12	3098	INGALLS CORNERS RD	0.90	2,240	7/11/2007	\$137,800	1981	\$61.52
Madison	Fenner	781-22.2	3022	BINGLEY RD	1.00	1,242	7/13/2007	\$123,400	1985	\$99.36
Madison	Fenner	862-30.3	2767	FENNER RD	0.90	1,079	7/20/2007	\$86,000	1850	\$79.70
Madison	Lincoln	511-7	3229	COTTONS RD	0.59	1,590	7/25/2007	\$113,300	1878	\$71.26
Madison	Fenner	781-28.21	5300	BUYEA RD	2.66	1,820	9/11/2007	\$100,000	1991	\$54.95
Madison	Fenner	691-31.1	3181	LARKIN RD	4.80	960	10/5/2007	\$138,947	1989	\$144.74
Madison	Lincoln	52.1-1-45	3853	TIMMERMAN	0.42	1,124	10/19/2007	\$48,000	1920	\$42.70
Madison	Lincoln	442-42.3	4016	SEEBER RD	0.68	1,334	11/20/2007	\$108,500	1974	\$81.33

Average= \$109,044 \$68.67 Median = \$100,000 \$64.76

## **Updated Sales Data**

## Sales 2008-2016

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Fenner	781-23.13	3040	BINGLEY RD	1.02	1,758	3/31/2010	\$159,000	1992	\$90.44
Madison	Fenner	781-10.2	2829	BINGLEY RD	20.9	2,068	9/28/2012	\$160,000	1900	\$77.37
Madison	Fenner	781-10.21	2829	BINGLEY ROAD	20.6	2,068	8/5/2015	\$170,000	1900	\$82.21
Madison	Fenner	781-28.22	5296	BUYEA RD	2.11	672	8/30/2012	\$65,000	1977	\$96.73
Madison	Lincoln	621-43.12	6005	BUYEA RD	155.63	2,859	7/7/2009	\$325,000	1890	\$113.68
Madison	Lincoln	621-17.2	5960	CHAPMAN RD	1.21	2,400	2/22/2013	\$180,000	2001	\$75.00
Madison	Lincoln	521-45.1	3932	CLOCKVILLE RD	1.22	884	9/15/2010	\$20,000	2012	\$22.62
Madison	Lincoln	522-25	3881	CLOCKVILLE RD	1.49	2,581	2/27/2012	\$152,500	1861	\$59.09
Madison	Fenner	791-13.2	3837	CODY RD	2.73	1,260	10/17/2008	\$95,000	1966	\$75.40
Madison	Fenner	781-47	3517	CODY RD	1.17	1,440	10/14/2009	\$90,000	1974	\$62.50
Madison	Fenner	781-48	3510	CODY RD	0.9	1,920	7/9/2013	\$118,000	1997	\$61.46
Madison	Fenner	781-47	3517	CODY RD	1.17	1,440	10/9/2013	\$89,000	1974	\$61.81
Madison	Fenner	781-48	3510	CODY RD	0.9	1,920	5/8/2015	\$124,000	1974	\$64.58
Madison	Fenner	881-27.2	4445	CODY RD	0.1	2,083	3/30/2016	\$122,500	1878	\$58.81
Madison	Smithfield	801-34	4329	CODY RD.	2.07	1,536	5/12/2015	\$75,000	1860	\$48.83
Madison	Fenner	791-30	4145	CODY ROAD	82.36	1,151	12/12/2014	\$165,000	1974	\$143.35
Madison	Lincoln	60-1-39	3347	COLGROVE RD	1.05	1,892	3/8/2012	\$99,500	1985	\$52.59
Madison	Lincoln	511-37.12	3530	COTTONS RD	1.1	2,136	5/2/2011	\$90,000	1860	\$42.13
Madison	Lincoln	511-15.2	3523	COTTONS RD	10.2	2,144	6/4/2014	\$154,500	1940	\$72.06
Madison	Lincoln	521-13	3670	COTTONS RD	1.68	3,010	12/16/2015	\$110,000	1826	\$36.54
Madison	Lincoln	521-12	3776	COTTONS RD	0.47	1,509	2/23/2016	\$75,000	1900	\$49.70
Madison	Fenner	702-18.116	4027	E MILESTRIP RD	1.93	1,158	11/22/2013	\$140,000	1993	\$120.90
Madison	Lincoln	511-14.14	6572	HARP RD	1.35	1,000	6/7/2009	\$75,000	1985	\$75.00
Madison	Lincoln	601-17	3451	INGALLS CORNER RI		2,176	7/29/2008	\$120,000	1943	\$55.15
Madison	Lincoln	611-11.4	3852	INGALLS CORNERS I		2,314	1/21/2010	\$225,000	1989	\$97.23
Madison	Lincoln	611-12	3878	INGALLS CORNERS I		2,095	10/17/2013	\$269,000	1972	\$128.40
Madison	Lincoln	611-11.4	3852	INGALLS CORNERS I		2,314	6/19/2015	\$247,000	1989	\$106.74
Madison	Fenner	772-52.11	5214	IRISH RIDGE RD	2.82	1,860	1/20/2011	\$189,168	2000	\$101.70
Madison	Fenner	772-52	5258	IRISH RIDGE RD	68.34	1,472	2/6/2012	\$197,000	1984	\$133.83
Madison	Fenner	772-49.2	5317	IRISH RIDGE RD	4.51	3,316	6/18/2012	\$245,000	1870	\$73.88
Madison	Fenner	681-31	5445	IRISH RIDGE RD	25.28	2,176	12/19/2012	\$370,000	1998	\$170.04
Madison	Fenner	691-44	3253	LARKIN RD	1.02 7.22	1,877	10/30/2012	\$102,000	1860 1998	\$54.34
Madison Madison	Fenner Fenner	691-31.2 701-18.119	3151 4045	LARKIN RD MILESTRIP RD	4.72	1,344 1,280	4/17/2013 12/30/2008	\$170,000 \$132,400	1998	\$126.49 \$103.44
Madison	Fenner	701-18.119	4158	MILESTRIP RD	17.76	976	7/22/2009	\$163,500	1993	\$167.52
Madison	Fenner	702-18.119	4045	E. MILESTRIP RD	4.72	1,280	3/11/2014	\$139,500	1993	\$107.52
Madison	Fenner	691-36.1	3384	MILESTRIP RD	0.51	1,280	3/3/2016	\$195,000	1979	\$152.34
Madison	Smithfield	711-28.2	4503	MILESTRIP RD	1.78	1,104	7/16/2012	\$95,000	1996	\$86.05
Madison	Smithfield	711-23.2	4538	MILESTRIP ROAD	4.92	1,144	5/22/2015	\$50,000	1997	\$43.71
Madison	Fenner	881-13.122	3678	MUTTON HILL RD	0.78	1,272	9/25/2008	\$80,000	1991	\$62.89
Madison	Fenner	882-13.128	3662	MUTTON HILL RD	0.92	960	9/18/2013	\$80,000	1990	\$83.33
Madison	Fenner	881-13.112	3633	MUTTON HILL RD	0.79	1,350	9/12/2014	\$40,000	1801	\$29.63
Madison	Fenner	882-14.3	3764	MUTTON HILL RD	7.67	2,288	3/30/2015	\$197,000	2006	\$86.10
Madison	Lincoln	511-32	6682	NELSON RD	0.91	1,696	12/21/2009	\$170,500	1969	\$100.53
Madison	Lincoln	511-16.2	6689	NELSON RD	3.2	2,039	8/27/2010	\$198,000	1825	\$97.11
Madison	Lincoln	601-26.13	5951	NELSON ROAD	2.87	2,428	6/18/2015	\$233,500	1994	\$96.17
Madison	Lincoln	511-26	6835	NELSON ROAD	9.56	2,980	7/7/2015	\$200,000	1970	\$67.11
Madison	Fenner	701-9.2	5818	NICHOLS POND ROA	2.62	1,612	7/31/2015	\$199,900	1984	\$124.01
Madison	Lincoln	611-35	6511	OLD COUNTRY RD	0.85	1,550	1/24/2013	\$90,000	1970	\$58.06
Madison	Lincoln	522-62.2	6900	OLD COUNTY RD	0.87	1,452	9/9/2011	\$97,600	1974	\$67.22
Madison	Lincoln	52.10-1-3.2	7246	OLD COUNTY RD	0.31	1,467	6/24/2014	\$63,600	1900	\$43.35
Madison	Smithfield	891-27.5	4920	OLD COUNTY RD	5.3	960	1/14/2011	\$87,500	1990	\$91.15
Madison	Smithfield	891-32.22	4843	OLD COUNTY RD	38.8	2,092	4/16/2013	\$90,000	1891	\$43.02
Madison	Lincoln	522-63.111	6864	OLD COUNTY ROAD	30	1,344	8/14/2015	\$222,650	2005	\$165.66
Madison	Fenner	701-18.111	6330	OXBOW RD	5.19	1,820	11/12/2009	\$128,500	2000	\$70.60
Madison	Fenner	701-18.115	6374	OXBOW RD	5.15	1,980	8/10/2010	\$219,000	2000	\$110.61
Madison	Lincoln	611-17	6765	OXBOW RD	3.58	1,416	8/28/2015	\$82,500	1950	\$58.26
Madison	Smithfield	801-5.11	5801	OXBOW RD	1.31	1,812	8/7/2012	\$90,000	1800	\$49.67

## Sales 2008-2016 (Cont'd)

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Fenner	691-8	3085	PERRYVILLE RD	0.71	1,436	7/30/2008	\$112,000	1850	\$77.99
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	9/15/2008	\$91,000	1960	\$59.67
Madison	Fenner	60.3-1-9	2774	PERRYVILLE RD	0.97	2,223	2/26/2010	\$65,000	1803	\$29.24
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	8/8/2011	\$95,000	1960	\$62.30
Madison	Fenner	691-8	3085	PERRYVILLE RD	0.71	1,436	9/3/2014	\$130,000	1850	\$90.53
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	6/1/2015	\$103,000	1960	\$67.54
Madison	Fenner	691-25.2	3196	PERRYVILLE ROAD	12.98	1,512	4/9/2015	\$199,900	1998	\$132.21
Madison	Fenner	60.3-1-12	5872	PERRYVILLE ROAD	0.21	1,764	8/21/2015	\$11,999	1832	\$6.80
Madison	Smithfield	891-27.111	4992	PLEASANT VALLEY	2.27	1,904	10/30/2009	\$110,000	1997	\$57.77
Madison	Smithfield	891-27.7	4918	PLEASANT VALLEY	2.11	1,176	7/10/2013	\$65,000	1996	\$55.27
Madison	Smithfield	891-27.111	4992	PLEASANT VALLEY	2.27	1,904	7/11/2014	\$135,000	1997	\$70.90
Madison	Fenner	701-42	5474	ROUSES RD	6.25	1,242	9/30/2010	\$169,000	1960	\$136.07
Madison	Fenner	872-63	4676	SOUTH RD	12.89	1,834	4/19/2013	\$205,000	1970	\$111.78
Madison	Fenner	791-19	5365	SWAMP SCHOOL RD	0.35	1,524	10/15/2014	\$82,000	1963	\$53.81
Madison	Lincoln	52.10-1-34	3842	TIMMERMAN RD	1.07	1,680	7/20/2012	\$78,000	1995	\$46.43
Madison	Lincoln	621-36.2	4576	WHITMAN RD	0.98	1,120	9/30/2009	\$60,000	1992	\$53.57
Madison	Lincoln	621-32.1	4442	WHITMAN RD	0.77	968	12/28/2012	\$12,000	1968	\$12.40
Madison	Lincoln	621-37	4566	WHITMAN RD	2	1,680	2/20/2014	\$73,000	1990	\$43.45
Madison	Lincoln	621-37	4566	WHITMAN ROAD	2.16	1,680	6/27/2012	\$65,000	1990	\$38.69
Madison	Lincoln	621-31	4448	WHITMAN ROAD	3.06	1,144	9/7/2012	\$129,000	1994	\$112.76
Madison	Lincoln	611-45.13	4183	WHITMAN ROAD	12.7	1,976	5/4/2015	\$203,000	2000	\$102.73
Madison	Lincoln	611-45.5	4114	WHITMAN ROAD	1.22	1,799	5/12/2015	\$175,000	1985	\$97.28
							Average =	\$133,784		\$79.70
							Median =	\$121,250		\$72.97

As can be seen by the above sales data there appears to be no influence on property values with the continued operation of the wind farm since our last study. Average and median sales prices on a whole have increased indicating that the existence of the wind farm has not diminished real property values in this sub market.

Additionally sales and re-sales of properties were considered from 2008-2016 as follows:

County	Municipality	SBL	Address	Street	Land Area	SF	Sale Date	Sale Price	Year Built	Price/SF
Madison	Fenner	781-10.2	2829	BINGLEY RD	20.9	2,068	9/28/2012	\$160,000	1900	\$77.37
Madison	Fenner	781-10.21	2829	BINGLEY RD	20.9	2,068	8/5/2015	\$170,000	1900	\$82.21
Madison	Fenner	781-47	3517	CODY RD	1.17	1,440	10/14/2009	\$90,000	1974	\$62.50
Madison	Fenner	781-47	3517	CODY RD	1.17	1,440	10/9/2013	\$89,000	1974	\$61.81
Madison	Fenner	781-48	3510	CODY RD	0.9	1,920	7/9/2013	\$118,000	1997	\$61.46
Madison	Fenner	781-48	3510	CODY RD	0.9	1,920	5/8/2015	\$124,000	1974	\$64.58
Madison	Lincoln	611-11.4	3852	INGALLS CORNERS F	1.83	2,314	1/21/2010	\$225,000	1989	\$97.23
Madison	Lincoln	611-11.4	3852	INGALLS CORNERS F	1.83	2,314	6/19/2015	\$247,000	1989	\$106.74
Madison	Fenner	701-18.119	4045	MILESTRIP RD	4.72	1,280	12/30/2008	\$132,400	1993	\$103.44
Madison	Fenner	702-18.119	4045	MILESTRIP RD	4.72	1,280	3/11/2014	\$139,500	1993	\$108.98
Madison	Fenner	691-8	3085	PERRYVILLE RD	0.71	1,436	7/30/2008	\$112,000	1850	\$77.99
Madison	Fenner	691-8	3085	PERRYVILLE RD	0.71	1,436	9/3/2014	\$130,000	1850	\$90.53
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	9/15/2008	\$91,000	1960	\$59.67
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	8/8/2011	\$95,000	1960	\$62.30
Madison	Fenner	60.3-1-14	2802	PERRYVILLE RD	0.36	1,525	6/1/2015	\$103,000	1960	\$67.54
Madison	Smithfield	891-27.111	4992	PLEASANT VALLEY	2.27	1,904	10/30/2009	\$110,000	1997	\$57.77
Madison	Smithfield	891-27.111	4992	PLEASANT VALLEY	2.27	1,904	7/11/2014	\$135,000	1997	\$70.90
Madison	Lincoln	621-37	4566	WHITMAN ROAD	2.16	1,680	6/27/2012	\$65,000	1990	\$38.69
Madison	Lincoln	621-37	4566	WHITMAN RD	2.16	1,680	2/20/2014	\$73,000	1990	\$43.45

As is evident by the above correlated sales, there appears to be little to no effect on real estate values of the respective properties based on the continued operation of the facility. Of the 9 sales analyzed all increased in value. Additionally, 2802 Perryville Road sold three times over 7 years with increases in value with each sale.

This analysis did not include an interview with the respective property owners at the time of sale to determine any underlying factors which may have additionally impacted sales prices. (i.e. capital improvements, additions, deferred maintenance). However, the sales data utilized is considered representative of the market as a whole and it is unlikely that every property had some or all of the previously mentioned underlying factors impacting their respective properties from sale to resale.

Overall, there is considered to be no stigma attached to the project due to the continual sale and resale of properties near the project and considering that the values have appreciated at similar rates when compared to the rest of the county. In conclusion it appears that the existence of the wind farm does not appear to have any impact on surrounding property values as a whole.

## **Conclusion:**

In conclusion, there is no conclusive evidence which would indicate any impact or potential impact on residential real estate values in the market area analyzed due to being in close proximity or in the view shed of a operational wind farm. As can be seen by the three studies performed on the respective comparable operational wind farms there appear to be no evidence which would indicate that these facilities have had a detrimental effect on real property values. Each of the studies concluded that prices continued to increase in value within the respective sub markets after construction and the ongoing operation of the facility. Additionally sales and resales of the same property within the respective submarkets indicate that the majority of the properties were unaffected by the existence of the wind farm. The sales data indicated increases in property values consistent with typical market fluctuations. This conclusion is in concert with much of the quantitative research available today on wind farm development effects on property value. While it is impossible to definitively say that there will be no effect on every affected properties value, it is apparent from studying similar areas where wind farms have been developed that no broad based value effects have occurred in those markets.

Respectfully submitted,

**IREM Solutions, Inc.** 

Darrel R. Lloyd Jr.

Darrel R. Lloyd Jr. New York State Certified General Real Estate Appraiser Certificate #46-5539

## Addenda

Qualifications of Darrel R. Lloyd, Jr.

## QUALIFICATIONS OF DARREL R. LLOYD, JR.

**IREM Solutions, Inc.** 

## **Education:**

- Valencia College, Orlando, Florida
- State University of New York at Buffalo

## **Technical Training:**

- Society of Real Estate Appraisers-Course 101, "Introduction to Appraising Real Property", Buffalo, New York, 1989
- Society of Real Estate Appraisers-Course 102, "Applied Residential Property Valuation", Buffalo, New York, 1987
- Society of Real Estate Appraisers-Course 201, "Principles of Income Property Appraising", Buffalo, New York, 1988
- Society of Real Estate Appraisers-Course 202, "Applied Income Property Valuation", Tarpon Springs, Florida, 1989
- Society of Real Estate Appraisers, "Professional Practice Seminar", Kingston, NY, 1989
- Marshall & Swift Cost Valuation Seminar, "Calculator Cost Method", Buffalo, NY, 1988
- Appraisal Institute, "Standards of Professional Practice", Buffalo, New York, 1991
- Appraisal Institute Course 520, "Highest & Best Use and Market Analysis", West Palm Beach, Florida, 1994
- American Society Appraisers, "Machinery and Technical Specialties", Chicago, IL, 1994
- American Society Appraisers, "Business Valuation", Toronto, Canada, 1994
- National Golf Foundation, "Golf Course Development and Revaluation", San Francisco, California, 1995
- Appraisal Institute, "Appraisal of Nursing Facilities", Syracuse, New York, 1997
- Appraisal Institute, "Standards of Professional Practice", Buffalo, New York, 1996
- Appraisal Institute, "Standards of Professional Practice", Boca Rotan, Florida, 12/2002
- Appraisal Institute, "Evaluating Commercial Construction", Tampa, Florida, 11/2003
- Appraisal Institute, "National USPAP Course", Amherst, New York, 05/2006
- Appraisal Institute, "Analyzing Operating Expenses", 11/2007
- Seminar: "Law of Easements", Buffalo, New York, 06/2008
- Appraisal Institute, "Valuation Case Studies", Ellicottville, New York, 01/2009
- Appraisal Institute, "Valuation Case Studies", Tampa, Florida,
- Appraisal Institute, "Office Building Valuation", Tampa, Florida, 10/2010
- Appraisal Institute, "Business Practice & Ethics", 10/2010
- Appraisal Institute, "Analyzing Tenant Credit Risk/Commercial Lease Analysis", Lakewood Ranch, FL, 09/2011
- Appraisal Institute, "National USPAP Course", 07/2011
- Appraisal Institute, "Valuation Perspectives Course", Ellicottville, New York 02/2012
- Appraisal Institute, "Fundamentals of Separating Real Property, Personal Property and Intangible Business Assets Course", Lakewood Ranch, FL,03/2012
- Pennsylvania Law for Appraisers, 5/2013
- 2014-2015 "National USPAP Course", 11/2013
- Appraisal of fast food facilities, 4/2015
- Expert witness for commercial appraisers, 6/2015
- Appraisal of self-storage facilities, 11/2015

## **IREM Solutions, Inc.**

## **Appraisal Assignments:**

- Apartment Complexes
- Automobile Dealerships
- Bulk Petroleum Storage Terminals
- Certiorari Actions
- Community Shopping Plazas
- Condemnation Properties
- Feasibility Studies
- Funeral Homes
- Gas and Service Stations
- Golf Courses
- High Rise Condominiums & Office Bldgs.
- Hotels
- Industrial Complexes
- Land Fills

- Medical Offices
- Nursing Homes
- ROW Projects
- Rehabilitation
- Restaurants
- Retail Department Stores
- Residential
- Steel Plants
- Special Purpose Properties
   Banks, Steel Plants, Pipelines, Petroleum Bulk
   Storage Facilities, Nascar Raceways
- Temporary and Permanent Easements
- Urban Renewal
- Vacant Land and Subdivision Analysis
- Waterfront Properties

## **Prepared & Participated in Appraisals For:**

- AT&T Financial Services
- Affiliated Capital Corporation
- Bank of New York
- Benchmark Financial, Inc.
- Buffalo Urban Renewal Agency
- Central Trust Company
- Citibank (NYS) N.A.
- Citizen Associates, Ltd.
- Diversified Capital
- Empire of America, FSA
- Erie Cnty. Industrial Development Agency
- Fleet Bank, N.A
- Future Funding Mortgage Co., of NY, Inc.
- ITT Small Business Finance Corporation
- KPMG Peat Marwick

- Key Bank of New York
- Liberty Mutual
- First Niagara Bank
- Manufacturers & Traders Trust Company
- HSBC Bank
- Midas Realty Corporation
- Niagara Frontier Transportation Authority
- NYS Housing Finance Agency
- NYS DOT
- Sibley Mortgage Corporation
- Statewide Capital Corp.
- The Chase Manhattan Bank
- Various Municipalities
- UAW Legal Services
- Various attorneys & private clients

## **IREM Solutions, Inc.**

## **Licensure/Certifications:**

- New York State Certified General Real Estate Appraiser #46-5539
- Pennsylvania State Certified General Real Estate Appraiser #GA003387
- New York State Appraisal Continuing Education Instructor

## **Prepared Appraisals in:**

 California, Colorado, Connecticut, Delaware, Florida, Georgia, Maine, Massachusetts, Missouri, New Hampshire, New York (including New York City), Ohio, Oklahoma, Pennsylvania, Rhode Island, Texas, Vermont.

## **Qualified As Expert Witness:**

- The appraiser has appeared as an expert witness regarding real estate valuation in New York State Supreme and Federal Courts.
- The appraiser has also appeared before municipal assessment review boards.

## **Employment History:**

- IREM Solutions, Inc., Amherst, NY, CEO, 2012-Present
- Klauk, Lloyd & Wilhelm Inc., Buffalo, NY, Vice President/Partner, 1995-2012
- Upstate Appraisal, Inc. Commercial, Buffalo, NY, Vice President/Manager, 1993-1995
- International Appraisal Associates (Commercial, Industrial, and Residential), Tonawanda, NY, President, 1990-1993
- Northeastern Appraisal Associates Commercial Division, Amherst, NY, Associate Appraiser, 1986-1989
- Century 21 M.J. Peterson, Sales Associate, 1982-1986



# R Decommissioning Plan

## **Ball Hill Wind Energy Project Decommissioning Plan**

The expected useful life of the Project components is 25 to 30 years, although it is reasonable to expect that this life can and will be extended by proper maintenance.

## Wind Energy Conversion Facilities/Systems Decommissioning Process Description

## **Equipment Removal**

- 1. Turbine Removal Appropriate sized cranes will be mobilized and the hub, along with blades and nacelle, will be removed to ground level for a scrap company to breakdown and strip high-value components. The remaining material will be reduced to shippable dimensions and transported off site for proper disposal. The internal cabling will be removed and stored prior to delivery to a scrap company for recovery of high-value copper conductor materials. The tower sections will be lowered to grade so they can be cut into transportable sections for delivery to a scrap iron purchaser. Control cabinets in the base will be stripped of high-value components and the balance will be turned over to a scrap company for haul and disposal. The area will be thoroughly cleaned and all debris will be removed.
- 2. Substation Transformer(s) Transformers will be removed and, depending on the condition, will be sold for re-use or sent to a specialty scrap company for recycling where any hazardous materials would be properly disposed of.

## **Foundation Removal**

Turbine and Substation Equipment Foundations – Topsoil will be removed to a proper storage pile to expose subgrade materials, and that area will be excavated to expose the turbine foundation pedestal. All anchor bolts, rebar, conduits, and concrete in the pedestal will be removed to a minimum depth of 48 inches below grade in agricultural lands in accordance with New York State Department of Agriculture and Markets (NYSDAM) guidelines, and a minimum depth of 36 inches below grade in all other areas. After removal of all noted foundation materials, the holes will be filled with clean compatible subgrade material that is compacted to a density similar to the surrounding fields, covered with the topsoil from the protected stockpile of material, and then graded to match adjacent contours. All unexcavated areas compacted by equipment used during decommissioning shall be tilled in a manner adequate to restore the topsoil and subgrade material to the proper density consistent with the surrounding fields. The area will be thoroughly cleaned and all debris removed. All restoration activities in agricultural fields will be done in accordance with NYSDAM guidelines.

## **Underground Electrical Collection System**

The underground electrical collection system will be designed and installed such that the main conductors will have a minimum of 42 inches of cover and at least 48 inches of cover in agricultural lands. The design includes the installation of a warning tape and a tracer cable system to warn anyone who may be digging in the area both during plant operations and after decommissioning. The design is planned for safety by ensuring sufficient cover over the system to ensure that the conductors will not be disturbed during normal agricultural operations.

Cables will be cut back in the area of the pad mounts to minimum depth of 48 inches below grade in agricultural land, and a minimum of 36 inches below grade in all other areas. The remaining cabling may be removed for recovery of high- value copper and aluminum conductor material or left in place.

## Roadways/Rigging Pads

After completion of decommissioning activities at each turbine site and access road, rigging pad removal shall commence. Gravel will be removed from road and rigging pad surfaces and transported from the site to an approved disposal location. The disposal location will be approved by the appropriate governing authority prior to the start of the decommissioning program. Geo-textile fabric (a tightly woven separation fabric placed during construction on the subgrade under the gravel to keep the gravel from being pushed down into the subgrade during wet periods) will be recovered and hauled off site to an appropriate disposal site. All drainage structures (including culverts and riprap) will be removed, hauled off-site to an appropriate disposal site, and these areas will then be backfilled with clean, compatible sub-grade material. All road and other areas compacted during original construction or by equipment used in the decommissioning shall be tilled in a manner adequate to restore the subgrade material to the proper density and depth consistent with the surrounding fields. Low areas will be filled with clean, compatible subgrade material. After proper subgrade depth is established, topsoil will be placed to a depth, density, and finished contour consistent with the surrounding field. All restoration activities in agricultural fields will be done in accordance with NYSDAM guidelines.

Access security gates will be maintained at all times until the road removal process is complete and the area is ready to be demobilized. The gate shall be removed and all materials recycled to the greatest extent possible. The ditch crossing will be removed if requested by the landowner and approved by the appropriate authorities having jurisdiction over roads and drainage. The area will be thoroughly cleaned and all debris will be removed.

All decommissioning activities shall be performed in accordance with all applicable federal, state, and local requirements in effect at the time of decommissioning.

## **Financial Security for Decommissioning Costs**

As detailed below, the costs of decommissioning Project components, average salvage values for various components, and a net decommissioning cost per turbine have been carefully estimated by LVI Services, the nation's largest remediation and facility services firm. In accordance with the Town of Villenova Wind Law, Ball Hill will establish financial security in a form and amount acceptable to the Town which may be a decommissioning bond or fund payable to the Town and can consist of a letter of credit. The net decommissioning costs based on average salvage values and projected labor rates, updated to 2016 at rates provided by LVI, are estimated to be \$22,705.83 per wind energy conversion system (WECS). The financial security instrument will be maintained by Ball Hill or its successors for the life of the Project and can be accessed by the town for decommissioning, if needed.

## **Updating of Decommissioning Costs**

Applicant will review and revise all estimated decommissioning costs on or before each five-year anniversary of the Project's first date of commercial operations, and notify the Town of Villenova of any changes. The details of the timing and nature of the updated calculations will be included in the Host Community Agreement between the Applicant and the Town.

## **Revegetation and Reseeding**

All Project areas not under cultivation or reserved for some other use by property owners will be revegetated or reseeded, as appropriate. Revegetation of the disturbed areas will be part of the restoration of the area to surrounding land use in the same manner as described for restoring areas temporarily impacted during construction. Reseeding in agricultural areas will be conducted in accordance with NYSDAM guidelines.

## Table 12 Budgetary Estimate/Opinion of Cost for Ball Hill Wind Energy Conversion Facility Decommissioning

(prepared by LVI Environmental Services, Inc., 7/13/08 and adjusted per LVI for 2016)

## **Turbine Equipment Removal**

## Remove Blades/Hub

ve Diades/11ub				
Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	1	day	3,190.	3,190.00
Operators	16	hour	88.00	1,408.00
Labor	8	hour	71.50	572.00
Support Equipment*	1	day	990.00	990.00
Consumables/Fuel	8	hour	176.00	1,408.00
Concrete/Clean Fill Recyc	cling 0	ton	7.70	0.00
C&D Waste Disposal	25	ton	71.50	1,787.50
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	0	pound	(0.45)	0.00
Copper Cable Salvage	0	pound	(2.38)	0.00
Component Salvage	0	each	0.00	0.00
			Sub Total	10,103.50

<sup>\*</sup>Support Equipment consists of one (1) 100K Lb. excavator with attachments, one (1) loader, one (1) skidsteer, one (1) pickup truck and one (1) site trailer.

Remove	Nacelle
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ove Nacelle					
Item		Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision		4	hour	93.50	340.00
Crane w/ Operator		1	day	3,190.00	3,190.00
Operators		16	hour	88.00	1,408.00
Labor		8	hour	71.50	572.00
Support Equipment*		1	day	990.00	990.00
Consumables/Fuel		8	hour	176.00	1,408.00
Concrete/Clean Fill Rec	ycling	0	ton	7.70	0.00
C&D Waste Disposal		0	ton	65.00	0.00
Steel Salvage		3	ton	(220.00)	0.00
Aluminum Cable Salvas	ge	150	pound	(0.45)	0.00
Copper Cable Salvage		50	pound	(2.38)	0.00
Component Salvage		1	each	(5,000.00	(5,000.00)
			Sub	Total	2,908.00

## **Dismantle Tower**

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	2	day	3,190.	6,380.0
Operators	32	hour	88.00	2,816.0
Labor	32	hour	71.50	2,288.0
Support Equipment*	2	day	990.00	1,980.0
Consumables/Fuel	16	hour	176.00	2,816.0
Concrete/Clean Fill Recycling	0	ton	7.70	0.00
C&D Waste Disposal	0	ton	71.50	0.00
Steel Salvage	138	ton	(220.00)	(30,360.00
Aluminum Cable Salvage	475	pound	(0.45)	(213.75)
Copper Cable Salvage	130	pound	(2.38)	(309.40)
Component Salvage		each		0.00
		Sub '	(13,855.15)	

## **Foundation Removal**

uation Kemovai				
Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	0	day	3,190.	0.00
Operators	32	hour	88.00	2,816.0
Labor	0	hour	65.00	0.00
Support Equipment*	2	day	990.00	1,980.0
Consumables/Fuel	16	hour	176.00	2,816.0
Concrete/Clean Fill Recycling	676	ton	7.70	5,205.2
C&D Waste Disposal	0	ton	65.00	0.00
Steel Salvage (Rebar)	6	ton	(190.00)	(1,140.00)
Aluminum Cable Salvage	100	pound	(0.45)	(45.00)
Copper Cable Salvage	30	pound	(2.38)	(71.40)
Component Salvage	1	each	(250.0	(250.00)
		Sub '	12,058.80	

## **Backfill/Restoration**

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	0	day	3,190.	0.00
Operators	16	hour	88.00	1,408.00
Labor	8	hour	71.50	572.00
Support Equipment*	1	day	990.0	990.00
Consumables/Fuel	4	hour	176.0	704.00
Topsoil	45	cubic yard	19.80	891.00
Re-seed/Vegetation	470	square foot	0.22	1034.00
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	0	pound	(0.45)	0.00
Copper Cable Salvage	0	pound	(2.38)	0.00
Component Salvage	0	each		0.00
		Sub '	Total	6,347.00

TOTAL per Tower/Turbine \$17,562

No. of Towers/Turbines 29

6,347.00

TOTAL for Towers/Turbines \$509,302

## **Collection, Substation & Roads**

## **Overhead Collection**

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	0	day	3,190.	0.00
Operators	8	hour	88.00	704.00
Labor	16	hour	71.50	1,144.00
Support Equipment*	1	day	990.00	990.00
Consumables/Fuel	8	hour	176.00	1,408.00
Concrete/Clean Fill Recycling	0	ton	7.70	0.00
C&D Waste Disposal	5	ton	71.50	357.50
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	20	pound	(0.45)	(9.00)
Copper Cable Salvage	30	pound	(2.38)	(71.40)
Component Salvage	0	each	0.00	0.00
		Sub '	5,271.10	

## **Underground Collection**

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	160	hour	93.50	14,960.00
Crane w/ Operator	0	day	3,190.00	0.00
Operators	160	hour	88.00	14,080.00
Labor	160	hour	71.50	11,440.00
Support Equipment*	20	day	990.00	19,800.00
Consumables/Fuel	160	hour	176.00	28,160.00
Concrete/Clean Fill Recycling	0	ton	7.70	0.00
C&D Waste Disposal	80	ton	71.50	5,720.00
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	186750	pound	(0.45)	(84,037.50)
Copper Cable Salvage	13275	pound	(2.38)	(31,594.50)
Component Salvage	0	each	0.00	0.00
		Sub Total		(21,472.00)

## Substation

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	16	hour	93.50	1,496.00
Crane w/ Operator	0	day	3,190.00	0.00
Operators	32	hour	88.00	2,816.00
Labor	16	hour	71.50	1,144.00
Support Equipment*	2	day	990.00	1,980.00
Consumables/Fuel	16	hour	176.00	2,816.00
Concrete/Clean Fill Recycling	60	ton	7.70	462.00
C&D Waste Disposal	10	ton	71.50	715.00
Steel Salvage	5	ton	(220.00)	(1,100.00)
Aluminum Cable Salvage	1000	pound	(0.45)	(450.00)
Copper Cable Salvage	150	pound	(2.38)	(357.00)
Component Salvage	1	each	(2,000.00)	(2,000.00)
		Sub Total		7,522.00

Roads

Item	Quantity	Unit	<b>Unit Cost</b>	Extended
Supervision	144	hour	93.50	13,464.00
Crane w/ Operator	0	day	3,190.	0.00
Operators	288	hour	88.00	25,344.00
Labor	144	hour	71.50	10,296.00
Support Equipment*	18	day	990.00	17,820.00
Consumables/Fuel	144	hour	176.00	25,344.00
Concrete/Clean Fill Recycling	8100	ton	7.70	62,370.00
C&D Waste Disposal	45	ton	71.50	3,217.50
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	0	pound	(0.45)	0.00
Copper Cable Salvage	0	pound	(2.38)	0.00
Component Salvage	0	each	0.00	0.00
		Sub Total		157,845.50

GRAND TOTAL \$658,469

7,522.00

Per WECS: \$22,705.83

## S Environmental Monitoring Plan



## Ball Hill Wind Project Construction Environmental Plan Project Number:22150

Report No. 22150

Issue No. 01

This Procedure has been prepared by Renewable Energy System Americas Inc. ("RES Americas") in accordance with internal procedures and mandates and is Confidential Information. If this Procedure is an exhibit to a contract or agreement, then this Procedure, in the form attached to the contract, shall be subject to only those express representations or warranties regarding the exhibits to such contract, if any. Except for such representations, RES Americas provides this Procedure "AS-IS" and does not represent, and RES Americas expressly disclaims, that the procedures or material contained in this Procedure have been prepared pursuant to any particular methodology, are accurate or complete, or that they reflect the current status of applicable law. Portions of this Procedure may be excerpted or redacted and this Procedure is subject to revision or update at any time. Any party utilizing this Procedure, or any matter or information derived from it, ("Recipient") does so at his/her/its own risk and agrees to make his/her/its own investigation regarding his/her/its legal or other obligations for performance of his/her/its work. No Recipient shall have any right or claim against RES Americas or any of its affiliated companies with respect to the Procedure.

**Revision History** 

Issue	Date	Nature And Location Of Change
01	10/19/2016	First created
02		

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## 1.0 **PURPOSE**

1.1 This Construction Environmental Plan for Ball Hill Wind Project shall ensure that the project is constructed in compliance with all planning conditions, legal requirements, and in accordance with the Renewable Energy Systems Americas Inc. ("Company") Environmental Management System (EMS).

## 1.2 Mission Statement

RES Americas, through its affiliates, develops renewable projects throughout the United States, Canada, and Chile. RES Americas is one of the top renewable energy companies in North America. RES Americas has constructed over 160 renewable energy projects with a total capacity of more than 10,000-megawatts (MW) around the world. RES Americas has been active in North America since 1997, and has a renewable energy and storage construction portfolio that exceeds 8,000 MW and over 80 projects, and has constructed more than 650 miles of overhead and transmission lines. In addition, RES Americas has a robust development pipeline of wind, solar, and energy storage projects across North America, and the company currently operates more than 250 MW of renewable energy and storage projects. RES Americas designs, constructs, and operates its facilities in an environmentally sound and responsible manner.

## 2.0 SCOPE

Unless specifically noted herein, this document shall apply to work conducted for Renewable Energy Systems Americas Inc., or any of its affiliate or subsidiary companies referred to collectively as the "Company".

This CEP has been prepared for the Ball Hill Wind Project.

## 3.0 PROJECT DESCRIPTION

Ball Hill Wind Energy, LLC (Ball Hill), a company owned by Renewable Energy Systems Americas, Inc. (RES), is continuing the development of the Ball Hill Wind Project (Project), which it proposes to construct and operate in the towns of Villanova and Hanover, Chautauqua County, located in western New York State (NYS). The Project consists of generation and transmission components. More specifically, the Project will include the following:

- 3.1 Installation and operation of 29 wind turbines (23 in the town of Villanova and six in the town of Hanover) with a maximum capacity of 100 MW within an approximate 9,715-acre Project Area in the towns of Villanova and Hanover, Chautauqua County, New York.
- 3.2 Construction and use of 13.4 miles of access roads, which would connect each wind turbine to a town or county roadway. The access roads would provide equipment and vehicle access for construction and subsequent maintenance of the facilities, as well as for emergency services, if needed. After construction of the Project, the varying width temporary access road would be scaled back to a permanent width of 16 feet, allowing Ball Hill to use the existing roadway for maintenance and operational purposes.

- 3.3 Construction and use of an underground electrical collection system, which would allow delivery of electricity to a new substation to be constructed in the town of Hanover. The underground electrical collection system as currently sited would be installed on private lands parallel to the right-of-way (ROW) corridors for the turbine access roads wherever feasible. A total of 19.8 miles of collection lines (including underground collection lines collocated with access roads) would be installed. As currently designed all collection line would be underground.
- 3.4 Construction and use of a new substation (Hanover substation) within the Project Area in the town of Hanover, which would tie the electrical collection system into a new 115-kilovolt (kV) transmission line. The substation footprint would be up to 266 feet by 239 feet. A short access road would be constructed from Hurlbert Road to the new substation.
- 3.5 Construction and use of a 5.7-mile-long overhead 115-kV transmission line in the town of Hanover, which would transfer the energy from the new substation to the new substation/switchyard. The transmission line would be located in a 120-foot ROW. The line would be centered in an 80-foot cleared area with the remaining 20 feet on each side reserved for selective tree removal as needed to reduce tree conflicts with the line.
- 3.6 Construction and use of a substation/switchyard within the Project Area in the town of Hanover. The proposed switchyard would provide a connection to an existing 230-kV National Grid transmission line, which would provide access to the grid. The switchyard footprint would be up to 265 by 651 feet. A short access road would be constructed from Stebbins Road (County Route 86) to the new switchyard.
- 3.7 Ball Hill proposes to install the Vestas V126-3.45 MW IEC IIA/IEC IIB wind turbine (V126), the maximum height for which is ±492 feet (150 meters) when a rotor blade is at the top of its rotation. The V126 turbine is a three-bladed, upwind, horizontal-axis wind turbine with a rotor diameter of ±413 feet (126 meters). The blades will be approximately 79 feet (24 meters) from the ground at its nearest point. The nacelle is located at the top of each tower and contains the electrical generating equipment.

### 4.0 PURPOSE OF ENVIRONMENTAL MONITORING PLAN

- 4.1 The purpose of the Environmental Monitoring Plan (EMP) is to provide the environmental supervisor(s) with a reference source to aid in managing the environmental issues that may be encountered during construction of the Project. Environmental impacts may occur during the many phases of Project construction including roads, foundations, erosion control devices, electrical collection and transmission lines and equipment, electrical substation and switchyard, and erection of turbine equipment
- 4.2 This document contains the framework for the daily and long-term monitoring and reporting structure to ensure that the Project is completed within the parameters set forth in the permits issued for the Project.
- This EMP is organized into nine sections and a series of thirteen Appendices. Section 7 discusses the organization and supervision of personnel established for inspection and reporting. Section 8 summarizes the environmental plans

and programs .discusses the environmental supervisor's role during construction and provides checklists to be followed during certain activities. In addition, the appendices will contain the actual permits that have been issued for the Project, as well as, various documents that will assist the environmental supervisors in their daily duties. These documents include specific plans created for the construction of the Project, wetland and stream mapping, and applicable agency guidelines. Documents, such as the Storm Water Pollution Prevention Plan (SWPPP), will be included by reference, but not attached to the manual.

#### 5.0 **CONTACT DETAILS**

Contact details for the Project are held in an appendix in the Construction Project Directory, which details all parties involved in the Project including the agency which is responsible for enforcement.

#### 6.0 AUDIT

- 6.1 The project shall be subject to an audit process during construction.
- 6.2 A Company auditor from the HSQE Department shall undertake periodic audits of the project.
- 6.3 The Project Manager shall ensure that any actions identified during the audit are closed out within the specified time frame.
- The NPDES Permit process allows external agency (New York State Department of Environmental Conservation [NYSDEC], County Agencies, USEPA and others) inspection of the Project environmental management system including the contents of this document (CEP).
- 6.5 The resolution of any deficiencies noted during external agency inspections and audits will be cleared and recorded in accordance with the individual Permit documents.

#### 7.0 INSPECTION & REPORTING

The following sections describe the reporting structure and authorities during the construction of the Project and a contact list, to be used by the environmental supervisor for reporting any incidents that may occur.

- 7.1 The Project Manager shall ensure that environmental inspections are performed at least twice every week and shall be documented in the Environmental Monitoring Checklist RAEMT 02. All inspections and actions derived shall be documented in the proper appendices in this CEP.
- 7.2 The Project Manager, at their discretion, may require this inspection to be done more frequently.
- 7.3 The principal RES inspection, documentation, and mitigation direction will be the responsibility of the RES Environmental Supervisor. The RES Environmental Supervisor's duties will include:

- 7.3.1 Coordination of periodic monitoring activities, documentation of deficiencies, expediting the mitigation, verification inspections and preparation of closing documentation as it occurs.
- 7.3.2 Ensuring the timely and proper installation of BMP's as part of the predisturbance activities.
- 7.3.3 Follow-on environmental work to maintain the site in a compliant state during the various work items as the project continues.
- 7.3.4 Implementation of required restoration activities to accomplish a timely completion in compliance with permits and regulations within the parameters of contractual requirements.
- 7.3.5 Ensure compliance with regard to the compliance with the Spill Prevention Control and Countermeasure Plan with specific attention to fuel handling equipment inspection and required maintenance.
- 7.3.6 Recognize previously identified sensitive areas, such as wetlands, where special construction techniques will be required and that the work in these areas will be conducted in accordance with the drawings and specifications approved for these areas and with all federal, state, and local permit conditions.
- 7.3.7 Ensure that work within agricultural fields is conducted in accordance with the guidance document issued by the New York State Department of Agriculture and Markets (NYSDAM). This includes proper stockpiling of topsoil, segregation of subsoil and topsoil, and restoration methodologies.
- 7.3.8 Ball Hill's environmental supervisor will be responsible for preparing and submitting several reports; consisting of summaries of daily, monthly, and post-restoration activities. The RES Environmental Supervisor may also be required to prepare periodic and/or final reports for submittal to local, state, or federal agencies; depending on conditions attached to permits received from these agencies.
- 7.3.9 Upon completion of the construction and restoration of the Project Site, the supervisor will be required to complete a Post Restoration Report. The report will summarize the restoration measures implemented on the Project Site including, but not limited to, the documentation of the permanent storm water controls, restoration activities in agricultural land (e.g., topsoil replacement, removal of geotextile fabric, removal of large rocks, repair of drain tile), restoration within wetlands and stream crossings, and documentation of any reseeding or planting that is undertaken for restoration in accordance with applicable permits and restrictions. The daily and monthly summaries will be used to compile this report. This report will be provided to all interested agencies including the towns, NYSDEC, the USACE, and NYSDAM.
- 7.3.10 The RES Environmental Supervisor reports to the Site Project Manager. As needed, he or she may consult or request resolution from other individuals including the RES Environmental Manager, Project Environmental Consultant or others with the appropriate expertise.

- 7.4 To enhance the environmental compliance and reporting activities, RES will retain the services of an Independent Inspector. The independent inspector's duties will include:
  - 7.4.1 Participation in monitoring activities, documentation of implementation of mitigation activities as they are conducted, and preparation of reports for submission to the towns as well as other involved and interested parties.
  - 7.4.2 Complete authority to order the correction of those environmental activities which are in clear violation of any permits or obligation. Additionally, the Independent Inspector may order the temporary cessation of work activities which are in violation of any permits or regulations and are not properly mitigated in a satisfactory manner or within the allotted time. The work cessation may continue until such time as corrective measures have been implemented and accepted by the appropriate agencies and project entities, as required.
  - 7.4.3 Ball Hill's independent environmental supervisor will be required to maintain a log book, used to record activities and to maintain photographic documentation while on site. The log book will contain documentation of observed construction activities, weather conditions, construction progress, pertinent conversations, and compliance issues. The information collected in the log book will then be summarized into a date specific report, which will serve as the permanent record of activities occurring on the site. In addition to the logbook, several checklists or forms may be used to provide a succinct reporting form for certain activities. These include SWPPP monitoring, wetland and waterbody crossings, and noncompliance reports.
  - 7.4.4 To enhance independence and provide credibility, the Independent Inspector will report to the RES Site Project Manager and may, as necessary coordinate the process for deficiency recognition, documentation, mitigation and close-out with other RES personnel including the RES Corporate Environmental Manager.
- 7.5 The RES Environmental Manager is responsible for ensuring the proper procedures, qualified personnel and timely inspections for monitoring all aspects of the environmental compliance at the Ball Hill project. The Environmental Manager's duties are as follows:
  - 7.5.1 This individual does not directly supervise the site personnel but rather provides a resource to resolve deficiencies as they occur.
  - 7.5.2 Perform periodic audits of the sites to ensure compliance and followup on specific construction items which are non-conforming.
  - 7.5.3 Provide an interface with the client and the Project in areas of concern including area disturbance, deficiency mitigation, engineering questions and restoration.
  - 7.5.4 The RES Environmental Manager reports to the RES Senior VP of Health, Safety, Quality and Environmental (HSQE).

- 7.6 In addition to the NPDES inspections, The RES Environmental Supervisor in concert with the Independent Environmental Inspector will perform the following:
  - 7.6.1 Ensure that all environmental permits have been received and that applicable agency notifications, as required by all permits, have been given prior to commencing work in a given area.
  - 7.6.2 Conduct pre-construction meetings with contractors to review applicable permit conditions and requirements specific to the contractor's scope of work. This occurs a minimum of once during the general construction pre-bid and kickoff meetings held for each new contractor.
  - 7.6.3 Conduct contractor "tailgate" sessions, as necessary, to review applicable permit conditions and potential problem areas for a given area of construction. These will occur on a regular basis, typically concurrent with the safety meetings held at the construction site which would normally occur once a week.
  - 7.6.4 Monitor and document the contractors' adherence to all environmental specifications
  - 7.6.5 Ensure the proper installation and maintenance of all sediment and erosion control structures as dictated by the SWPPP and any other structures or features required by permit, regulations, or company policy. This task includes determining whether the contractors' work and material are in conformance with the specifications and drawings.
  - 7.6.6 Prepare all required documentation, including, but not limited to, daily reports, weekly reports, monthly reports, and non-compliance reports, as necessary.
  - 7.6.7 Make required internal and agency notifications when non-compliance or any reportable violations occur.
  - 7.6.8 Order remedial action for violations of environmental regulations

#### 8.0 SUMMARY OF ENVIRONMENTAL PLANS & PROGRAMS

In addition to the responsibilities and deliverables outlined in the previous section, the following items are part of the Environmental Plans and Programs

- 8.1 Construction Schedule RES Construction will follow all federal, state, and local requirements regarding the construction schedule and sequence
- 8.2 Clearing Practices Clearing limits will be identified and visibly marked before construction activities with respect to protected lands, along Project boundaries, and near environmentally sensitive areas. Any activity or traffic outside the limits must be deemed necessary and approved by RES. In all cases, RES makes every effort to minimize construction activity impact. Additionally, Ball Hill will follow all federal, state, and local requirements regarding clearing practices.

As clearing will occur in the window of November 1 through March 31 to address concerns with bat habitat, this will also greatly reduce potential impacts with breeding bird species as most species breed later in the spring and summer. For proposed clearing of forested areas between January 1 and March 31 and grassland areas between March 1 and March 31, the environmental supervisor will traverse the areas to be cleared within two weeks of the scheduled start of clearing and search for bird nests. Should any active nests be located, the location will be documented and NYSDEC and USFWS will be consulted to discuss potential avoidance and minimization measures.

- 8.3 Wetland and Waterbody Protection RES Construction will follow all federal, state, and local requirements regarding wetland and waterbody protection and restoration and waterbody crossing methodologies. Additionally, RES Construction will comply with the conditions of the USACE individual wetland permit and NYSDEC joint permit.
- 8.4 **Noise Control** RES Construction will follow all federal, state, and local requirements regarding noise control.
- 8.5 **Dust Control** RES proactively implements best management practices (BMPs) to reduce the potential impact to areas immediately surrounding the Project site, including control methods for dust generation and fugitive dust. Ball Hill will additionally follow all federal, state, and local requirements regarding dust control.
- 8.6 **Erosion Control** RES Construction will layout, install, inspect, repair and otherwise maintain the erosion control BMP's used at the site in accordance with the SWPPP and all federal, state, and local requirements regarding erosion control, including those outline in the New York State Standards and Specifications for Erosion and Sediment Control (2016 Blue Book).
- 8.7 Waste Management (Including Chemical & Hydrocarbon Waste) Waste management procedures will be in accordance with the SPCC:
  - 8.7.1 Washout concrete trucks in designated plastic-lined collection pits to prevent alkaline runoff;
  - 8.7.2 Perform equipment maintenance over drip pans with regular leak inspections;
  - 8.7.3 Collect and dispose of waste oil and contaminated earth from spills/drips. This will be performed by a qualified management and disposal company. The manifest records are obtained by RES as proof of proper treatment;
  - 8.7.4 Report all spills reported as per NYDEC requirements.
- 8.8 Invasive Species & Herbicide Use RES Construction will also follow the procedures outlined in the Invasive Species Management Plan (ISMP) (see Appendix 13 of this EMP). Additionally, RES will follow all federal, state, and local requirements regarding invasive species management and herbicide use.
- 8.9 Agricultural Protection & restoration RES Construction will follow all federal, state, and local requirements regarding agriculture protection and

- restoration, including those outlined in the NYSDAM Guidelines for Agricultural Mitigation for Wind Power Projects.
- 8.10 Site Access, Maintenance and Protection of Traffic RES Construction will follow all federal, state, and local requirements regarding site access, maintenance and protection of traffic.
- 8.11 Site Restoration At the conclusion of the Project, there will be a restoration process including the following elements: removal of construction debris, final grading of road surfaces and ditches, evaluation of culverts and water dispersion pads to ensure proper storm water flow, and disturbed ground prepared and sown with native grass mix to ensure rapid growth and erosion prevention. Additionally, RES will follow all federal, state, and local requirements regarding restoration.

#### 9.0 CONSTRUCTION PERMITTING AND ENVIRONMENTAL REQUIREMENTS

- 9.1 The permitting matrix presents an overview of the Ball Hill Wind Project. This document is updated from time to time as permits are approved or dropped as unnecessary.
- 9.2 The following project specific external environmental documents provided by others (Owner, Government Agency, 3rd party Consultant, Subcontractor, etc.) are required for implementation of this CEP/EMP:
  - 9.2.1 General Construction Permit
  - 9.2.2 Approved Notice of Intent (NOI)
  - 9.2.3 National Pollutant Discharge Elimination System (NPDES) Permit
  - 9.2.4 Stormwater Management Plan SWPPP
  - 9.2.5 Miscellaneous Air Permits as needed (Batch Plant, Rock Crushing Operation, etc.)
- 9.3 The CEP identifies all permitting requirements and obligations resulting from the development of the Ball Hill Wind Project which are required to perform the construction services.

#### 10.0 APPENDICES

- 10.1 Appendix 1 EMS Manual
- 10.2 Appendix 2 General Construction Permits
  - 10.2.1 Permitting Matrix
    - 10.2.2 Notice of Intent (NOI)
    - 10.2.3 NPDES Permit (With attachments)
    - 10.2.4 SWPPP (With attachments)
    - 10.2.5 Copies of Subcontractor Air Permits (Batch Plants, Crushers, etc.)
    - 10.2.6 Other permits as dictated by the individual Project requirements listed in Section 9.2

- 10.3 Appendix 3 SPCC Documentation
  - 10.3.1 SPCC Document
  - 10.3.2 SPCC PE Certification
  - 10.3.3 SPCC RES approval form
  - 10.3.4 Subcontractor approval form (one per subcontractor)
  - 10.3.5 SPCC Inspection Reports
  - 10.3.6 AST (Above-Ground Storage Tank) Registration
  - 10.3.7 Spill Reports
- 10.4 Appendix 4 Waste management (RAEMT 11)
  - 10.4.1 Construction Waste Management Plan (CWMP)
  - 10.4.2 General Construction Waste (Trash)
  - 10.4.3 Hazardous Waste Manifest Notes / Disposal Receipts

Copies of any Hazardous Waste Manifest Disposal records from waste being sent off site. Additionally, the log from Appendix 8 of the SPCC should be maintained in this appendix

- 10.4.4 Special/Hazardous Waste
- 10.4.5 Recyclable Material
- 10.4.6 Sustainability
- 10.5 Appendix 5 Environmental Monitoring Checklists (RAEMT 02)
- 10.6 Appendix 6 Environmental Incident Reports and correspondence
  - 10.6.1 Landowner or Municipal complaints and concerns.
  - 10.6.2 Wildlife, flora, fauna, avian/bat reports
  - 10.6.3 Noise Reports
  - 10.6.4 Others depending on the project requirements
- 10.7 Appendix 7 Environmental Consultant's Reports
- 10.8 Appendix 8 Development Documentation
- 10.9 Appendix 9 Miscellaneous Environmental Documents
- 10.10 Appendix 10 Regulatory Notices/Inspections and Correspondence
- 10.11 Appendix 11 Owner Environmental Correspondence

Owner notices, NCR's and other environmentally relevant correspondence will be kept in this Appendix. This file shall document the technical and physical resolution of the Owner issues.

10.12 Appendix 12 - Environmental Log (RAEMT 01)

The RES Environmental Log shall be updated weekly and the latest version will be filed in this Appendix. This file shall document the technical and physical resolution of the environmental deficiencies 10.13 Appendix 13 - Invasive Species Management Plan (ISMP)

# Appendix 1 - Environmental Management System

# Appendix 2 - Copies of the site General Construction Permits

# Appendix 3 - SPCC Documentation

# Appendix 4 RES Waste Management System RAEMT 11

# **Appendix 5** - Environmental Monitoring Checklists RAEMT 02

# Appendix 6 - Environmental Incident Reports and Complaints

# **Appendix 7** - Environmental Consultant's Reports

# Appendix 8 - Development Documentation

# Appendix 9 - Miscellaneous Environmental Documents

Appendix 10 - Regulatory Notices/Inspections and Correspondence

# Appendix 11 - Owner Environmental Correspondence

# Appendix 12 - Environmental Log RAEMT 01

# Appendix 13 - Invasive Species Management Plan

# Ball Hill Wind Project Draft Invasive Species Management Plan

The Ball Hill Wind Project (Project) will result in disturbance to wetlands and riparian areas during construction and operation of the Project. Wetland habitats and riparian zones are susceptible to a variety of biological stressors and direct impacts as the result of disturbance to existing hydrology, soils, and vegetation. A major threat to these systems following perturbations in the existing ecology is invasive species. Invasive plant species considered as high risk of colonization within the Project Area are purple loosestrife (*Lythrum salicaria*), common reed or phragmites (*Phragmites australis*), Japanese knotweed (*Falopia japonica* syn. *Polygonum cuspidatum*), smooth buckthorn (*Rhamnus frangula*), common buckthorn (*R. cathartica*), garlic mustard (*Alliaria petiolata*), fig buttercup (*Ranunculus ficaria*), reed canary grass (*Phalaris arundinacea*), and Eurasian water milfoil (*Myriophyllum spicatum*). Phragmites, Japanese knotweed, and garlic mustard were identified within the Project Area during field surveys. Inadvertent introduction of these species into an area through the movement of topsoil, fill, and construction equipment is possible.

Japanese knotweed was observed within the Transmission Line construction disturbance right-of-way (ROW) within, and to the north of, wetland W105, which was field delineated in 2008. This wetland is shown on wetland mapping as part of the Ball Hill Wetlands and Waterbodies Report in Appendix G of the 2008 Draft Environmental Impact Statement (DEIS). Japanese knotweed was also observed in several locations throughout the Project Area outside of areas of construction disturbance, but it may have also potentially occurred within the vicinity of construction disturbance.

Phragmites and garlic mustard were also observed in several locations throughout the Project Area along roadsides and disturbed areas. These species have the potential to occur within the construction disturbance ROW.

This Invasive Species Management Plan (ISMP) describes the best management practices (BMPs) Ball Hill will implement to ensure that its activities do not increase the presence of the invasive species, within the Project Site, including, federal and the New York State Department of Environmental Conservation (NYSDEC)-regulated wetlands, riparian areas, and NYSDEC-regulated adjacent areas falling within the Project Site. The Project Site contains all lands in the Project Area that have the potential to be permanently or temporarily disturbed as a result of the construction or operation of Project facilities. For the purposes of this discussion, the term federal and NYSDEC-regulated area (FDRA) will be used to refer to those wetland, riparian, and NYSDEC-regulated adjacent areas that are specifically covered by NYSDEC and United States Army Corps of Engineers (USACE) permits and that will be temporarily or permanently impacted as a result of constructing and operating the Ball Hill Wind Project.

The goal of Ball Hill's invasive species management efforts will be to prevent the introduction and spread of invasive species listed above to new locations resulting from Project activities within the Project Site and a 0% net increase in the areal coverage of invasive species resulting from Project activities within the limits of the Project Site ("Baseline Survey," as described below) for two years post-restoration. The implementation of these BMPs, coupled with active monitoring and intensive management for two years post-restoration in coordination with regional NYSDEC staff, will help ensure the success of this ISMP.

As the first step in implementing the ISMP, during the siting studies and wetland delineation surveys for the Project, Ball Hill will continue to conduct a comprehensive survey of the wetlands, riparian areas, and NYSDEC-regulated adjacent areas within the Project Site to document the presence of purple loosestrife, phragmites, Japanese knotweed, smooth buckthorn, common buckthorn, fig buttercup, reed canary grass, and Eurasian water milfoil (collectively referred to as "invasive species"). This survey establishes a pre-construction measure of percentage areal coverage of invasive species.

#### **BEST MANAGEMENT PRACTICES**

- Identification of Infested Areas. The Project Site will be inspected for the presence of invasive species prior to disturbance by a qualified environmental monitor. Areas containing an infestation within the limits of the Project Site will be clearly identified in the field using highly visible marking tape. Global Positioning System coordinates will be recorded and infested areas will be mapped out with geographic information system software. These mapped areas will be added to construction drawings where applicable, and all staff will be informed of the locations of infested areas. A baseline survey report will be prepared and submitted to both NYSDEC and the USACE in advance of construction activities. Ball Hill will request that NYSDEC and the USACE document receipt of, and concurrence with, the Baseline Survey.
- 2. Staff Invasive Species Training. Before construction begins workers will be educated about BMPs for controlling the spread and introduction of invasive species. Training will include familiarizing staff with invasive species that may occur within the Project boundary, proper equipment and clothing cleaning procedures, review of mapped Project area with known infested areas marked, and proper action upon new areas of potential infestation. All workers on site will be appropriately educated about the threat of invasive species, how they are spread, and how to prevent their spread. The Environmental Monitor will ensure that all required practices are implemented during construction.
- 3. Inspection of Fill Sources. NYSDEC has indicated that many borrow pits across the state contain infestations of invasive species. Prior to the initiation of construction, Ball Hill will identify satisfactory locations for fill and/or construction material including top soil, sand, gravel, rock, and crushed stone, from certified weed-free commercial pits and other off-site locations. Identified locations shall be inspected by Ball Hill's Environmental Supervisor for the above-mentioned invasive species and measures will be taken to prevent the inadvertent transport of propagules or seeds to Ball Hill's Project Site. Preventive measures may include opting for different fill sources, or eliminating all invasive species before using the fill source, if possible.
- 4. Invasive Plant Material Removal and Transportation.

Ball Hill will follow New York State's Invasive Species Regulation (6 New York Codes, Rules, and Regulations [NYCRR] Part 575) regarding the transportation of identified invasive species.

During Construction. Where populations of invasive species are encountered in the Project Site during construction, these plants will be spot-treated with herbicides using a NYSDEC-approved application method prior to removal of the plant material. All chemical treatments will be applied in strict accordance with all manufacturer guidelines and federal, state, and local laws. Ball Hill will coordinate with NYSDEC regarding disposal options for specific species as they are identified. With most

species and where practicable, the dead plant material will be segregated from the soil and transported to a designated off-site location for disposal using a truck with a cap or topper to securely fasten the load and prevent loss of the material during transport. If the coverage of the invasive species within the Project Site is greater than 75%, removal of the topsoil to a depth of 3 feet may be considered, depending on site conditions. This topsoil would be replaced with hydric soil or topsoil with a high organic content from a source inspected and deemed free of invasive species. Preconstruction contours will be restored. The infested soil will be removed from the site and disposed of in a suitable upland location (an acceptable distance away from another wetland) or in an approved sanitary landfill based on consultation with NYSDEC. Stripping of topsoil will not be the preferred method of invasive species removal when the species can be counted as individuals and do not dominate an area since this method of control could potentially create a greater disturbance to adjacent unaltered wetland or riparian areas, inadvertently creating conditions more favorable for invasive species or for the establishment of an undesirable plant community. If phragmites, garlic mustard, Japanese knotweed, purple loosestrife, or Eurasian water milfoil, a submerged aquatic plant, are found within the Project Site, they will be removed by hand and placed into 3-millimeter (mm)-thick black plastic contractor bags or in a dumpster depending on quantity for composting or landfill disposal depending on the time of year. This disposal method of the aquatic plant will prevent alteration of the bed of shallow aquatic habitats and excessive suspended sediments.

Post Restoration. If invasive species are found post-restoration at the Project Site after restoration of these areas, herbicides will be used to spot treat the areas of infestation. All chemical treatments will be undertaken in strict accordance with all manufacturer guidelines and federal, state, and local laws, and will be coordinated with regional NYSDEC staff. The dead plant material will be removed and disposed of in an approved sanitary landfill. This area will then be reseeded using the mix or equivalent described below in "Grading and Erosion and Sediment Control." A cover crop, such as perennial ryegrass (Lolium perenne), may be used as a temporary stabilizing agent depending on site conditions and time of year.

5. Grading and Erosion and Sediment Control. Any areas that were subject to disturbance will be reseeded shortly after the disturbance took place. It is important to reseed these areas as quickly as possible, as invasive species often rapidly colonize recently disturbed soil and can promptly become firmly established. An erosion control seed mixture will be used in these areas. This seed mixture contains the following plant makeup:

F	Percentage	Botanical Name	Common Name
	50.00	Lolium multiflorum	Annual Ryegrass
	50.00	Lolium perenne	Perennial Ryegrass

6. **Equipment Sanitation**. All earth-moving machinery and excavation equipment (motorized or hand-powered) will be inspected and cleaned of extraneous soil and debris prior to entry to the Project Site.

Earth moving and excavation equipment used where invasive species are present will be cleaned free of debris and soil prior to moving the equipment to an uninfested

area. Equipment cleaning will consist of a combination of mechanically removing excess dirt and washing with a mobile pressure washer. This will help prevent the transport of invasive plant seeds or plant propagules to unaffected areas within the Project Site. Wash stations will be incorporated as needed into construction laydown areas. Appropriate erosion and sediment control measures will be implemented to prevent degradation of water quality during this process.

7. **Restoration**. Portions of the Project Site temporarily impacted during the construction of the Project will be restored to pre-construction contours and revegetated immediately following the completion of regulated activities at each site. An appropriate seed mixture shall be used. All seed will be from local sources, to the extent possible dependent upon seed availability, and applied at recommended rates.

An FACW (Wet Meadow Mix) seed mixture, or an equivalent approved seed mix, will be used in the restoration of all wetland areas and riparian zones impacted by construction activities. This seed mixture contains the following plant makeup:

Percentage	Botanical Name	Common Name
20.00	Elymus virginicus	Virginia Wild Rye
19.00	Carex vulpinoidea	Fox Sedge
6.00	Scirpus atrovirens	Green Bulrush
5.50	Verbena hastate	Blue Vervain
5.00	Heliopsis helianthoides	Ox-Eye Sunflower
3.50	Glyceria striata	Fowl Mannagrass
3.00	Carex Iurida	Lurid/Shallow Sedge
3.00	Gylceria grandis	American Mannagrass
3.00	Juncus effuses	Soft Rush
2.50	Carex scoparia	Blunt Broom Grass
2.50	Mimulus ringens	Square Stemmed Monkey Flower
2.50	Onoclea sensibilis	Sensitive Fern
2.50	Vernonia gigantea	Giant Ironweed
2.00	Carex comosa	Cosmos/Bristly Sedge
2.00	Eupatorium fistulosum	Joe Pye Weed

Percentage	Botanical Name	Common Name
2.00	Eupatorium maculatum	Spotted Joe Pye Weed
2.00	Helenium autumnale	Common Sneezeweed
2.00	Iris versicolor	Blue Flag
2.00	Scirpus polyphyllus	Many Leaved Bulrush
1.50	Carex lupulina	Hop Sedge
1.50	Juncus tenuis	PA Ecotype Path Rush, PA Ecotype
1.00	Carex stipata	Awl Sedge
1.00	Geum laciniatum	Rough Avens
1.00	Glyceria canadensis	Rattlesnake Grass
1.00	Senna hebecarpa	Wild Senna
1.00	Solidago patula	Rough Leaved Goldenrod
0.50	Carex tribuloides	Bristlebract Sedge
0.50	Lilium superbum	Turk's Cap Lilly
0.50	Penthorum sedoides	Ditch Stonecrop
0.50	Thalictrum pubescens	Tall Meadow Rue

An upland seed mixture will be used in the restoration of any other areas impacted by construction activities. Whether the upland seed mix, or the erosion control seed mix is used will depend on type of disturbance and locality to invasive plant communities. This seed mixture contains the following plant makeup:

Percentage	Botanical Name	Common Name
20.00	Sorghastrum nutans	Indiangrass, PA Ecotype
20.00	Schizachyrium scoparium	Little Bluestem
20.00	Elymus virginicus	Virginia Wild Rye
10.00	Bouteloua curtipendula	Sideoats Grama
4.50	Chamaecrista fasciculata	Partridge Pea
4.00	Echinacea purpurea	Purple Coneflower
3.00	Rudbeckia hirta	Blackeyed Susan
3.00	Penstemon digitalis	Tall White Beardtongue
2.00	Andropogon virginicus	Broomsedge
2.00	Liatris spicata	Marsh Blazing Star
2.00	Tradescantia ohiensis	Ohio Spiderwort
2.00	Heliopsis helianthoides	Oxeye Sunflower
1.50	Aster laevis	Smooth Blue Aster
1.00	Aster novae-angliae	New England Aster
1.00	Solidago juncea	Early Goldenrod
1.00	Senna hebecarpa	Wild Senna
0.70	Monarda fistulosa	Wild Bergamot
0.50	Asclepias syriaca	Common Milkweed
0.50	Asclepias incarnata	Swamp Milkweed
0.50	Aster umbellatus	Flat Topped White Aster
0.50	Baptisia australis	Blue False Indigo
0.20	Pycnanthemum tenuifolium	Slender Mountainmint
0.10	Euthamia graminifolia	Grassleaf Goldenrod

8. Restoration Monitoring. Restoration monitoring of the Project Site for invasive species will be integrated into the wetland mitigation site monitoring program for the

first two years post-restoration in coordination with regional NYSDEC staff. This monitoring will be conducted through routine inspections conducted by Ball Hill Operations Group environmental staff, and biannually during the growing season. The operations group will update the baseline survey report, as necessary, to document any increased areal coverage of invasive species in the Project Site, and provide any such updates to NYSDEC and the USACE.

- 9. Coordination with Agencies. If aerial coverage of the invasive species in the Project Site increases over the Baseline Survey level, on an aerial percentage basis, Ball Hill will coordinate with NYSDEC and the USACE to confirm whether it is the result of Project or non-Project-related activities. If such increase is determined to be the result of Project activities, remedial actions will be undertaken immediately.
- 10. Restoration Objective. This ISMP shall be considered successful when a 0% net increase in the aerial coverage of invasive species from Project activities in the Project Site is documented during the two-year monitoring period, compared to the Baseline Survey.
- 11. Restoration Monitoring Reports. Ball Hill Operations Group will provide NYSDEC and the USACE with a restoration monitoring report detailing the status of invasive plant species within the Project Site and all measures taken to meet the success standards by December 31 of the monitoring year. If the restoration monitoring report demonstrates a 0% increase aerial coverage of invasive species in the Project Site prior to the end of the two-year monitoring period, Ball Hill Operations Group will formally request NYSDEC and the USACE to concur and deem this condition of the permit to be met and allow invasive species monitoring to cease. If the goal of this ISMP is not met within the first two years post-restoration, Ball Hill will review its control efforts with NYSDEC and the USACE, submit a revised ISMP plan, and implement applicable control actions for an additional monitoring term.
- 12. Emerald Ash Borer (EAB) Containment. Ball Hill will follow EAB regulations and quarantines laid out by the NYSDEC and the New York State Department of Agriculture and Markets (NYSDAM; <a href="http://www.dec.ny.gov/animals/47761.html">http://www.dec.ny.gov/animals/47761.html</a>). The Project Site lies close, partially within the Sheridan quarantine boundary, so specific guidelines regarding restricted zones and the movement/disposal of "regulated articles" will be strictly enforced. Regulated articles include: ash wood, ash logs, ash firewood, ash nursery stock, and wood chips (only between April 15 and May 15 of each year). In order to limit/cease the spread or introduction of EAB to and/or from the Project Site, the movement of removed/cut ash trees will follow the restricted zone guidelines. In accordance with New York State regulations, any regulated article(s) exiting the Sheridan restricted zone during the non-flight season (September 1 through April 30) will have proper compliance agreements or limited permits issued by NYSDAM.

# T Public Participation

# T-1 Public Participation, 2008 DEIS

Resolution of the Town Board of Villenova (Lead Agency)

The regular meeting of the Town of Villenova Board; held October 08, 2008; at 1094 Butcher Road, South Dayton; was called to order by Supervisor Park at 7:30PM after the Pledge to the Flag.

Roll Call Present: Yvonne Park - Supervisor

Donald Chase - Councilman
Melvin Conklin - Councilman
Judith Howard Rose - Councilwoman
Sue Ecker Newton - Councilwoman

**Others Present:** 

Lester Quinn - Highway Superintendent Fred Weaver - Code Enforcement Officer

Donald Michalak - Town Attorney
Jerry Park - Dist. 5 Legislator

**Dudley & Diana Robinson** - Residents

**Recording Secretary:** 

Julie Goodway - Town Clerk

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Melvin Conklin that WHEREAS, minutes of the August 13 and September 10, regular board meeting be approved as presented by Town Clerk Goodway.

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

Privilege of the floor was given to the public in attendance. They state they appreciate all the hard work and attention to detail the town board has shown in the Noble Ball Hill Windpark Project.

Fred Weaver, reported issuing one permit totaling \$25.00 this month. He is in receipt of several complaint forms. Updated the board on the Redmond situation, states Joe has been cleaning up, next court date is Oct 16. Has received notice of training by Southern Tier West.

Yvonne Park, Supervisor reports she has received the CHIPS money, the projected sales tax revenue is \$160,646 for 2009. She asked for a quorum from the board to be present at the meeting in South Dayton on Oct 15 at 7PM for the purpose of appointing SD Fire District Commissioner – Linda Miller. Mel Conklin, Sue Ecker Newton agreed to attend with her.

\*\*\*A MOTION was made by Melvin Conklin and seconded by Sue Ecker Newton, to approve the following transfers according to recommendations by the town's accounting firm.

Increase revenue line – DA 1120 Sales Tax by \$38,489. And increase lines:

DA5130.2 - \$15,000.00 DA5130.4 - \$10,000.00 DA5130.41 - \$10,000.00 DA5142.4 - \$3,489.00

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Donald Chase to modify the Highway Budget according to recommendations by the Town Supervisor and Accountant.

Increase Revenue – DA3501 CHIPS Aid by \$15,691.00 and increase expenditure Line DA5112.2 CHIPS Capital Outlay by \$15,691.00 for extra funds received and spent.

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

Town Clerk, Goodway reported her office received and disbursed a total of \$967.00, with a check in the amount of \$352.52 presented to the Supervisor for the town's portion. Goodway also asked for approval on the appointment of Linda Tatchell to Deputy Town Clerk. After a brief discussion

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Sue Ecker Newton to approve appointing Linda Tatchell to Deputy Town Clerk on the following terms \$9.00 per hour rate of pay and approximately 4 hours per week.

Adopted: Park - aye
Chase - aye
Conklin - aye
Howard Rose - aye

**Ecker Newton** 

Court Clerk Goodway, reported the Justice Department issued a check in the amount of \$1,440.00 to the Supervisor for activity in the month of September, she also reminded the board of the new process set forth by the Comptroller's office wherein, the courts issue a check to the fiscal officer and in turn they submit monies to the NYS Comptroller upon receipt of an invoice.

- aye

The Assessor's report was presented in writing to the board.

# STATE ENVIRONMENTAL QUALITY REVIEW ACT RESOLUTION OF THE TOWN OF VILLENOVA REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED NOBLE BALL HILL WINDPARK, LLC

WHEREAS, the NOBLE BALL HILL WINDPARK, LLC ("Noble") proposes to undertake the development of wind energy facilities in the Town of Villenova, including the construction of wind energy generating facilities, access roads and utility infrastructure (the "Project"); and

WHEREAS, the Town Board of the Town of Villenova, acting as lead agency pursuant to the State Environmental Quality Review Act ("SEQRA") has issued a Positive Declaration of Environmental Significance and ordered Noble to prepare a Draft Environmental Impact Statement ("DEIS"); and

WHEREAS, the Town has reviewed the DEIS with its outside experts.

NOW THEREFORE, based on such review and consideration, the Town Board of the Town hereby resolves as follows:

- 1. That the Noble DEIS is accepted and ready for public review.
- 2. That a Public Hearing shall be held at 7 p.m. on October 30, 2008 at the Town of Villenova Town Hall, 1094 Butcher Road, South Dayton, New York, on the DEIS and the related facility permits.
  - 3. Written comments can be submitted to Town Special Counsel, Daniel A. Spitzer, Hodgson Russ, 140 Pearl Street, Suite 100, Buffalo, New York 14202 until November 10,2008, 5 PM.
    - 4. This resolution is effective immediately.

PASSED AND ADOPTED by the Town Board of the Town of Villenova on the 8th day of October, 2008.

Adopted: Park - aye

Chase -abstained
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

The board discussed the proposed Budget for 2009, in an effort to cut the inevitable tax increase.

\*\*\*A MOTION was made by Sue Ecker Newton and seconded by Donald Chase to change regular board meeting date of November 12 to November 05, 2008 at 7:30 PM to coincide with the Town Budget Calendar as established by the Office of the State Comptroller,

**BE IT FURTHER RESOLVED,** that the Town Clerk give notice to the Observer (official town paper)of a public hearing on the Preliminary Budget which is to be held at 8:30PM Nov. 05, 2008.

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Donald Chase and seconded by Melvin Conklin to renew the Moratorium regarding prohibiting Semi-Trailers for storage is extended for six months.

Adopted: Park - aye
Chase - aye
Conklin - aye

Howard Rose - aye Ecker Newton - aye

Lester Quinn, Highway Superintendent reports; 09/14/08 windstorm took trees down, he cleaned them up; mowed cemeteries; Dye Road oiled and stoned,; mowed roadsides most with two passes; mowed the seven acres at the pit; washed the Town Hall; grated and brined roads; finished pipe on South Hill, put load of binder up there; guard rails on Smith Road by Nate's; broomed, oiled and stoned roads; inspections on the following vehicles, International 2554 – needs brakes, did pass, 87 Int. 1700 with brine tank – failed, rear wheel seal leaking, emergency brake needs repair; L9000 1991 passed, 97 Ford 10 wheeler – failed, drag link est. cost \$400. On the driver's side, brakes, drums need checking; 2006 Sterling, 77 Oshkosh passed, still needs to do the Autocar; the sander for the pickup is in; installed driveway pipe on Round Top at Morrano's; can get bottom ash from VanBuren, just needs trucks and man power to haul it; hasn't heard from Cover-All regarding inspection of the sand salt storage building, he will contact them again; hauled gravel to Rice Road; asks boards pleasure in hiring a part timer for the upcoming winter season; upon further discussion,

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Melvin Conklin approving part time hire of David Dayton at a rate of \$10.00 per hour, in the Highway Department, pending favorable pre-hire drug and alcohol screening per Town Policy.

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Sue Ecker Newton approving the hiring of a part time seasonal employee in the highway department providing that individual meet the following requirements: current CDL, physical, and pre-employment screening (drug & alcohol testing).

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

Don Michalak reviewed the proposed Junk Vehicle Local Law; description of Junk Vehicles were reviewed, and after lengthy discussion it was decided that this proposed law would place limits on what is permissible in the transition zones. Noting the public hearing was held on July 09, 2008.

\*\*\*A MOTION was made by Yvonne Park and seconded by Donald Chase to adopt Local Law Introduction #3 Print #1,

LOCAL LAW
INTRODUCTION NO. 3 OF 2008
OF THE TOWN OF VILLENOVA
Print No. 1

A LOCAL LAW TO AMEND THE ZONING LOCAL LAW OF THE TOWN OF VILLENOVA TO PROHIBIT JUNK CARS, VEHICLE DISMANTLING, SCRAP YARDS, AND TRASH STORAGE IN TRANSITIONAL DISTRICTS.

Be it enacted by the Town Board of the Town of Villenova as follows:

#### Section 1. Authority

This local law is adopted pursuant to the authority granted to the Town of Villenova in Section 10 of the New York Municipal Home Rule Law.

## §2. Purpose

The Town Board hereby declares that a clean, wholesome, and attractive environment are of vital importance to the continued general welfare of its citizens, and that junk cars, vehicle dismantling and scrap yards, and trash storage be prohibited in T District – Transitional. By adoption of this local law the municipality declares its intent to preserve and promote the reasonable quality of the environment and aesthetics and to prohibit actions and conduct that tend to depreciate not only the property on which it is located but also the property of other persons in the neighborhood and the community generally.

#### §3. Amendment of Zoning Section 402(D)

Section 402(D) of the Zoning Law is amended by omitting from the list of uses allowed in a Transition District which require no permit (requires compliance with law) the following: "Junk Cars – Private Property, in accordance with Section 620" and "Trash – Private Property, in accordance with Section 622."

## §4. Amendment of Zoning Section 402(C)

Section 402(C) of the Zoning Law is amended by omitting from the list of uses allowed in a Transition District by Special Use Permit (hearing required) the following: "Vehicle Dismantling Yard, in accordance with Section 621."

## §5. Amendment of Zoning Section 620

Section 620 of the Zoning Law is amended by adding the following paragraphs:

- E. Transition District. Notwithstanding the foregoing, outdoor storage of junk vehicles is prohibited in the Transition District. Any junk vehicle stored outdoors in the Transition District exiting at the effective date of this local law shall be brought into compliance with this section within thirty (30) days from the effective date of this local law.
- F. Agricultural District. The foregoing paragraph shall not prohibit the outdoor storage of junk vehicles that are actually and actively used by a farm operation for agricultural purposes in an amount and type consistent with the reasonable needs and scope of the farm operation if located within a county adopted, state certified, Agricultural District.

#### §6. Amendment of Zoning Section 621

Section 621 of the Zoning Law is amended by adding the following paragraphs:

- C. Transition District. Notwithstanding the foregoing, vehicle dismantling and scrap yards are prohibited in the Transition District. Any vehicle dismantling or scrap yard in the Transition District exiting at the effective date of this local law shall be brought into compliance with this section within thirty (30) days from the effective date of this local law.
- D. Agricultural District. The foregoing paragraph shall not prohibit vehicle dismantling or scrap yard that are actually and actively used by a farm operation for agricultural purposes in an amount and type consistent with the reasonable needs and scope of the farm operation if located within a county adopted, state certified, Agricultural District.

#### §7. Amendment of Zoning Section 622

Section 622 of the Zoning Law is amended by adding the following paragraphs:

- D. Transition District. Notwithstanding the foregoing, trash storage is prohibited in the Transition District. Any trash storage in the Transition District exiting at the effective date of this local law shall be brought into compliance with this section within thirty (30) days from the effective date of this local law.
- E. Agricultural District. The foregoing paragraph shall not prohibit trash storage that is actually and actively used by a farm operation for agricultural purposes in an amount and type consistent with the reasonable needs and scope of the farm operation if located within a county adopted, state certified, Agricultural District.

## §8. Severability

If any clause, sentence, paragraph, section or article of this local law shall be adjudged by a court of competent jurisdiction to be invalid, such judgment shall not affect, impair or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, section or article thereof directly involved in the controversy in which such judgment shall have been rendered.

### §9. Effective Date

This local law shall take effect upon its filing with the Office of the New York Secretary of State.

Adopted: Park - aye

Chase - aye
Conklin - nay
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Judith Howard Rose and seconded by Melvin Conklin to accept all Department Head Reports as given:

Adopted: Park - aye

Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Sue Ecker Newton and seconded by Melvin Conklin that WHEREAS, Noble Vouchers #8-10 totaling \$32475.74, General Vouchers #129-141 including prepays totaling \$3,359.15, and Highway Vouchers #131-142 totaling \$35,215.39, were submitted, reviewed and approved for payment.

Adopted: Park - aye
Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

\*\*\*A MOTION was made by Yvonne Park, to adjourn meeting at 9:55PM, with a reminder of the change of date for the next meeting to Nov. 05 and a reminder of the Special Meeting Oct. 30 for the DEIS.

Adopted: Park - aye
Chase - aye
Conklin - aye
Howard Rose - aye
Ecker Newton - aye

Respectfully Submitted: Julie Goodway/Town Clerk

## Written Comments Pertaining to the 2008 DEIS

Comment Statement ID	Commenter
DEIS-0001	New York State Public Service Commission
DEIS-0002	New York State Department of Agriculture and Markets
DEIS-0003	New York State Department of Environmental Conservation
DEIS-0004	Diana Robinson, Concerned Citizen
DEIS-0005	Kathryn McGraw, Concerned Citizen

## STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

Internet Address: http://www.dps.state.ny.us

PUBLIC SERVICE COMMISSION

GARRY A. BROWN
Chairman
PATRICIA L. ACAMPORA
MAUREEN F. HARRIS
ROBERT E. CURRY JR.
Commissioners



PETER McGOWAN General Counsel

JACLYN A. BRILLING Secretary

November 10, 2008

Daniel A. Spitzer, Esq. Hodgson Russ, LLP 140 Pearl Street, Suite 100 Buffalo, New York 14202

Via electronic service at dspitzer@hodgsonruss.com

Re: SEQRA DEIS Comments- Noble Ball Hill Windpark

Dear Mr. Spitzer:

The Department of Public Service (DPS) has reviewed the Draft Environmental Impact Statement (DEIS) related to the application by Noble Environmental Power (Noble) to develop a wind energy project in the towns of Villenova and Hanover in Chautauqua County.

DPS includes the Staff of the Public Service Commission (PSC) and is an involved agency in the State Environmental Quality Review Act (SEQRA) review of the Noble project. Pursuant to Public Service Law (PSL) §68, Noble must file a petition for a Certificate of Public Convenience and Necessity (CPCN) for its project, which is proposed to operate above 80 megawatts (MW). The §68 review will include consideration of the capability of the developer to function as an electric corporation and to provide safe and reliable service.

Attached are comments regarding the Project DEIS. You may contact Philipose Philip at (518) 486-6075 regarding further project reviews.

Sincerely,

Christina Palmero, Chief,

Office of Energy Efficiency and the Environment

cc:

J. Bonafide, OPRHP

R. Edick, NYS DEC

M. Saviola, NYS Ag. & Mkts.

48. Sayeau, Noble Environmental Power

Attachments

## New York State Department of Public Service Comments on Town of Hanover and Town of Villanova SEQRA Draft EIS for Noble Ball Hill Windpark Project

## Section 1.2 - Detailed Description of the Proposed Action

The description of the proposed Switchyard facility to be installed at the northern end of the transmission line is incomplete. The proposed Substation will step-up voltage from 34.5 kV to 115 kV via transformers. The 115 kV line will connect to the proposed Switchyard, which interconnects the overall Project to the existing 230 kV transmission line. The description of facilities in the DEIS does not indicate that an additional 115 to 230 kV step-up transformer is necessary at the proposed Switchyard. DPS Staff notes that the Preliminary Switchyard Site Plan (Drawing RP-SY-1, in DEIS Appendix A) indicates a transformer will be installed at the site.

Step-up transformers may be a source of operating noise, which should be addressed in the DEIS. Noise level and potential pure tone generation should be modeled for the specific make and model transformers proposed at both the Substation and the Switchyard sites. Nearby noise receptors should be identified, including any residences, and expected noise effects and appropriate mitigation measures should be identified for minimizing noise impacts.

## Section 2.29 - Health and Safety

The location of steel gas pipelines should be determined when planning the location of wind turbines and grounding systems, and electric collection and transmission lines. The DEIS identifies major gas transmission facilities, but does not identify the location of gas gathering lines. (See Fig. 2.23-3 -- Setbacks from Utilities.) Appropriate avoidance and mitigation measures to avoid induced voltages and lightning protection system grounding issues should be developed in project layout and detailed design.

This is information that DPS requested in comments on the scope of studies appropriate for the project (as indicated at DEIS Appendix D, page D-87).

## Appendix A - Construction Drawings, Specifications, and Engineering Standards

#### Substation site:

The details indicated at Preliminary Substation Site Plan (Dwg. RP-SR-1) indicate the access road to the site is at a steep slope, with grade at approximately 10% at sections. The Substation site itself has a cross slope of 10% with a long slope above.

Siting the Substation should address provisions for cut and fill of slopes, site stabilization and compaction, and permanent drainage control features. The footprint of the substation will be larger to accommodate cut and fill slopes, unless retaining walls are

installed at the indicated footprint. The uphill cut slope will intercept subsurface drainage; this should be addressed in permanent site drainage design, which should also address surface drainage for the site and the uphill slope and access road.

## Underground electric lines:

Underground electric collection lines should be installed with provisions to avoid effects of subsurface "piping" of subsurface water creating and expanding voids around the electric cables running down steep slopes. Underground trench-breakers with surface water control features should be specified for underground lines installed on slopes.

## Switchyard site -- Drawing RP-SY-1:

The access road to the proposed Switchyard appears to be located within a grape vineyard. Alternative locations should be investigated, in order to reduce or avoid the permanent reduction or displacement of productive grape vineyard acreage for access road installation.

Transmission Line Plan and Profile -- Drawings BH-T301, Sheets 1 through 6: Transmission line clearance at road and railroad crossings should be specified in accordance with appropriate design standards and code requirements.

Transmission line angle structure number 5 (Drawing BH-T301, Sheet 1) is proposed to be located within a NYS-regulated wetland (reference Appendix G, Wetlands Map Sector F). An alternative location for structure 5 to the south should be considered to avoid permanent impact to the wetland for location of the structure, as well as additional temporary impacts related to clearing for construction (including angle structure laydown and wire pulling at this location). (Note that this type of alignment appears to have been identified in an earlier project layout, as indicated in Appendix T, Figure 5.1.)

Transmission line angle structure 19 appears to be located at a stream. Structures should be set back from stream banks to accommodate streamflow, flooding, and the potential for bank movement due to streambank erosion, and to provide room for structure construction out of the stream.

The Transmission Line Plan and Profile figures (as well as wetland and stream location figures in Appendix G) do not indicate locations of access roads for construction of the transmission facilities. Streams, ravines, wetlands and other features appear to create impediments to continuous through-access along the transmission line right-of-way. Access road locations, including off-right-of-way locations should be specified. Appropriate consideration of clearing, wetland fill, stream crossings, agricultural land practices, soils and slopes constraints, as well as erosion control and site stabilization measures for the access roads should be addressed within the EIS.

Construction of the transmission line will result in impacts due to forest clearing, access and construction in agricultural lands, wetlands and stream crossings, disturbance at steep slopes, drilling for pole placements, access road construction, and other activities

related to line construction. Site plan and profile drawings for construction planning and construction impact minimization should be developed as mitigation measures appropriate for activities related to transmission line construction. The plan and profile drawings should show information including details such as: limits of clearing; property line locations and setbacks; access road details including temporary improvements for stream and wetlands crossing; transmission pole locations and work pad locations; streams and wetlands and appropriate protection measures; fences, drainage ditches and other improvements; other utility features, electric, gas, telecomm lines; roads and railroads to be crossed by the transmission line; construction controls and mitigation measures to avoid or minimize impacts on these and other features and resources located within the right-of-way and access road locations.

### Appendix K – Visual Impact Assessment

The discussion of impact mitigation addresses lighting at switchyard and substation sites, and recommends "down firing, motion triggered, and task oriented" lighting at these facilities. DPS recommends revision of this proposal and that more specific mitigation requirements be implemented. Lighting should be task oriented, including lighting areas that are appropriate for access, and maintenance as needed. Task lighting should be controlled by manual switches to allow workers to light areas appropriate as needed to accomplish tasks. Motion triggered lighting can be inappropriately triggered by wildlife, blowing trash or vegetation, and is not recommended. Any lighting that will be regularly used should use full-cutoff fixtures and should be designed to avoid off-site lighting and glare. Fixtures should be specified as full-cutoff with no drop-down optics, which tend to spread light horizontally.

Manufacturer's cut sheets should be provided, which specify lighting illuminance levels and pattern, and which list features as discussed above regarding light cutoff, shields, and optic criteria.

## Appendix M – Communication Signal Study

The analysis of communication signal interference was not based on location of proposed turbines or transmission facilities. While the project study area is generally located, the study area identified on figures in Appendix M does not include the area or location of the proposed 115 kV electric transmission line.

Additional analysis of potential interference should be provided, based on detailed locations of wind turbines and transmission lines, including elevation and height of structures proposed.

## Appendix Q – Decommissioning Plan

The Decommissioning Plan does not appear to include costs to remove facilities and rehabilitate the site of the proposed transmission line and switchyard facilities.

The Decommissioning Plan includes an estimate for removal of substation facilities; however, the estimate does not include any cost for a crane or crane operator. Substation removal should include crane costs for removal of large overhead components.





## STATE OF NEW YORK DEPARTMENT OF AGRICULTURE AND MARKETS 10B Airline Drive Albany, New York 12235

Division of Agricultural Protection and Development Services 518-457-7076 Fax. 518-457-2716

January 20, 2009

Mr. Daniel A. Spitzer, Esq. Hodgson Russ, LLP 140 Pearl Street, Suite 100 Buffalo, New York 14202

Re: DEIS Comments; Noble Ball Hill Windpark, Chautauqua County, New York

Dear Mr. Spitzer:

The Department of Agriculture & Markets (Ag & Markets) has conducted a review of the Draft Environmental Impact Statement (DEIS) for the proposed Ball Hill Windpark located in the Towns of Hanover and Villenova, Chautauqua County, New York. The Department is an involved agency in the State Environmental Quality Review Act (SEQRA) review of this project. This review is based upon the visual observations of existing conditions in the field, past construction practices on other Noble Projects and a review of the DEIS document prepared and submitted to the Villenova Town Board by the Project Applicant's environmental consultant. The following are comments on potential agricultural impacts and mitigation, the DEIS document and the field review:

- 1. The Executive Summary states that "The minimal loss of productive agricultural land will be offset by the financial benefits the landowners will obtain from payments they will receive from Noble for their participation in the Project". Although funds received by the landowner (farmer) may benefit the current agricultural enterprise, monetary compensation does not constitute a valid justification for the permanent loss or conversion of agricultural land. In most cases, monetary compensation will not prevent permanent conversion of agricultural land to a non-agricultural land use.
- 2. The Description of the Proposed Action section describes pad-mounted junction terminals which will be utilized to tie buried collector cables together into one or more sets of larger feeder conductors. Based on the Department's observation from the Applicant's other two working commercial wind projects in western New York, these junction boxes have, in several cases, presented a significant unanticipated impediment to field cropping patterns. The Project Applicant should provide more detail on the proposed placement of these junction boxes and graphically identify the locations for such facilities in agricultural fields. Locations of the junction boxes proposed in agricultural fields should be identified on the

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project drawings. This information should be made available to the Department for review purposes prior to the Town's acceptance of the FEIS, the Town's issuance of its Findings Statement and Permit.

- 3. Section 1.2.2 discusses a 3-acre off-site equipment staging area located along Route 39 near the intersection with Empire Road in Hanover. This proposed laydown area appears to be sited in an active agricultural field. If this area is to be used for laydown purposes, it should be constructed and restored in accordance with *Department Guidelines*<sup>1</sup>.
- 4. On-site laydown areas are depicted on figure 1.1-2. The report indicates that the final locations will be identified in the FEIS. The identification of laydown areas in the FEIS does not allow the Department an opportunity to review potential impacts to agricultural resources and provide additional comments (if necessary). As a result, the Department requests that the laydown area locations be identified and the information be provided for review prior to the issuance of the FEIS.
- 5. Section 1.2.2 discusses the installation of underground electrical collection lines and Rightof-Way (ROW) widths. ROW widths will range between 22 feet for one circuit to up to 60 feet where four circuits will be installed in parallel. The Applicant proposes that the buried cables be installed along proposed access roads within a 60-foot ROW. Drawing No. BH-E-103 (Typical Underground Trench Alignment) depicts collection schematic drawings. The schematics for three and four circuits show a "10-foot Buffer Work Access". Based on the Department's observations of construction activities on the Applicant's Wethersfield Windpark, greater ROW widths will be required in locations. Specifically, additional work space (ROW widths) will be required for the temporary stockpiling of topsoil. A ten-foot width linear temporary workspace is not adequate for the temporary storage (stockpiling) of topsoil removed to a minimum 8-inch depth from a 50-foot ROW. Linear topsoil stockpiles shall be appropriately coordinated with the placement/installation of underground collector cables (including other potential underground utilities) installed adjacent to access roads. Wider ROW widths will eliminate the need to handle stockpiled topsoil more than once; thus reducing the potential for additional soil resource impacts including topsoil/subsoil mixing and soil compaction.
- 6. Section 1.2.2 discusses the installation of "ditch plugs" in wetlands for the purpose of preventing migration of shallow groundwater in linear excavations. Trench breakers are typically installed for the dual purpose of preventing trench washouts during construction and abating water piping and "blowouts" subsequent to trench backfilling. In this case, the installation of trench breakers in buried collector line trenches is critical due to the fact that the Project site is dominated by dense glacial till and glacio-lacustrine soils. Penetration (excavation) will create a subsurface drainage envelope along the linear expanse of the trench unless such flows are alleviated or removed via artificial drainage from the trench. Thermal sand used as bedding will further exacerbate this condition. Because of this, the applicant should install trench breakers in agricultural fields in accordance with the spacing intervals as detailed on the Sample Drawing A-12 "Trench Breaker Spacing" (Attached). The Project Applicant shall also record each installed trench breaker location by map referenced station number. In agricultural lands, the top of trench breaker will not be closer than two feet from the restored surface. Additional subsurface drainage may be required following installation of

<sup>&</sup>lt;sup>1</sup>New York State Department of Agriculture & Markets. *Guidelines for Agricultural Mitigation for Wind Power Projects*. Rev. 4/8/08.

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buried electrical collector cables to effectively convey trench water to a stable surface outlet (see #26 below). Electrical collector cable runs will require close monitoring for evidence of seeps and waterboils during the 2-year monitoring period.

Because of the proposed method of buried electrical collector cable installation (trenching), and the inherent difficulties associated with the installation of trench breakers during cable installation, the Department recommends that the Project Applicant closely monitor the toe of slope areas in agricultural fields for wet areas or signs of seeps and waterboils in cases where trench water is exfiltrating to the ground surface. If encountered, new interceptor drain lines should be installed in order to alleviate wet areas. The Applicant should make necessary provisions for post-construction drainage repairs in agricultural fields. Because of potential limitations on slope, topography and other surface features, it may be necessary to install drainage structures and corresponding outlets in locations outside of the Applicant's "permitted" ROW. The Department recommends that the Applicant make necessary arrangements with the Town, other Permitting Agencies and with individual landowners to allow for flexibility to install drainage features outside of the "permitted" ROW. In some cases, drainage easements may be required for off-ROW outlets.

- 7. The proposed project includes the construction of approximately 6 miles of overhead 115 kV transmission line; much of it located in active agricultural fields. While the project drawings show the general transmission line route, they do not depict temporary, or off right-of-way access routes to the proposed transmission line ROW. Project drawings should be revised by the Applicant (prior to issuance of the FEIS) to indicate exact locations and routes where off ROW access will be located. This will allow Department Staff the ability to identify and assess potential impacts (if any) to active agricultural fields utilized for off ROW access.
- 8. Drawing RP-SY-1 shows the switchyard access road crossing through what appears to be an active vineyard. In accordance to Department Guidelines, unique agricultural lands, i.e., specialty croplands, orchards, vineyards, etc. should be avoided. Avoidance routing should be explored in order to reduce or avoid permanent impacts (conversion to non-agricultural use) to the active vineyard from access road construction.
- 9. Some sections of the off right-of-way access roads are likely to utilize existing farm access paths. The majority of which are located along field edges that are typically utilized infrequently by the farm operator for field access. Unless the proposed off right-of-way access route is a well-defined farm road (i.e., heavily compacted, no vegetation, gravel or crushed stone surface etc.), topsoil stripping or timber matting shall be required. Unless "tractor paths" or "unimproved roads" appear like the farm driveway, they should be treated the same as an agricultural field. Anything that is determined to be a legitimate or clearly defined farm road should be restored to at least original condition. Under no circumstances should the right-of-way clearing crews or electrical contractor be allowed vehicle/equipment access onto or along agricultural fields (including field edges, or unimproved tractor paths) without first stripping the topsoil (or through the use of timber matting). All construction activities in agricultural fields, including equipment and vehicle access for clearing, shall be conducted on topsoil stripped or timber matted travel and work areas. If questions arise as to the designation of, or status of the proposed use of field edges, "unimproved roads", or "tractor paths" for vehicle and equipment access, the Department shall be notified and the area in question will be field reviewed by Staff and a mutual determination will be made prior to construction.

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- 10. Where temporary access is necessary across agricultural portions of the transmission line ROW, topsoil shall be removed including the entire "A" horizon down to the beginning of the subsoil "B" horizon. All topsoil that is stripped shall be stockpiled and separated from other subsoil, woody debris and other excavated or construction materials. All topsoil must be stripped, stockpiled and uniformly returned (following subsoil decompaction and rock picking) to restore the original soil profile. Installation of matting shall be allowed as an alternative to topsoil stripping.
- 11. At the end of construction on the transmission line, the ROW and respective work areas, including guying wire assembly and disassembly sites, shall be thoroughly cleared of construction debris such as nuts, bolts, spikes, wire, etc.
- 12. Page 1-17 of the DEIS discusses access road construction and the installation of culverts to "maintain a water table elevation below the base material to ensure roadbed stability". According to this Section, roadside ditches will be constructed as dictated by the terrain to convey stormwater runoff away from roadways. Culverts, fords, roadside ditches or other stormwater collection and conveyances should not be constructed so as to allow direct discharge into active agricultural fields. Culverts and other water conveyance devices should be designed and implemented to divert flows away from active agricultural areas into existing or new water conveyance systems (i.e., drainage ditches, grassed waterways, swales, diversion ditches or other appropriate water control structures).
- 13. Section 1.2.2 of the DEIS states that the Project Sponsor will retain the services of an environmental monitor to ensure compliance with applicable permit conditions and other requirements. Due to the significant area of disturbance and agricultural mitigation/restoration activities required as part of this proposed Project, the Department recommends that the Applicant hire an experienced "Agricultural Inspector". Competent agro-environmental inspection and supervision of site preparation, construction and restoration activities is fundamental in helping ensure sound implementation and restoration techniques on agricultural lands. Such "Ag"-specific inspection/supervision is critical to a commercial wind energy project due to its concentrations of localized activity, extending over the expanse of the numerous tower sites, access roads and buried cable runs. To preserve objectivity during compliance inspections, the Department recommends the Project Sponsor provide funding for the Lead Agency to hire the Agricultural Monitor.
- 14. Section 2.4 discusses potential construction impacts on site soils. The section describes a 5-acre O&M facility for which a final location is unknown at this time. The DEIS states that the final location and impacts will be identified in the FEIS. Inclusion of this information in the FEIS does not allow the Department sufficient opportunity to thoroughly review the potential impacts to agricultural resources and provide additional comments (if necessary). As a result, the Department requests that potential locations be provided for review prior to the issuance of the FEIS.
- 15. Section 2.4 discusses potential construction impacts on site soils including rutting and compaction of agricultural soils. The Applicant identified soil types which are prone to rutting and compaction. The Applicant should identify (graphically depict on Project drawings) these soil types so that construction practices can be adapted accordingly by construction crews in the field. These impacts can be avoided by stripping topsoil or matting the construction area where heavy equipment has the greatest potential to adversely impact agricultural soils. The Department recognizes that at times it may be necessary to account for landowner preference when determining the level of disturbance including topsoil stripping

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(Example: installation of a single circuit buried electrical collector cable or setting of a single transmission pole in an isolated field corner). However, based on the Department's experience, long-term impacts from soil mixing and compaction are far greater than the temporary disturbance associated with the normally accepted construction and restoration sequence on agricultural soils. Temporary impacts to crop production from topsoil protection measures pose a far less long-term viability impact to a farm operation than do impacts from soil mixing and compaction. Crop loss considerations with landowners should be utilized for losses in crop production associated with topsoil protection measures. Noble's Project Development staff and Agricultural Monitor(s) should take a proactive role in explaining to Project participants (landowners) the need and benefits of performing topsoil protection measures in agricultural fields. If there are areas of the project site whereby topsoil protection measures will not be implemented in agricultural fields, the Department requests that the Project Applicant or the Agricultural Monitor notify Department staff and identify those areas for field review prior to commencing construction or ROW clearing activities. The Department will review each identified location on a case-by-case basis, consult with the affected farm landowner or farm operator (if necessary) and a mutual determination will be made.

- 16. Section 2.4 also discusses rock picking following decompaction. This section describes the removal of rocks which are "introduced during grading or trenching". This section should be revised to reflect proper agricultural restoration sequencing by stating that rocks 4-inches in diameter and larger that are uplifted to the subsoil surface as a result of subsoil decompaction will be removed prior to the replacement of topsoil.
- 17. Table 2.4-1 indicates that 92.84 acres of the proposed facility areas may encounter soils having a shallow depth to bedrock. Has this information been identified relative to Project facilities, i.e., the identification of shallow soils at specific turbine foundation sites and buried electrical collector line routes? Will this information be made available to field personnel? If so, the Applicant should describe how this information will be effectively conveyed to field personnel during construction.

On agricultural land, ripped or excavated bedrock, boulders and concentrations of excavated stone or rock materials should not be returned to the excavation or trenches any closer than 24-inches from the exposed (subsoil) work surface of the stripped portion of right-of-way. The remainder of the backfill should be limited to suitable subsoil material, backfilled up to the top of the exposed work surface. Excess waste rock/stone materials should be removed from active agricultural areas.

- 18. Section 2.4.2 discusses project facility impacts. Specifically, .06% of soils in the Project Area will be permanently impacted at proposed turbine locations. Does this percentage take into account the proposed sixty 140-foot by 40-foot permanent gravel crane pads to be left in place and has a separate percentage been calculated and included for the proposed padmounted junction terminals associated with buried electrical collector system tie-ins?
- 19. Section 2.4.2 describes the potential for permanent impacts associated with project —related facilities on agricultural lands and the total acreage of prime farmland and farmland of statewide importance that will be permanently impacted by the proposed Project through conversion to non-agricultural uses. The consultant for the Applicant states that the conversion of these agricultural soils is "minimal and will not significantly affect these soil resources in the Towns and county". While these acreages may appear to be minimal to the

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DEIS preparer, facilities such as permanent gravel crane pads, junction boxes, guying wires, permanent access roads and, in some instances, improperly designed and implemented stormwater practices can present significant adverse affects to the long-term viability of farm operations in the Project area. Construction of these facilities can create serious impediments to established field cropping systems, field access and drainage patterns. These potential impacts should be included in this section and discussed in more detail in the FEIS.

- 20. Section 2.4.3 discusses a post-construction monitoring plan to ensure that NYSDAM Guidelines are met. This post construction monitoring plan should be submitted to the Department for review and comment prior to the Town's issuance of the FEIS.
- 21. Section 2.4.3 discusses mitigation activities. The section states that impacts to agricultural lands will be minimized by restricting project equipment and access to the approved construction ROW. The Department requests that the Project Applicant provide a more detailed description of the anticipated methods intended to restrict equipment access to non-approved (active agricultural) areas of the project site during construction.
- 22. Page 2-23 of the DEIS discusses restoration timing in agricultural fields. Any topsoil handling, soil restoration activities (specifically decompaction and topsoil replacement activities conducted after October 1 and prior to May 1) should be coordinated with the Department following favorable Atterberg soil test (soil plasticity) results.
- 23. Page 2-25 of the DEIS discusses impacts to topsoil and subsoil. A general discussion of restoration sequencing through agricultural lands is presented. The last paragraph states that soil decompaction will be conducted prior to topsoil replacement. This paragraph should be revised to include the removal of rocks 4-inches or greater following subsoil decompaction (prior to topsoil replacement).
- 24. Page 2-26 of the DEIS identifies potential drainage impacts and the proposed methods to address those impacts. This Section states that the Applicant will mitigate potential impacts by implementing subsurface interceptor drain lines, ditch plugs, culverts and fords crossings to maintain natural drainage patterns. Culverts and fords should be designed and constructed with suitable outlets. Stormwater collected from impervious surfaces of the project facilities or hydrologically active areas located up-slope from project facilities should not be directed into active agricultural fields without some form of velocity and volume attenuation, i.e.,. flow dissipation, surface inlet, discharge to existing drainage feature, etc. If existing runoff issues are encountered and hydrologically active areas are identified in areas located up-slope from proposed project facilities, they should either be addressed on a case-by-case basis in stormwater management practice designs, or project facility (roads, turbine sites, etc) locations should be modified to avoid identified hydrologically active areas. The applicant should address up-gradient stormwater flows which "run-on" to Project facilities as well as runoff issues in, and adjacent to agricultural areas of the Project. The Department requests a copy of the Stormwater Pollution Prevention Plan in order to review the permanent postconstruction Stormwater Management Practices (SMPs) proposed for the Project and assess their compatibility with each farm operation's long-term operational viability.
- 25. Section 2.27.5 discusses the installation of collection system components. This section should include a more detailed description of the need for placement of collector system junction boxes in active agricultural fields. Because of the potential adverse impacts these junction boxes pose to the viability of farm operations in the project area, the Applicant

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should, to the fullest extent practicable, locate these above ground junction boxes outside of active agricultural areas.

26. In Section 2.4.3, subsurface drainage is discussed. The Section states that "New subsurface drain lines will meet or exceed the condition of existing installed structures..." In accordance with Department Guidelines, new subsurface drain lines shall be AASHTO M252 single wall drain line or equivalent and shall be installed in accordance with the applicable USDA-Natural Resources Conservation Service (NRCS) Conservation Practice Standard for "Subsurface Drain" (608). F405 may not be used in agricultural lands for this drain tile application. Tile outlets shall be constructed of Schedule 80 PVC and steel animal guards should be installed far enough in the pipe to allow it to swivel up and let debris pass without exposing the animal guard beyond the pipe outlet. A "splash rock" should be installed beneath the pipe outlet to dissipate the erosive forces of the discharge water from the drain tile and to prevent additional scouring from occurring beneath the outlet. Installation of substandard materials may warrant the removal and replacement with the required materials identified above. Department field staff should be notified when existing subsurface drain lines are first encountered during construction and also be notified in advance to witness drain tile repair activities.

The information requested above should be made available to the Department for review and comment prior to the issuance of the FEIS. Inclusion of the requested information in the FEIS does not allow the Department an opportunity to review the potential agricultural resource impacts and provide additional comments (if necessary). As a result, the Department requests that this information be provided for review prior to the issuance of the FEIS.

It is requested that the Project Applicant advises the Department regarding tentative project planning, pre-construction meetings and for contractor site walks of the proposed work areas prior to the commencement of construction activities. The Project Applicant is encouraged to continue to closely coordinate with the Department to develop an appropriate schedule for site inspections to assure that the Department's Guidelines and construction standards are being met.

Thank you for your consideration of the Department's comments. Please do not hesitate to contact me at (585) 658-9854, or by e-mail at <a href="michael.saviola@agmkt.state.ny.us">michael.saviola@agmkt.state.ny.us</a>

Sincerely.

Michael Saviola

Agricultural Resource Specialist NYS Dept. of Agriculture & Markets

158 Main Street

Mt. Morris, NY 14510

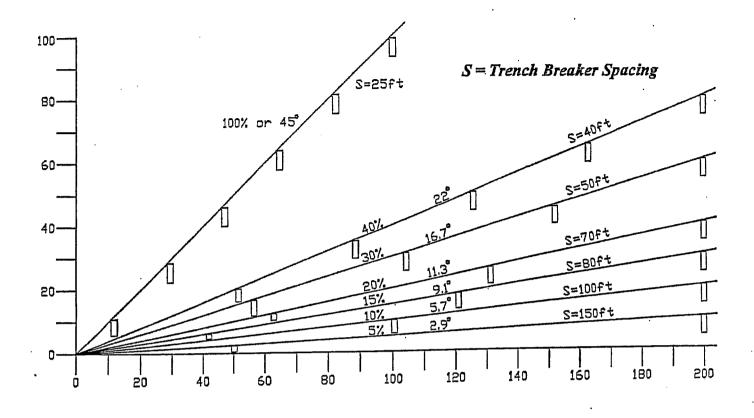
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cc: Kristin McCarthy, Noble Environmental Power, LLC

Andrew Davis, NYSDPS Steve Tomasik, NYSDEC Rudyard Edick, NYSDEC Matthew Brower, NYSDAM

Dave Wilson, Chatauqua County Soil & Water Conservation District

Town Board of the Town of Villenova Town Board of the Town of Hanover



TRENCH BREAKER SPACING

Scale In Feet

#### **NOTES:**

- 1. Depending on site specific conditions of slopes exceeding 40%, the spacing between trench breakers may continue diminishing as illustrated, or may cease diminishing once a spacing of 30 to 35 feet has been reached.
- 2. The preferred construction material for trench breakers is sand bags, which are durable yet flexible and will conform to gradual shifting of pipeline and backfill, while serving their function:impede the flow of subsurface water along the trench.
- 3. In agricultural lands, top of trench breaker will not be closer than two feet from the restored surface.

## PERMANENT SLOPE BREAKER SPACING AS ALTERNATIVE SPACING GUIDELINE FOR TRENCH BREAKERS<sup>1</sup>

SLOPE (PERCENT)	SPACING (FEET)
<5	125
5 TO 10	100
10 TO 20	<i>75</i>
20 TO 35	50
>35	. 25

Source: New York Guidelines for Urban Erosion and Sediment Control (October 1991)

"Standards and Specifications for Water Bars," with the terms "Slope Breaker" and "Water Bar" being synonymous: "A ridge or ridge and channel constructed diagonally across a sloping road or utility right-of-way that is subject to erosion."

Basis of Permanent Slope Breaker Spacing as an Alternative Spacing Guideline for Trench Breakers is found in U.S. Federal Energy Regulatory Commission's 12/2/94 <u>Upland Erosion Control, Revegetation and Maintenance Plan</u>, VI. Restoration, B. Permanent Erosion Control Devices (pp. 8 and 9)

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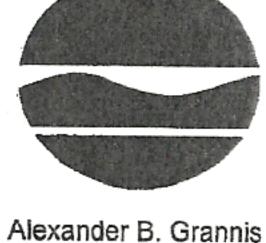
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# New York State Department of Environmental Conservation Division of Environmental Permits, 4th Floor

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Alexander B. Grannis
Commissioner

January 22, 2009

Mr. Daniel A. Spitzer, Esq. Hodgson Russ, LLP 140 Pearl Street, Suite 100 Buffalo, New York 14202

Re: State Environmental Quality Review (SEQR)

Noble Ball Hill Wind Park

Towns of Villenova and Hanover, Chautauqua County

Dear Mr. Spitzer:

The New York State Department of Environmental Conservation (DEC) has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Noble Ball Hill Wind Park, Towns of Villenova and Hanover, Chautauqua County, New York, September 2008, prepared by Ecology and Environment Inc. The project sponsor, Noble Environmental Power, proposes construction and operation of an approximately 90 megawatt (MW) wind power project consisting of up to 60 wind turbines with a nameplate capacity of 1.5 MW, construction of approximately 16 miles of access roads, and installation of 23.8 miles of underground electric collection line and 174 feet of overhead lines. The project also involves the construction of a 6-mile overhead 115-kV transmission line, a new substation, a new switchyard, an operation and maintenance facility, and a 28 acre on-site equipment laydown area.

The following comments on the DEIS represent DEC's concerns for the proposed Noble Ball Hill Wind Park specifically and for cumulative impacts from all proposed and operating wind power projects in the region. Where gaps or inconsistencies in the DEIS are identified, they should be addressed in the Final Environmental Impact Study (FEIS).

## Bird and Bat Impacts.

Comments are partitioned below by the respective section of the DEIS. The Final Environmental Impact Statement should address noted observations and deficiencies listed below.

# Executive Summary Page 4: Potential Projects Impacts and Mitigation-Birds and Bats

This section states that, "if construction takes place in suitable nesting habitat for endangered or threatened species...during the breeding season, the work area will be surveyed by an environmental monitor in advance of construction." Should any listed species be found in the area, DEC Staff request construction is held in abeyance until the completion of the breeding season. Avoiding construction activities during this time will reduce the impact to sensitive species in the immediate vicinity of a given turbine, transmission line, or substation. Moreover, if any listed species are found nesting in the vicinity of the project, an Article 11 permit may be needed – even if work takes place after the breeding season has ended. Disturbing or destroying an endangered/threatened species habitat is considered a taking

## Section 2.12.4.2: Mitigation-Lighting and Structural Mitigation

For any lighting that may be needed at structures on site, it is recommended to block or shade the light (when doing so does not violate FAA specifications), so as to make it less noticeable to birds and bats passing overhead. This will reduce the likelihood animals will be attracted to an area with increased collision potential.

## Appendix J: Bird and Bat Risk Assessment

## Summary of Findings.

The pre-construction studies performed and the information contained in the DEIS are generally consistent with the recommendations contained in the DFWMR "Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects" (see http://www.dec.ny.gov/energy/40966.html) Noble discussed their study plans with the DEC prior to initiating their work consistent with our recommendations.

With respect to the marine radar studies conducted in the Fall of 2006 and the Spring of 2007, the DEC compared the mean passage rates, mean flight altitudes and percent of targets at altitudes less the 410 feet at the Ball Hill Windpark with the results from studies conducted at other wind energy facilities in western New York. The following observations concern the Fall 2006 radar study.

• Fall passage rates were lower than that reported in approximately 90% of the studies conducted elsewhere in western New York. The low passage rates were consistent with those reported from the study conducted at the New Grange Windpark (also undergoing review) that is located within only one mile of the Ball Park Windpark.

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• Fall mean flight altitude was lower than that reported in approximately 90% of the studies conducted elsewhere in western New York. However, only 9% of targets were recorded at altitudes less than 394 feet.

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 Compared to other sites having similar mean flight altitudes, this site has the lowest measured percentage of birds passing below the height of the turbine's wind-swept zone.

The following observations concern the Spring 2007 radar study.

- Spring passage rates were the highest reported among similar studies conducted elsewhere in western New York. This high passage rate is consistent with a study conducted in Chautauqua County also adjacent to Lake Erie (though 25 miles away). One would expect higher passage rates adjacent to the Great Lakes due to a large water body's tendency to channel bird migratory behavior. In contrast, lower passage rates were collected from the neighboring Horizon New Grange Windpark.
- The Spring mean flight altitude is the second highest reported anywhere in New York.
   The highest mean flight altitude is from the study conducted in Chautauqua County also along the lakefront.
- Only 3% of the targets were located at altitudes less than 394 feet. This is the lowest measured percentage of birds passing lower than the top of the turbine's wind-swept zone when compared to all sites studied in Western New York, regardless of the mean flight altitude.

## Conclusions.

The data collected during the 2006 Fall and 2007 Spring migration radar studies at Ball Hill Windpark indicate that the targets observed were less likely to be struck by turbine blades then compared to data collected at other wind power projects in western New York due to the higher mean flight level of passerines and the low percentage of targets in the rotor swept area. However, these indicators should be balanced to some degree by the higher number of passerines observed during Spring. It is important to point out that this review does not provide a distinction between potential impacts to bats vs. birds as individual target identification was not possible.

To provide lead agency, other involved agencies, and the public with the ability to compare the results of Ball Hill avian studies with other sites around the state, two DEC produced documents are available on our website: "Publicly Available Radar Results for Proposed Wind Sites in New York" and "Publicly Available Raptor Migration Data for Proposed Wind Sites in New York." Please see links to these pdf file documents found at http://www.dec.ny.gov/energy/40966.html.

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## Appendix J, Section G: Work Plan for Post-Construction Bird and Bat Mortality Monitoring

## Section 3: Methodology minimism has believed and hade assure an increasing moitable (b)

The Draft Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects (Guidelines) are at <a href="http://www.dec.ny.gov/energy/40966.html">http://www.dec.ny.gov/energy/40966.html</a> A finalized version will be available shortly on the same website. These guidelines should be followed closely when designing post-construction studies.

# Task 2: Acoustical Monitoring for Bats

DEC recommends that bat acoustical monitoring take place for the duration of the ground searches, from April 15 until November 1 during each year of study. This will cover the full breeding period and the majority of the Spring and Fall migratory periods, and allow for potential correlation between bat activity and estimated mortality. As currently specified in the DEIS, bat acoustical monitoring would only take place during the first year of post-construction study.

In light of white nose syndrome and its devastating effects on New York State wintering bat populations, it is critical that the applicant work closely with the DEC in designing their eventual post-construction survey.

## Stormwater Pollution Prevention Plan

A detailed construction plan needs to be developed to incorporate stringent containment of construction materials, particularly concrete slurry. This would include such practices as the use of watertight forms, silt/stormwater fencing, controlled concrete truck washout areas, and covered storage of equipment and construction chemicals. Engineering specifications to describe these proposed practices need to be detailed in this plan.

Additional impacts may result from spills of petroleum and other chemicals during construction and operation of the project. The Stormwater Pollution Prevention Plan (SWPPP) should prevent or minimize spill incidents and maximize control and cleanup of any of these incidents.

## Surface Water.

The following guidance pertains to work involving the crossing of water bodies and work in close proximity to regulated streams.

1) If work occurs within 50' of the top of a bank of a DEC classified C(t) or C(ts) stream, erosion control planning will be necessary. This should be part of the storm water management plan for the site.

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2) All underground collection lines shall be done in the dry.

- 3) All work is prohibited in a protected trout stream from 10/15 through 5/31:
- 4) Siltation prevention measures shall be installed and maintained during the project to prevent movement of silt and turbid waters from the project site and into any watercourse, stream, water body or wetland.
  - 5) Before trenching through stream banks, upland sections of the trench shall be backfilled or plugged to prevent drainage of possible trench water into the stream.
  - 6) Underground collection lines and culvert installations shall be done in one operation without any delay between construction phases.

Care must be taken to design and build culverts correctly – particularly when it involves crossing a navigable water body or a state regulated stream. Please see our website for an overview on proper culvert design: <a href="http://www.dec.ny.gov/permits/49060.html">http://www.dec.ny.gov/permits/49060.html</a>. The particular details of culvert design must be worked out in consultation with the DEC and must address concerns such as 25 year flood event design, maintaining channel geometry, proper use of rip rap, cofferdam specifications, work in the dry, culvert slope, etc.

## Wetlands.

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## General Issues.

Projects that propose to disturb regulated wetland areas, buffer areas and protected streams require permits from DEC and the U.S. Army Corps of Engineers (USACE). DEC wetland permit regulations at 6 NYCRR 663.2(z) define a "regulated activity" as any form of draining, dredging, excavation, or mining, either directly or indirectly; any form of dumping or filling, either directly or indirectly; erecting any structures, constructing roads, driving pilings, or placing any other obstructions whether or not changing the ebb and flow of the water; any form of pollution, including but not limited to installing a septic tank, running a sewer outfall, discharging sewage treatment effluent or other liquefied wastes into or so as to drain into a wetland; or any other activity which substantially impairs any of the several functions or benefits of wetlands which are set forth in section 24-0105 of the (Freshwater Wetlands) Act. These activities are subject to regulation whether or not they occur upon the wetland itself, if they impinge upon or otherwise substantially affect the wetland and are located within the adjacent area.

Before DEC can consider a permit application, wetland delineations prepared for the project must be verified by agency staff. DEC jurisdiction and resulting acreage impacts may vary based on DEC verification of wetland delineations. It is DEC policy that wetland impacts are not permitted, even with mitigation, until other alternatives have been explored, including avoidance, minimization or reduction of impacts. Generally applicants are required to: 1) Examine alternative project designs that avoid and reduce impacts to wetlands; 2) Develop plans to create or improve wetlands or wetland functions to compensate for unavoidable impacts to wetlands; 3) Demonstrate overriding economic and social needs for the project that outweigh the environmental costs of impacts on the wetlands.

The DEC guidance document, Freshwater Wetlands Regulation Guidelines on Compensatory Mitigation, October 26, 1993, states that "Temporary disturbances, where preconstruction conditions are essentially restored, for example when laying a pipeline, do not require compensatory mitigation since there is no permanent loss. However, impacts to the wetland still must be first avoided and then minimized as with any other project, and efforts to reduce disturbances during construction, such as erosion control, will still be required." USACE defines "permanent" impacts as the loss of waters of the United States, and includes the area where fill is placed plus areas that are adversely affected by flooding, excavation or drainage as a result of a project. Where the project area is restored to pre-construction contours and elevation, it is not included in the calculation of permanent loss of waters (permanent impacts). This includes temporary construction mats (e.g. timber, steel, geotextile) used during construction activities and removed upon the completion of the work. However, where certain functions and values of waters of the United States are permanently adversely affected (such as the conversion of a forested wetland to an herbaceous one in a permanently maintained utility right-of-way), USACE requires mitigation to reduce the adverse affects of the project to the minimal level. The wetlands analysis in the FEIS should be refined to apply the full range of potential impact criteria to the proposed construction activity in the determination of total area of permanent impact; not just those areas proposed for permanent placement of fill. This is necessary to quantify the total affected area for permitting and requirements for mitigation.

Simple re-grading to pre-construction contours following excavation in a wetland area may not be enough to restore the full function of the existing wetland area. Any clearing or grading that disturbs wetland soils can result in permanent impacts to wetlands. Grading a wetland or adjacent area can substantially alter surface water drainage and flow patterns, may temporarily increase erosion, and may eliminate fish and wildlife habitat. Clear-cutting removes the vegetative cover of wetlands and may reduce their ability to absorb water and serve as habitat, and can also cause soil erosion. Dredging or excavation may increase water depth and remove wetland vegetation, thus altering the basic characteristics of, and perhaps destroying, wetlands. Fish and wildlife feeding or reproductive capacities may be altered, as may cover types, turbidity, sediment deposition, and erosion patterns. Any of these activities can cause the permanent loss of benefits provided by wetlands and may, in fact, destroy wetlands entirely.

## Specific Concerns.

The following comments are based on staff review and focus on freshwater wetlands impacts described in Noble's DEIS for the Ball Hill Windpark.

1) In the first paragraph of Section 2.8 (page 2-61), Noble stated that the project facilities have been sited to minimize or avoid wetland impacts to the greatest extent practicable. DEC staff generally concurs with Noble's statement for the generation component of the project. The turbine pads and access roads have been sited outside currently mapped freshwater wetlands and adjacent areas. Construction of the generation component of the project will not result in any permanent disturbance to State-regulated wetland.

- 2) Based on a site visit on September 8<sup>th</sup>, 2008, no currently unmapped wetlands are in the project area. Hence, State-regulated freshwater wetlands in the project area appear to be limited to the two cited in the DEIS. The DEC determined, based on the site visit, that Wetlands W59 and W60 are separated from Wetland SC-13 by more than 50 meters and therefore are not state jurisdictional wetlands due to their small size. The DEC modified the delineations of W61 and W65 (Freshwater Wetland SC-13), and W111 (Freshwater Wetland SC-12) during their site visit (which are along the transmission line corridor). These findings and others were outlined and submitted to Mr. Andrew Francisco of Ecology & Environment, Inc. in a letter dated October 10, 2008. Those changes as outlined in this paragraph and this letter must be incorporated into the FEIS.
  - 3) Wetland W104 is not state jurisdictional. The narrow linear portion that connects the northern and southern portions does not meet state wetland criteria. Without that connection, neither the northern or southern wetland is close to 12.4 acres in size. This wetland is along the transmission line corridor as opposed to the generation portion of the project.
  - Appendix H of the DEIS describes the preliminary wetland mitigation plan. The DEC generally concurs with Noble's mitigation goals and objectives. However, the DEC would like to clarify that the mitigation area (still to be selected by Noble) must be contiguous with a state jurisdictional wetland and not just hydrologically connected (as stated in Section 2.2 of Appendix H). The proposed wetland mitigation must be the restoration or creation of wetland with the functions and values lost by the impacts. Preservation of existing wetlands through conservation easements, while beneficial, would not qualify as mitigation for impacts to State-regulated wetlands. Mitigation for impacts to adjacent area must be discussed in the FEIS.
    - The DEIS does not specifically describe the proposed measures to remediate temporary impacts to freshwater wetlands and adjacent areas. This should be corrected in the FEIS. All disturbed areas must be returned to original grade with an adequate depth of topsoil to support plant growth. All disturbed areas must be seeded with an appropriate native seed mix and mulched (or hydroseeded) to prevent erosion and sedimentation.
    - The Invasive Species Management Plan (ISMP) in Appendix K addresses the identification, management, and monitoring of invasive species within the project area. While the strategies outlined in this plan are sound, management practices, particularly herbicide application, must be conducted at the appropriate time of year and according to NYSDEC recommendations or permit requirements specific to the site. While management should begin immediately upon disturbance or discovery of infestations, further management may be required beyond the initial period.

The ISMP presents detailed information on the restoration and monitoring of State-regulated wetland and adjacent area, including seed mixtures to be used. This kind of information is lacking throughout the other sections of the DEIS that discuss impacts to regulated areas and should be included in the FEIS.

Calculation and discussion of impacts to the State-regulated 100-foot adjacent area is generally lacking in the DEIS. These impacts should be discussed in the impact and mitigation sections and included in the appropriate Tables.

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## Visual resources.

DEC Visual Policy, Assessing and Mitigating Visual Impacts, DEP-00-2, July 31, 2000, defines an aesthetic impact as that which occurs when there is a detrimental effect on the perceived beauty of a place or structure identified as a significant scenic or aesthetic resource. Significant aesthetic impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place. For each potentially affected resource identified, a determination should be made as to whether visibility of one or more turbines results in diminished public enjoyment or appreciation of the resource, or impairs its character or quality. This determination should be made on the basis of the existing visual setting of the inventoried resource and the likelihood that visibility of the proposed project will compromise the existing setting and diminish public enjoyment of that resource.

DEIS Section 2.14 describes the Visual Resource Assessment (VRA) conducted for the project. The study area for the VRA extends to a five-mile radius from the outermost turbines, in accordance with DEC Visual Policy. Consideration is also given to resources of high cultural or scenic importance located beyond the five-mile radius, as recommended by the DEC policy document, "Assessing and Mitigating Visual Impacts" available on our website. Visual mapping was conducted on a "hypothetical" layout of 60 GE 1.5 MW turbines assuming a peak height of 393 feet. For this analysis, 55 visual resource locations were identified within the 5-mile study area. These included resources of statewide significance as defined by the DEC Visual Policy, resources of local interest, and other places of analysis not meeting the first two conditions but representative of open views from the rural roadways. All of the visual resources identified will have some visual impact with 7 in the foreground distance zone, 26 in the middleground distance zone, and 22 in the background distance zone. There are eight National Register Eligible properties and 138 other potentially eligible properties identified in the 5-mile APE (and 3-mile radius of the transmission line) that have potential views of the Project. There are no State & National Register of Historic Places identified in the viewshed. There is one historic district - the Ewing Park Historic District - in the viewshed. Two visual resources of Statewide Significance, Boutwell Hill State Forest and Canadaway Creek WMA, are within the APE. Significant resources outside of the 5-mile study area include Evangola State Park, Harris Hill State Forest, Zoar Valley Multiple Use Area, Hatch Creek State Forest, and the Seaway Trail.

While visual simulations were accomplished from resources of statewide significance within the APE, simulations should also be considered, if visual impacts are judged to be probable, for trail overlooks within the Harris Hill State Forest, from Evangola State Park, and from the Seaway Trail. These locations are of high importance to the public and could be potentially impacted by the project.

In accordance with DEC Visual Policy, screening should be considered as an option to mitigate visual impacts. Direct mitigation options, when feasible, should be applied such as screening or selective turbine re-location. Offsets should be employed when other types of mitigation would be uneconomic or only partially effective.

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## Cultural Resources.

Per New York State Office of Parks, Recreation, and Historic Preservation letter dated September 24, 2008, Noble Ball Hill Windpark will have an adverse impact on culture resources within the Area of Potential Impact surveyed. Consequently, the project sponsor must work in consultation with OPRHP to pursue feasible and prudent plans that avoid or mitigate the adverse impacts. DEIS Section 2.30 & 2.31 & Appendix S include a discussion of cultural resources in the project area and the Area of Potential Effect (APE) for visual impacts to historic resources as well as possible mitigation actions. Because the potential visual impacts to historic resources are closely linked to the visual assessment referenced above, DEC's comments regarding mitigation (as described in the above paragraph) apply here as well. Also, the OPRHP September 24, 2008 notes numerous additional visual simulations that should be accomplished as part of the FEIS.

In conclusion, DEC appreciates the opportunity to comment on the DEIS for this project. We look forward to continuing to work with the Town of Villenova as Lead Agency throughout the remainder of the SEQR and permit review processes. If you have any questions or comments, please contact me at (518) 402.9150.

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Noble Ball Hill Windpark LLC Ecology & Environment, Inc

K. Hawley, Noble LLC

A. Davis, DPS

D. May, DPS

M. Brower, Ag. & Mkts.

J. Peterson, NYSERDA

J. Bonafide, OPRHP

S. Metevier, USACE

T. Sullivan, USFWS

S. Doleski, DEC Reg 9

DEC Review Team

1 of 5

November 3, 2008

From: J. Dudley and Diana Robinson

(716) 965-4211

9200 Round Top Road Forestville, N.Y. 14062

To: Town of Villenova

Supervisor-Yvonne Park (716) 988-3476 / 988-7745

1094 Butcher Road

South Dayton, New York 14138

Noble Ball Hill Windpark, LLC (518) 322-7676

P.O. Box 72

7294 Centerville Road Bliss, N.Y. 14024

Brautigam & Brautigam, L.L.P. (716) 679-0404

32 White Street, P.O. Box 210 Fredonia, New York 14063

Re: Wind Turbine Concerns:

We are appreciative of the hard work done by our Town Board and Supervisor Yvonne Park concerning wind turbines for our community. The DEIS (Draft Environmental Impact Statement) is very comprehensive and extensive. Community members have been given some opportunity to give comments and concerns. Generally, we would be in support of a wind turbine project and the community in it's decision to "cash in." However, we have many issues we would like you to consider.

The following is a summary of concerns and comments we have as permanent residents and landowners on Round Top Road as we reside within the boundaries of the proposed Noble Power-Ball Hill Wind Park.

Initially, we attended the Villenova Town Board meeting on October 8, 2008 where a presentation was made by EDR (Environmental Development and Research) engineers. EDR engineers were hired by the Town to review the DEIS done by Ecology & Environment. Various questions and concerns were discussed between the supervisors, board members, attorney and EDR engineers. Following the discussions, the board voted to accept the DEIS and made a resolution to hold a public hearing on October 30, 2008 at the Villenova Town Hall. We attended the public meeting on October 30, 2008 and shared some concerns.

#### OUR VERBAL CONCERNS - PUBLIC MEETING: OCT. 30, 2008

- Is adequate amount of bond money being required per tower for tear down costs? We
  do not believe \$20,000 per tower will be adequate for the future even with
  recycling of parts, say 10-20 years from now.
- 2) Will Noble be able to get adequate financing to complete the project in today's economic climate? The company that is doing their financing, Babcock & Brown is understood to be struggling.
- 3) Is their a guaranteed market for the power especially in light of lower oil/gas prices, new clean coal technology and the abundance of natural gas.
- 4) We are concerned that Noble was under investigation by NYS attorney general's office and also that the attorneys retained by Noble are "criminal case" attorney's.
- 5) What would happen if Noble sells out to another company? Is there any bond or assurance that the next company will be compliant to the original agreement?

#### OUR FURTHER CONCERNS:

We believe, further consideration for us as permanent residents is needed. The DEIS, various informational meetings and personal research, are our basis for submitting additional concerns regarding our property rights as permanent daily residents.

Most of the property around us where turbines are being placed is seasonally used land or vacant land. These owners do not share the same concerns as those of us who make our homes here. The change to the landscape and aesthetics will affect us daily. Noise will affect us daily, Construction and repairs will add disruption to our lives. The change to home and property value is also of greater concern for us.

Since we are both "land owners" and "permanent residents" in the area, the impact is much greater for us. Additionally, we would be subjected to the highest degree of visual impact, 360 degrees from any window or viewpoint around the house, front yard, back yard and side yard due to the openness and position of our property. Unfortunately, we would also be subjected to a very significant amount of flicker during sunrise and sunsets too. This along with the noise and health affects will be a great detriment to us in the enjoyment or sale of our property considering the number and close proximity of proposed turbines.

According to the (Set Back Map for Ball Hill Windpark), provided at the Town Hall in Villenova: Master Map Figure 2.23-2 we will be encircled by:

T1, T2, T3, T4, T5, T6, T7, T8, T9, T21, T20, T19, T18.

These thirteen wind turbines, would all be in our line of sight, adding noise, dominating the view whichever way we look. Twelve of these thirteen wind turbines would be close enough to have a multiple audible affect. The closest would be just over 1000 ft. Many more would only be 1500 to 4000 ft. distance.

According to study done by Nina Pierpont - Wind Turbine Syndrome: Noise, Shadow Flicker, and Health (8-1-06). posted July 26th, 2008 in Articles by Nina Pierpont. She gives reference to the Ellenburg, Clinton, and Altona Wind Energy Facilities Ordinances which are questionably considered wind turbine "industry standards," and to the NYS DEC, and WHO (World Health Organization) who have differing standards. There may not be legal requirements on many factors related to wind turbines, but health and wellness consideration must take priority. Problems sited are: sleep problems, headaches, dizziness, nausea, exhaustion, anxiety, anger, and the list goes on. Chronic sleep problems being the number one concern.

The Academy of Medicine of France has recommended a minimum of 1.5km (.96 mile) setback due to noise and health issues. All thirteen turbines listed above except T-20 are closer than the .96 mile recommended.

From the Lincoln Township, WI., Study on Shadow Flicker . . . a setback of one mile was determined. Again as with the findings of The Academy of Medicine of France, approximately a one mile setback is needed for health related reasons.

For Noble to offer action such as "adding curtains to the windows" as was suggested by a Noble employee would add insult to injury. The proposed configuration of wind turbines would subject us to shadow flicker during both sunrise and sunsets. The only realistic mitigation measure is setback distance for both noise and shadow flicker in avoiding all health concerns.

Additionally, it should be noted that T-4 is shown to be located within a 500 ft distance of a residence not shown on the master map and located on a property that is less than 50 acres. We were told by a Noble representative (Tim Marvich) that owners must have at least 50 acres to have a wind turbine. This is also the turbine of greatest concern to us being the closest for noise, causing the greatest degree of shadow flicker, and affecting our primary view.

At this time in the process we have no assurance of any benefit for us or the community in general. We ask you not to come to an agreement too quickly, but to ensure the community is duly compensated for this major undertaking. We hope that the community in general will be compensated with taxes eliminated / paid or such as was done for the community in Eagle. This will help somewhat with property value concerns. All people in the community and especially those permanent residents in the wind park area will be greatly affected by this project and should be compensated proportionately. All the community of owners must benefit reasonably from this project!

#### SUMMARY OF FURTHER CONCERNS:

- \*Mitigation the only realistic mitigation for us is setback distance due to noise, shadow flicker, health, primary view affected along with domination of the general landscape 360 degrees seven days a week for many years to come. Our particular property, due to our location being at the highest elevation on Round Top Rd. and the openness surrounding our residence, will be adversely affected whether we remain as residents or choose to sell. I know of no other property in the project that will be affected as greatly as ours. It should also be noted prevailing winds come from the west of our house with the closest of turbines T2, T3, and T4 in line with the prevailing winds and our home.
- \*Setback for permanent residences should be reconfigured to .96 mile (5068 ft.)

  Note: Even for only half the distance, or a .50 mile (2640 ft)

  the following turbines near our home would have to be disallowed:

  T-2 (2500 ft), T-3 (2000 ft), T-4 (1200 ft), T-5 (2000 ft), T-7 (1500 ft).
- \*T-4 should not be allowable. There is a residence within 500 feet not shown on master map Figure 2.23-2 Setback Map. This is too close a proximity whether a seasonal or permanent residence. And, this property is less than a fifty acre parcel.
- \* Set back distance for seasonal homes should be established due to health concerns, blade failure, ice on blades etc.
- \*Our frontage is incorporated within T-4's 1000 ft. setback circle. This would be a detriment to our building a home or selling lots along our road frontage.
- \*All community property owners must benefit since all would be affected, whether "signed on" with Noble contracts or not.
- \* Permanent residents be given commensurate consideration and benefit.
- \* Research multiple options, such as the new wind silos, geothermal, etc.

  Obtain some competing studies for our township and then choose direction.
- \* Negotiating take plenty of time to ensure full compensation for a project that will drastically change our area for many years to come. There are always other options.
- \* Health and Wellness must remain #1 priority for town board and residents.

When we purchased our property here on Round Top, we were both commuting to work. I drove to Pittsburgh and my wife to Buffalo. That's how much we valued the aesthetics of our home. A log home on fifty acres, a peaceful setting, pursuit of the American dream. The sunsets and sunrises are indescribable from our vantage point. We can even see a portion of Lake Erie. This quiet and peaceful setting is our sanctuary from a noisy world of work and traffic. We especially do not want our (westward) primary view turned into an industrial view. However, whatever the undertaking, we do insist all the community of owners benefit in commensurate ways, particularly those residing in the area and most subjected to the changes. And, that hopefully all concerns be resolved rather than set aside for the sake of financial gain. For our potentially unhealthy and adverse situation, the only realistic mitigation is setback distance. Your consideration and response is appreciated.

Sincerely

J./Dudley Robinson

Diana (Ermer) Robinson

From: Maggy Wisniewski

**Sent:** Monday, January 26, 2009 2:18 PM

To: Kristin McCarthy

**Subject:** FW: DEIS Noble Ball Hill Windpark

**Importance:** High

Follow Up Flag: Follow up Flag Status: Completed

Kristin, please see the email from Mr. and Mrs. McGraw regarding the Ball Hill DEIS.

Thanks, Maggy

Maggy Wisniewski Communications Associate, Public Affairs Noble Environmental Power 8 Railroad Avenue Essex, CT 06426

Mobile: 860.395.8053 Office: 860.581.5010 Fax: 860.767.7041

wisniewskim@noblepower.com

www.noblepower.com

**From:** kathrynmcgraw@comcast.net [mailto:kathrynmcgraw@comcast.net]

**Sent:** Monday, January 26, 2009 2:13 PM

**To:** dspitzer@hodgsonruss.com

Cc: Maggy Wisniewski; villenova@dftwildblue.com; jerpark@dftwildblue.com; JudgeK@aol.com

**Subject:** DEIS Noble Ball Hill Windpark

January 26, 2009

Sir:

Please include these comments in the Noble Ball Hill Windpark DEIS.

We are off-site Bartlett Hill Road property/home owners who will be directly impacted by the Ball Hill wind turbines. Specifically, T45 will be located only 1075' from our house and less than 1000' from other portions of our property according to information found on Noble's website. Having researched wind turbines and their impacts on nearby residents and having visited the Bliss windpark, it is our informed opinion that a minimum setback of 1000' is very inadequate. Our property will be impacted visually and by the noise and flicker associated with 400' wind turbines sited so closely.

We request that T45 be positioned further south so as to increase its distance from our house.

Thank you for your consideration in this matter.

Michael J. McGraw Kathryn M. McGraw 744 Bartlett Hill Road South Dayton, New York 14138

Please direct any correspondence regarding this matter to:

John Kuzdale, Esq. 314 Central Avenue Dunkirk, NewYork 14048 (716) 366-6966 JudgeK@aol.com Comments Recorded at the October 30, 2008 Public Hearing

			<del></del>
			Page 3
	PROCEEDINGS	1	MS. TEMPIO: Not at the moment.
		2	MR. SPITZER: Town of Villenova is acting as
		3	lead agency for the Project of both communities.
		4	In addition, from ED&R, Jim and Bob, if you
	TOWN OF VILLENOVA	5	want to stand up and introduce yourselves.
	PUBLIC HEARING	6	MR, PIPPIN: I'm Jim.
		7	MR. GALLUCCI: Bob.
		8	Jim is an environmental scientist with ED&R.
	Public hearing held at the Town Hall,	_	My name is Bob Gallucci. I am a civil engineer.
1094 Butcher Road, South Dayton, New York, on October 30, 2008, commencing at 7:03 p.m.		10	MR. SPITZER: And obviously, Bob has more
	october 30, 2000, commencing at 7:03 p.m.		•
			experience at public hearings than Jim does.
		12	ED&R has served as the environmental
	JACK W. HUNT & ASSOCIATES, INC.		consultants for the two towns in the review
	JACK W. HUNT & ASSOCIATES, INC.		process. In other words, they work for us, for the
		15	Town. They don't work for the applicant.
		16	I also want to introduce you to the
		17	applicant.
		18	MR. MCCARTHY: Pat McCarthy and this is
		19	Kristin McCarthy. And we're Noble Environmental's
		20	representatives.
		21	MR. SPITZER: And newlyweds.
		22	This is a public hearing on the Project.
		23	It's focused on the Environmental Impact Review.
	Page 2		Page 4
1	APPEARANCES: HODGSON RUSS LLP,	1	But for the Town of Villenova, it's also the public
_	By DANIEL A. SPITZER, ESQ.,	2	hearing on the Project. So you can say anything
2	Special Counsel, The Guaranty Building,	3	you'd like about the Project, yea or nay.
3	140 Pearl Street, Suite 100,	4	Obviously, it helps the Board if you're
	· Buffalo, New York 14202	5	specific: I'm in favor because, I'm opposed
4	DONALD II MICHALAV ECO	6	because. If you have questions about the
5	DONALD H. MICHALAK, ESQ., Town Attorney,	7	environmental review, those questions will be
_	11 E. Main Street, Suite 2,	8	answered in what is known as the final impact
6	Fredonia, New York 14063.	9	statement.
7	COUNCIL MEMBERS: DONALD CHASE	10	The final environmental impact consists of
8	SUSAN ECKER-NEWTON JUDY HOWARD-ROSE	11	the draft impact statement, any changes that are
9	NOBLE ENVIRONMENTAL REPRESENTATIVES:	12	made to the Project, plus a responsiveness summary
	PATRICK McCARTHY	1	
10	KRISTIN McCARTHY	13	where each question that is relevant to the Project
11 12	MEL CONKLIN, Town Board YVONNE PARKS, Supervisor	14	is answered by the Towns. The Towns are
	t totale i mass, supervisor	15	responsible for the FDIS.
13	MR. SPITZER: Thank you, Madam Supervisor.	16	The DEIS that was mentioned that was
14	No. 10 Day Colone Com Made Dune and I	17	reviewed is the responsibility of the applicant,
14 15	My name is Dan Spitzer from Hodgson Russ and I	1	
14 15 16	serve as special counsel to the Town for this	18	but the Towns are responsible for the environmental
14 15 16 17	serve as special counsel to the Town for this project.	18 19	but the Towns are responsible for the environmental review for the Project.
14 15 16	serve as special counsel to the Town for this project.  There's a few other people I want to	l l	•
14 15 16 17 18 19 20	serve as special counsel to the Town for this project.  There's a few other people I want to introduce who are here. Kathy Tempio, who is the supervisor at Hanover, is here. And I think one of	19	review for the Project.
14 15 16 17 18	serve as special counsel to the Town for this project.  There's a few other people I want to introduce who are here. Kathy Tempio, who is the supervisor at Hanover, is here. And I think one of her board members is Dick Slawson is also here.	19 20	review for the Project.  This is not a question and answer, even

## Page 5

- This is an opportunity for you to give comments to the Board and to the community of what
- you think about the Project and ask questions.
- 4 The process is to follow the code of the
- 5 State Environmental Review Act and they lay out the
- 6 process that we hold this public hearing, we are
- 7 also going to receive written comment. We were
- 8 going to receive written comment until November
- 9 10th, but somebody said that the notice may not
- 10 have gone into the environmental paper. So you can
- 11 assume that if you're late, don't worry about it.
- 12 We'll probably be taking written comment at least
- 13 to the end of the month of November.
- So if you want to get written comments in,
- 15 send them to me at 140 Pearl Street, Buffalo, New
- 16 York, 14202. We'll make sure that, you know,
- 17 people's comments are answered.
- 18 So I think we've got a couple -- a list of
- 19 people who wanted to make comments. The way this
- 20 works is, we ask you to be respectful, be -- in
- 21 terms of your time, try not to repeat each other
- 22 too much. The more facts you can give us as well
- 23 as asking questions, the better.

#### Page 6

- Once we go through the list of people, don't
- 2 worry if you are not signed up, we will still ask
- 3 your names.
- 4 I do ask particularly that if you're in the
- 5 back, since we don't have a sound system, make sure
- 6 you stand up and speak clearly so that our
- 7 stenographer can record your questions or comments.
- 8 First item that you need to do is to state
- 9 your name and address so we know who it is so that
- 10 we can link each answer with each comment.
- So, this is the list, other than -- I've got
- 12 three names. That's fine. We can all go home and
- 13 watch TV.
- 14 The first name I have, and I apologize if
- 15 I -- Diana Ermer, E-R-M-E-R.
- MS. ERMER: That's me. I was wondering, can
- 17 we ask --
- 18 MR. SPITZER: Let me -- it is Diana,
- 19 E-R-M-E-R?
- 20 MS. ERMER: Yes.
- 21 MR. SPITZER: 9 --
- 22 MS. ERMER: 9200 Roundtop Road.
- 23 MR. SPITZER: In Forestville?

#### Page 7

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- MS. ERMER: Yes.
- 2 MR. SPITZER: Okay.
  - MS. ERMER: I was just -- I'm still
- 4 confused. We can ask questions or -- how -- like,
- 5 I had some kind of questions that I wanted to ask.
- 6 MR. SPITZER: I leave it to the supervisor
- 7 and the Board. Generally, the law requires that8 this be a public hearing. It's not necessarily a
- 9 question and answer. It's up to you.
- 10 I mean, we have the applicant here. We have
- 11 our engineers here. If you want to do it as a
- 12 guestion and answer, we can. We can see how it
- 13 goes. If people behave themselves, we can try to
- 14 answer questions as well.
- 15 Generally, we only have people give the
- 16 comments. Normally, we have a lot of people. And
- 17 usually with wind projects, there's yelling, so
- 18 that's why we're usually pretty formal about these
- 19 public hearings.
- 20 But if the Board has no objection, we can
- 21 try answering the questions and between either the
- 22 applicant and the engineers or the Board members,
- 23 hopefully we can answer them.

#### Page 8

9

- 1 If there's no objection to that?
- 2 THE BOARD: No.
- 3 MR. SPITZER: We'll see how it works. So go
- 4 ahead and ask your question.
- 5 MS. ERMER: Okay. Well, my first question
- 6 was, I don't even know, like, how many Board
- 7 members do we have? I am kind of ignorant. We
- 8 just started coming to Board meetings.
  - THE BOARD: Four.
- 10 MS. ERMER: My question is, how many people
- 11 who are Board members are going to have the wind
- 12 turbines on their property?
- 13 MR. SPITZER: None of them.
- 14 MS. ERMER: That was one of my questions
- 15 that I was wondering about. So we have other
- 16 notes, but that was something I wanted to ask. So,
- 17 for now, I'm sitting down.
- MR. SPITZER: That worked out great. We are
- 19 rolling now. And now JD Robinson, also at 9200
- 20 Roundtop.
- MR. ROBINSON: Right. I go by Dudley most
- 22 of the time, but at work, they know me as John, so
- 23 it is confusing. John Dudley, JD, whatever.

- 1 their expense.
- 2 MR. ROBINSON: Will this apply also if it's
- 3 taken over by another company? Will this factor in
- 4 if it is bought out rather than Noble -- somebody
- 5 else now owns it?
- 6 MR. SPITZER: Yes.
- 7 MS. ERMER: Or if Noble went bankrupt or
- 8 something like that?
- 9 MR. SPITZER: The way the law is written and
- 10 the way we have always written the host agreements,
- 11 the bond belongs to the Town and not to Noble.
- 12 Therefore, if they go bankrupt, then
- 13 decommissioning is there. But you have to
- 14 understand that there is something in the
- 15 bankruptcy law called the automatic stay, which
- 16 basically says thou shalt not touch unless the
- 17 Court gives you permission.
- Generally, as long as those things are still
- 19 turning and somebody's collecting money, they will
- 20 be making payments to the Town and for taxes and to
- 21 the farmers, even if they go bankrupt.
- 22 If they go bankrupt and abandon the project,
- 23 then that's where that bond comes and you will be

#### Page 15

- 1 I don't think there's any project of any
- 2 scope or size in this country that you could say
- 3 was definite the way things are.
- 4 MR. ROBINSON: Yeah, because I -- I mean, I
- 5 can see a real problem financially for them as the
- 6 company doing the Project which would then very
- 7 directly affect us, too, I mean, what we're
- 8 planning, all the work and money that's spent.
- 9 But I was just wondering how secure it was
- 10 that they would have the financing or if they could
- 11 even offer that at this point.
- 12 Do they have a backup plan is maybe what I
- 13 should be asking.
- 14 MS. PARK: Continuing on with the Project as
- 15 far as time-wise --
- 16 MR. SPITZER: We're still -- the supervisor
- 17 is mentioning that we are still continuing on with
- 18 the Project. They are paying us to do the review.
- 19 It's not Town tax dollars that are being used for
- 20 this review.
- 21 If at some point they say, we can't get
- 22 financing, never mind, that's still their call.
- 23 MS. PARK: We're still on schedule.

#### Page 14

9

- 1 able to have your Town attorney go to Bankruptcy
- 2 Court and seek to have an order to exorcise the
- 3 bond, if in fact nobody's going to take them over.
- 4 MR. ROBINSON: The next question. In lieu
- 5 of the economy and the things that are happening
- 6 now with the banks going out of business, you know,
- 7 the financing just in turmoil, is this project
- 8 something the financing has already been secured?
  - Could it have -- have we looked at the
- 10 possibility that it may just change all of a sudden
- 11 over the next year when they just start building?
- 12 Is that money actually going to be there for the
- 13 duration to complete the project?
- MR. SPITZER: I don't know whether or not
- 15 our friends from Noble want to answer questions
- 16 about their financing. But I can tell you,
- 17 generally, if they start building, they will
- 18 finishing building because that means some bank has
- 19 put up the money and it's in the bank.
- What they probably have now is they probably
- 21 put a deposit, a pretty significant deposit, down
- 22 on the turbines. But if there's no cash, then, no,
- 23 they won't build.

#### Page 16

- 1 MR. ROBINSON: Okay. At this point?
- 2 MS. PARK: Uh-huh.
- 3 MR. ROBINSON: Good. The other thought was,
- 4 where we're located, we've got turbines going up in
- 5 the sunset area of the front porch. It will even
- 6 be multiple turbines across the road from us.
- 7 My wife's looked through the initial study,
- 8 through the books, and there's a flicker effect.
- A series of the series of the
- 9 And she said that it's rated the highest -- it was 10 up to 40.
- 11 MS. ERMER: Well, it was greater than 40.
- 12 Who knows what greater than 40 is. But it's 1200
- 13 feet away from us and the view of sun.
- 14 MR. ROBINSON: We're not real happy about
- 15 that.
- 16 We're just wondering what the actual amount
- 17 would be rather than greater than 40. Can we get
- 18 an actual amount? A real time estimate of what it
- 19 would be?
- 20 MR. SPITZER: Jim and Bob, you speak up if
- 21 you want. But I always thought the problems of
- 22 real time estimates is the actual amount of flicker
- 23 time was always an estimate because you don't know

1 I guess I will try to put these into context

2 of comments. But before I do, I want to

3 congratulate the Board for the studies that they

4 have done and because they make that public because

5 I think my wife and I have both sat and called on

6 them. We think it's an excellent job you've done

7 and I think that should be noted.

8 My first comment or question/comment would

9 be we live on Roundtop and we have several turbines

10 that are listed on the maps that we looked at in

11 the books, but we find a discrepancy as to how many

12 turbines would be across the road from us.

And we wonder if we can get that cleared up

14 at some point, whether you know for sure,

15 yourselves, or anyone here knows.

16 MR. SPITZER: Do we have the most current

17 map in terms of the map that's here of the Project?

18 Is that the most current map?

MS. K. MCCARTHY: There are several maps in

20 the DEIS. Some of them show some of our earlier

21 alternative layouts, so you just want to make sure.

22 In section 1 there's a couple 8 1/2 by 11s and

23 those are kind of small. But definitely check out

rk out

Page 11

Page 12

one in there is the most current and most up to

2 date.

3

5

8

21

MS. K. MCCARTHY: Okay.

4 MR. SPITZER: Thanks, Kristin.

MR. ROBINSON: We were concerned, my wife

and I were both concerned about the amount of bond

7 that would be put up to remove these turbines.

And I've spoken with an attorney that has

9 been more recently involved in these things with

0 other companies and he was indicating something

1 like 20,000 per turbine. I don't know what our

12 figure is here.

But he said generally what they are offering

14 is not anywhere near what would realistically be15 required to take them down at a later date.

MR. SPITZER: You know, it depends on the

17 market. Right now, the market for used wind

8 turbines is so hot that you will be able to sell

19 any used turbine --

20 MR. ROBINSON: Right now.

MR. SPITZER: -- for more than the cost. So

22 what we usually set up, and they have made a

proposal, the Town Board hasn't made a decision yet

Page 10

1 - 9 - 1

1 the setback map of section 2.23 and 2.24.

2 MR. SPITZER: With the Town's permission, if

3 I may ask you to do this, Kristin, will you make

4 sure that there's a project map both in the Hanover

5 and this Town Hall by the end of next week that's

the most current proposal, because I know there's
 one hanging up in Hanover Town Hall also, and we

8 want to make sure it's the most current one.

9 MS. K. MCCARTHY: Okay.

10 MR. SPITZER: So will you just make sure

11 that whatever maps are in Town Hall are the most

12 current proposals and that way we can make sure --

MR. ROBINSON: People won't be confused as

to which one to go by -- which is the real truth.
 MR. SPITZER: Okay. We'll give them a week

16 to update the maps and then --

17 MS. K. MCCARTHY: The maps will not change

18 at all, though.

19 MR. SPITZER: Okay. So the maps are pretty

20 much --

21 MS. K. MCCARTHY: What's in the DEIS is the

22 layout.

23 MR. ROBINSON: We just need to know which

on what the plan will be, but what is usually done

2 is you have your engineers figure out the cost of

3 decommissioning.

4 You then subtract from that per tower then

the expected salvage costs. That equals an amount

per tower as you multiply it by the amount of

7 towers that you require in a bond. You then

8 require that that be updated on a regular basis.

9 For example, one project we recently

10 concluded, they have to update it every couple of

11 years for the first few years.

And then after 15 years, they have to update

13 it every year because after 15 years, it is more

14 likely to be changed.

15 MR. ROBINSON: Because today's towers --

16 MR. SPITZER: Right.

17 THE WITNESS: -- won't be 20 years from now.

18 MR. SPITZER: And the wind turbines

19 themselves may depreciate in value. So whatever

20 plan there is, we'll -- and I believe their plan

21 that they recommend includes this, will be updated

22 on a regular basis by our engineers.

23 By the way, it's updated by our engineers at

Page 17 Page 19 what days are going to be cloudy. for you. 1 2 You don't know what angle the wind is going 2 MR. ROBINSON: Okay. I guess, just to 3 to be coming in at and therefore that's where the comment also in conjunction with the finance, 4 blades turn into the wind. financibilities of what's going on. 5 5 In talking with the attorney, he talked So it is usually that the log always gives 6 you the worst case scenario, don't they? So I about oil, gas prices being so much lower. Does it 7 make sense to do turbines? Tax credits that either think, and I'm going to ask the engineers to slap me down if I am wrong, but generally if it says 40, Noble is depended on bond and the guaranteed market 9 for power? 9 it means not more than 40. 10 Those -- those are some of the other factors 10 Isn't that correct? MR. GALLUCCI: It's a range then. 11 of the economy that should be considered. 11 12 MR. PIPPIN: That would be like the worst. Especially for them, but also for us. Does it make it a viable project? 13 MS. ERMER: Greater than 40, it says. It's 13 14 MR. SPITZER: May I ask you what you do for 14 in a red area zone. 15 MR. PIPPIN: After that, I don't know. I 15 a living? 16 MR. ROBINSON: What I do for a living? 16 would have to look at the specific sites you're MR. SPITZER: Yeah. And I will tell you why 17 talking about. 17 18 MR. ROBINSON: Is it possible to get that 18 in a second. What do you do for a living? 19 19 information? MR. ROBINSON: Right now, school bus driver. 20 MR. SPITZER: Okay. If you had your own MR. PIPPIN: I don't know if Saratoga --20 21 we'll have to look at the person, you know, the 21 school bus company, does the Town tell you how many 22 school buses to own? group that did the actual analysis to see -- to 23 In other words, we don't tell them how to 23 look at site specific. When we would look to Page 18 Page 20 run their business. What we do tell them is things review it, we would not look at every specific 2 site. 2 like the flicker effect. 3 You know, we could say, there is too much 3 MR. ROBINSON: Could you explain to us what greater than 40 means? 4 flicker effect. 4 5 MR. ROBINSON: Well, yeah --5 MR. PIPPIN: Not at this time. 6 MR. ROBINSON: You're talking about 40 MR. SPITZER: We could say, there is too 6 hours? Is that what we are talking about? 40 much flicker effect. The point I'm getting at is, not by any means to pick on the question, but we 8 hours of flicker time? 9 9 don't have a right to say yes or no to any business MR. PIPPIN: Right. 10 10 based on the economics. MR. ROBINSON: Per year? The fact of the matter is, I hear these 11 MR. PIPPIN: I'm trying to remember how they 11 12 broke it down, but I think it is per month, if I 12 things at hearings all the time. Gce, these things 13 don't make money. 13 remember that. 14 MR. SPITZER: I think it's safe to say that 14 Nobody builds a two hundred million dollar project that isn't intended to make money. Most of 15 based on these questions, the Board is probably 16 going to be looking at Noble to put into the FDIS the electricity is pre-sold into what's called a hedge. So the price is set long before the banks 17 more specific numbers than greater than 40. And 17 18 that they will be able to do that. 18 ever sign the checks. 19 19 And most of projects that you see going Is that a fair statement? 20 MS. K. MCCARTHY: Most likely. 20 forward are ones that made sense before oil ever 21 MR. SPITZER: Since it was your suggestion 21 went up. Now everybody is saying, well, oil is

down, so nobody is going to build wind.

But everybody forgets that two -- you know,

22

23

22 that I repeated?

So the FDIS will have more specific numbers

23

- 1 and year and a half ago oil was right where --
- 2 basically where it is now.
- 3 That's not what is driving the economics.
- 4 It's the overall picture of energy costs, electric
- 5 costs in New York, the cost of money, the cost of
- 6 the production tax credits, the renewable energy
- 7 credits, there is all the accelerated depreciation.
- 8 No one is going to finance this if it can't
- 9 make a return on equity. But why I asked about
- 10 your business, we don't as a town say -- ever tell
- 11 people, you can't open that store. We don't think
- 12 it makes sense.
- MR. ROBINSON: No. I'm not saying that.
- MR. SPITZER: On a much larger scale, that's
- 15 where the questions on financing take us. And
- 16 that's not an area where we're allowed as a town to
- 17 make decisions.
- We have every right to say, you need to move
- 19 that turbinc. There's too much flicker effect on
- 20 people's home.
- But we don't have a right to say, we're not
- 22 going to allow you to build the project.
- I have to tell you too that I have been at a

#### Page 22

- 1 lot of hearings where people say, gee, these things
- 2 don't make sense. Why are you building them?
- 3 Banks do do stupid things. We have all seen
- 4 proof of that, but, you know, for the most part,
- 5 they don't do them on purpose.
- 6 If you're looking at these projects in terms
- 7 of whether they make sense, the fact of the matter
- 8 is that New York State has said it wants renewable
- 9 energy and will pay more for renewable energy and
- 10 that's really what's driving the wind energy
- 10 mais really what's driving the wind ener
- 11 industry in New York.
- MR. ROBINSON: I'm not asking the Town to
- 13 make a -- or suggesting you should make a decision
- 14 for them or make their decisions. I'm just saying
- 15 I think we, as a town or, I'm sure, Noble is
- 16 looking out for themselves and aware of it. We're
- 17 not necessarily aware of some of the things that
- 18 they have to put up with to make this happen.
- 19 So do we have a contingency? I mean, are we
- 20 aware that say, if they get part way into it and if
- 21 everything failed, do we have a contingency plan?
- 22 Do they have a contingency plan?
- 23 Is this something that -- I'm just setting

#### Page 23

- 1 up a possible scenario for the sake of saying, are
- 2 we aware some of these things could happen?
- 3 Maybe it goes bankrupt just like I -- I took
- a retirement from US Airways. I got into
- 5 retirement, a year later they took away my
- benefits. Another year, year and a half later they
- 7 took away the money. I was left with nothing.
- 8 These things happen. Because they say they
- 9 are going to do it and because things are going to
- 10 happen that are supposed to happen, doesn't mean
- 11 they always happen the way we expect them to.
- MR. SPITZER: It's true. But the problem is
- 13 is that Towns are in a position to make judgement
- 14 on people's business calls.
- MR. ROBINSON: Right.
- 16 MR, SPITZER: And so --
- MR. ROBINSON: I'm not saying that.
- 18 MR. SPITZER: And so even if the Town
- 19 really -- even if the Town --
- 20 THE WITNESS: Just to create awareness.
- 21 MR. SPITZER: So even if the Town really
- 22 thought that this is a terrible time to build this
- 23 kind of project, it is not our call.

#### Page 24

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- What we can look at is, what are the
- 2 economic, environmental, and social impacts
- 3 together.
  - MR, ROBINSON: Right. Exactly.
- 5 MR. SPITZER: And, you know, the reality is
  - that for any project to get built in the next few
- 7 years, because you have the same number of projects
- 8 now chasing a heck of a lot fewer dollars.
  - MR. ROBINSON: I agree.
- 10 MR. SPITZER: This project may finish
- 11 environmental review and then never get built.
- MR. ROBINSON: Exactly. That's what I'm
- 13 trying to say. That's exactly what I am saying.
- MR. SPITZER: That's not the Town's
- 15 responsibility to have a plan B.
- 16 THE WITNESS: Okay.
- 17 MR. SPITZER: Yeah, Jim. It you want to --
- 18 MR. PIPPIN: I just wanted to say that
- 19 shadow flicker, the greater than 40, that's just a
- 20 range that was given as 40 hours per year. Just to
- 21 clarify that just looking back, I gladly did not
- 22 memorize the visual analysis and those are annual
- 23 hours based on and the range that was given.

1 If you were to look actually in the appendix

2 for the visual analysis, you would find in there 3 whatever property you're talking about, there is

whatever property you're talking about, there is

4 receptors that would indicate and would give you

5 actual hours for that.

But for the wind, they have a few shadow maps there for the flicker analysis and just most of those areas are in range. But if you have a

of those areas are in range. But if you have a

specific site, you can look in there and find - MS. ERMER: Well, I saw them on the map and

11 our map -- where our house is located, it's a

12 red -- really dark red area. Very narrow, but it

13 has the highest flicker rate.

14 MR, PIPPIN: There are several properties

15 within the Project that have what they are

16 considering high flicker rates, so your property

17 could be one of them.

18 MS. ERMER: It's not on our property.

19 MR. PIPPIN: All I ean say is, to get into

20 more detail, the Town will respond to that -- to

21 give more detail.

22 MS. ERMER: Thanks.

23 MR. PIPPIN: Thanks.

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here with the turbines, whether there is a setbackdistance to the trails or snowmobile riders.

3 I know we talked at the last meeting, we

4 mentioned about ice coming off the turbine blades

and even a possibility of the failure. And these

6 things run through the woods, I assume it would be,

7 you know, all season.

MS. ERMER: Well, a lot of where the

9 snowmobile trails go through is where the turbines

10 are going to be. And somebody had said it has to

11 be 500 feet away from the turbines, so does anybody

12 know?

8

MR. SPITZER: The law does not have a

14 setback requirement for the snowmobile trails.

15 Kristin, I don't know if you know how far back the

16 turbines are.

17 MS. K. MCCARTHY: From the snowmobile

18 trails?

19 MR. SPITZER; Yeah,

20 MS. K. MCCARTHY: I am sure we have that in

21 the FDIS.

23

4

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19

MR. SPITZER: We'll get you the answer.

MR. ROBINSON: Has there been any studies

Page 26

1 MR. ROBINSON: I'm getting close.

2 Do we have a way of plans of transitioning

3 from one company to another should Noble go into

4 bankruptcy or they just want to sell out to another

5 company where the things that have been planned out

6 carry across to the next company?

7 MR. SPITZER: The law that was passed by

8 this town requires that they get approval for any

transfers of the company and the basic requirement

10 is that the new company assume the obligations of

11 the old.

MR. ROBINSON: Okay. Will there be any bond

13 or anything set up for that or --

14 MR. SPITZER: For the decommissioning for

15 the security, it's up to them to propose something.

16 Usually it's a bond, but it could be a

17 letter of credit.

18 MR. ROBINSON: The next question is, the

19 snowmobile trails. We have one that runs the

20 perimeter of the back of our property, around the

21 50 acres that we own and comes out towards the

22 front.

23 I just wanted to know what the effect is

Page 28

1 done on the effect of -- well, I know possibly on

2 some animals or birds by you, but has there been

3 any studies done on the effect on horses?

We have horses and my wife is concerned, so

5 I have to ask.

MR, SPITZER: You can check with the AG

7 Department, but I am not aware of any -- you know,

8 the AG Department is one of the biggest supporters

of wind.

10 I know that when the wind started coming in

11 a big scale, the big issue was whether or not they

12 create stray voltage because that's a real problem

13 for dairy farmers. And basically the way these

14 things are grounded, the answer was no.

And there's now enough turbines on farms in

16 New York that there should be some history.

MR. ROBINSON: I -- I think the cattle are

18 not bothered by them.

MR, SPITZER: I think that, you know, asking

20 Noble to look into horses is not an unfair

21 question.

MS. K. MCCARTHY: I can tell you right now

23 there is no research on it. But like you said, the

#### Page 29 stray voltage addressed in the DEIS and I think just from the existing wind farms, mostly that's 3 4 MS. ERMER: Well, you see pictures of cow 5 pastures with the wind turbines. I haven't actually seen pictures of horses out in the 7 pastures. I know horses are kind of weird about 8 things. 9 MS. K. MCCARTHY: Right. 10 MS. ERMER: And that's what, you know, a woman said all the horses were going to be afraid 11 of them. So I was wondering if you knew of any 12 13 horse pastures. 14 MS. K. MCCARTHY: We have a lot of horse 15 pastures in Bliss. I will see what we can dig up. 16 MR. CHASE: I might add there was a fellow 17 by the name of Ward, on Route 39, over in Forestville -- Mike Ward. 18 19 He has horses there. You can ask him how 20 long it took his horses to adjust to it. 21 MR. ROBINSON: I will do that. 22 23 that it probably scared them. Page 30 1 THE WITNESS: I'll probably be talking to 2 him Sunday. 3 5 6 problem by now, Noble would know.

#### MR. CHASE: I'm sure there was a time period MS. ECKER-NEWTON: When we visited Bliss. 4 there was an Amish barn and he has several towers. And so, you know, I would think if this had been a 7 MR. ROBINSON: I'm sure they adapted. 8 MR. SPITZER: I have to admit, I pretty much -- I think I have seen just about every FDIS 10 available and I never heard of an issue with 11 horses. 12 MS. ECKER-NEWTON: Any kind of livestock. 13 MR. ROBINSON: Our feeling on the community 14 as a whole benefiting, we're hoping that there is 15 something that is there for all the community, not 16 necessarily just the people who have been able to 17 have the turbines. 18 It does affect the whole community. I 19 wonder if anything had been secured or determined 20 in that direction.

MR. SPITZER: I don't think anything has

22 been determined yet, but I think I ean tell you

23 without giving away any negotiations that Noble

21

#### Page 31 generally offers to the community, the towns, the school, and the county \$8,365 per megawatt. 3 That increases each year with inflation. Wc 4 absolutely haven't gotten to that stage yet here. 5 But it's safe to say that if the Board doesn't feel that the benefits outweigh the negatives, they are 7 not going to say yes to the Project. Is that a fair statement? 9 MS. PARK: Yes. 10 MR. SPITZER: They are not looking at it 11 just in terms of the people who have leases. They are looking -- they are really making the 13 determination for the whole community. 14 So I think the Board, I think would agree 15 with what you just said. 16 MR. ROBINSON: Good. You know, because we 17 don't have anything projected to go onto our 18 property, but yet at the same time, we have a high 19 property, a property that's open around us and 20 we're, you know, it's 360 scenic at this point for 21 us. 22 What we're going to be seeing is 360 23 turbines because we have the visibility --Page 32 1 MS. ERMER: No. Not 360 turbines. 2 MR. ROBINSON: Well, 360 degrees. I clarify 3 myself. MS. ERMER: We have a view of Prospect, Pope 4 5 Hill, and then we're on Roundtop, so we're going to 6 be surrounded. 7 So we're going -- the back of our house, we look out and we see Pope Hill and Prospect. They are farther away from Roundtop. But on Roundtop, 10 we look out the front. So we're going to be 11 surrounded by them. 12 MR. ROBINSON: You know, people would say you are for it and we are for this project. But, 13 you know, they are going to say, well, they might 15 say, yeah, but not in your backyard, right? 16 It's not just our backyard, it is our front 17 yard, our side, it's 360 degrees for us plus the 18 flieker effect. 19 So we are definitely concerned about it, 20 especially what's going to be across the street 21 from us, the five or six turbines.

And, again, too, we're year-round residents. 23 Some people that own property that will maybe have

22

1 turbines maybe are not even full-time residents.

2 They are just here and gone or off for hunting,

3 whatever.

4

So I guess that's pretty much the gist of it

5 for us. We tend to object to the turbines across

the road from us on the west side. The rest of the

7 Project I think we could live with, but that kind

8 of sums it up for us.

9 MR. SPITZER: The next name I have is Dana

10 Bennett.

4

7

17

MR. BENNETT: Dana Bennett, 469 Route 39,

12 Forestville. I believe this project has been going

13 on for what? Three years, right?

14 MR. SPITZER: That's about right.

15 MS. PARK: Right.

16 MR. BENNETT: Okay. Well, I just found out

17 about it a few months ago and I am still running

18 across people that have no idea.

19 I do not feel the notification of this

20 project is realistic. It's ridiculous. Everybody

21 has a right to an opinion, but you need the

22 information to form that opinion.

23 And this is a major project. It's going to

it's going to keep me up at night, there's going to

Page 35

Page 36

2 be some serious problems.

3 I don't believe this blends with the country

4 atmosphere that we have out here. The reason that

5 I moved out here. Even in the ad when I bought my

6 house, it mentioned the beautiful views. That's

7 why I bought my house. That's what brings me peace

8 and happiness at my house and this is going to

9 drastically change that.

10 Whether you are for it or against it, it's

11 going to drastically change.

12 MS. HOWARD-ROSE: Have you visited a wind

13 park anywhere?

16

MR. BENNETT: I have not yet. I have been

15 near them, but not up close to them.

MS. HOWARD-ROSE: I was going to suggest you

17 keep going up 39 and go up to Bliss.

18 MR. BENNETT: I've seen them, but like I

19 said, it has been from a distance.

20 MS. HOWARD-ROSE: And stand the 50 feet away

21 and listen to what you can hear.

22 In my 82 year old mother's words, she said,

23 that noise would put me to sleep. It's very, very

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affect everybody here and it's going to affect

everybody for the rest of their lives here.

3 It's just like I said, I feel any

notification that has been made here is in adequate

5 and needs to be readdressed. That counts for both

6 towns, Town of Hanover and Town of Villenova.

I know there is going to be a mixture of

3 comments and questions. I have both. I moved into

9 the area eight years ago from Tonawanda. I wanted

10 to get out of the city and now all of a sudden the

11 city's following me out here.

12 It's -- I've done some research into it. I

13 tried to go into it with an open mind. The more I

14 look into it, the more I don't want it there. And

15 like I said, everybody has a right to their

16 opinion. I do too.

Like I said, the one thing is a major visual

18 impact. According to your books, from my house

19 I'll be able to see 42 out of the 60 turbines. The

20 closest one will be just a hair over half a mile

21 from my house.

22 I don't know what it's going to do as far as

23 sounds. I'm a truck driver. I need my sleep. If

1 quiet.

2

MR. BENNETT: I've heard that from many

3 people. But I've also heard the opposite from

4 people who live right next to them too. So I don't

5 know what to expect.

6 MS. HOWARD-ROSE: I just suggest that you

take to ride up to see.

8 MR. BENNETT: I understand. I agree with

9 you.

10 MS. HOWARD-ROSE: That will give you an idea

11 also of what they look like when they are in the

12 landscape.

13 MR, BENNETT: Yeah, That I have seen and

14 it's --

15 MS, HOWARD-ROSE: When you're sitting up on

16 a road and look across and see what they look

17 like -- and we've been definitely taking that into

18 eonsideration as we move on in this project.

19 MR. BENNETT: Like I said, I don't expect I

20 can stop anything from eoming in, but I'm darn well

21 going to stand up and give you my opinion.

22 I mean, I work just as hard as anybody else

23 for my property. I looked -- gosh, I looked for a

- 1 house for over two and a half years, trying to find
- a house that I was going to spend the rest of my
- life in. And like I said, this is drastically 3
- going to affect that.
- 5 I believe that a person has the right do
- what they want with their property until it crosses 6
- 7 the line of how somebody else can enjoy their
- 8 property.
- 9 Another question I have, you said it was a
- 10 200 million dollar project. Percentage-wise, what
- of that is coming from the Federal and from the
- 12 State?
- 13 MR. SPITZER: None of it will come from the
- 14 Federal or State. All the credits will be paid
- 15 based on generation.
- MR. BENNETT: I mean the money to build the 16
- 17 Project and all that. Because I heard that it was
- 18 65 percent coming from Federal and 10 percent from
- 19 State.
- 20 MR. SPITZER: Now you've learned one thing
- 21 for sure. Whoever told you that shouldn't be
- 22 trusted. Zero from the State. Zero from the
- 23 Federal.

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- 1 All the money that goes into every wind farm
- that has been built in New York is 100 percent
- 3 private.
- 4 They may sell some of the benefits like tax
- credits. They may sell them to private companies.
- GE Capital buys invest tax equity financing, so
- 7 they may get the production tax credits.
- 8 But the way the Federal and State subsidies
- 9 work is they are paid based on production. There
- 10 is absolutely zero dollars of any kind that I am
- 11 aware of -- and you all correct me, or the
- 12 engineers correct me, but there is absolutely zero
- 13 State and Federal dollars to subsidize
- 14 construction.
- So whoever told you that doesn't know what 15
- 16 they're talking about.
- 17 MR. BENNETT: So no Federal money is
- 18 going -- no taxpayer money is going into
- 19 instruction.
- 20 MR. SPITZER: None into construction.
- MR, BENNETT: Per the leases or anything 21
- 22 like that.
- 23 MR. SPITZER: No. I am going to be upfront.

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8

13

- 1 Where the subsidies are of State, Local, and
- Federal are always on the production end.
- 3 Relief from real property taxes, relief from
- 4 mortgage taxes, what the IDA offers them, a
- production tax credit, renewable energy credits are
- 6 what the State and Federal Government offer them.
- The Feds also offer them accelerated depreciation.
  - THE WITNESS: Okay.
- 9 MR, SPITZER: But there is no Federal, State
- 10 money in the construction.
- 11 MR. BENNETT: With the money, you just said
- 12 about \$8,000 per turbine --
  - MR. SPITZER: Per megawatt.
- 14 MR. BENNETT: Per -- well, is that --
- 15 MR. SPITZER: I think they are proposing 1.5
- 16 megawatt turbines.
- 17 MR. BENNETT: That's what the towns are
- 18 looking at -- or the County is looking at getting
- 19 per tower.
- 20 MR. SPITZER: That's what the town, school,
- and county has been offered in other communities 21
- where Noble currently has projects and what they
- are unofficially telling us they expect to make as

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- 1 an offer.
- 2 And you heard the one gentleman talk about
- 3 financing. If Noble has, let's say, a three year
- 4 delay and other projects around the State get more
- money, you should assume that your Board is not
- 6 going to accept a discounted fee.
- 7 I mean, again, I think I can speak for the
- 8 Board. They expect to get paid what the market
- 9 rate is. Every project and economics is different.
- Here in this town, you have a very long line to get 10
- 11
- to the grid, which is very expensive.
- 12 You don't have that, for example, in Steel
- 13 Winds. It literally is like 50 feet that they had
- 14 to go to reach a substation, so it depends.
- 15 Yeah. So it's about 12 -- 12,500 a turbine
- 16 is what --
- 17 MR, BENNETT: Okay. And is there -- as far
- 18 as being split, how much will actually go to our
- 19 community?
- 20 MR. SPITZER: That depends on --
- MR. BENNETT: I know about IDA and stuff 21
- 22 like that.
- 23 MR. SPITZER: IDA is a separate pot. I know

10

23

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- 1 there has been a lot of stuff in the newspaper
- 2 about Cattaraugus County and that they are fighting
- 3 over money over there. There is a lot of what is
- 4 in the newspaper that is wrong. Whatever money the
- 5 IDA gets is their fee, which is one percent of the
- 6 Project.
- 7 That's a separate pot from the money that's
- 8 offered to the town --
- 9 MR. BENNETT: It's not taking away from my 10 community.
- 11 MR. SPITZER: It doesn't take away a nickel.
- 12 MR. BENNETT: Okay.
- 13 MR. SPITZER: And I get that question a lot
- 14 ever since the Cattaraugus County people started
- 15 fighting with each other because there was a lot of
- 16 confusion in the newspapers.
- 17 But the IDA fee is totally separate than the
- 18 offers of money to the community. And how much
- 19 each town, school and county gets, that's the
- 20 subject of -- basically arm wrestling that we met
- 21 on as recently as last night, I believe.
- 22 MS. PARK: Right.
- 23 MR. SPITZER: So that arm wrestling, if you

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- MR. CROWELL: Howard Crowell, C-R-O-W-E-L-L. 1
- 2 MR. BENNETT: Another thing I want to bring
- 3 up is, Noble says it will not negatively effect
- 4 property values.
- 5 I really don't see how that can happen. If
- б I go to sell my house, I'm going to have a number
- of people come to look at that. A certain number
- of people are going to be turned away because they
- 9 don't want to live next a wind farm, you know?
  - So fewer people, that means the price of
- 11 that house is going to go down to sell it.
- 12 MR. SPITZER: There -- you can get on the
- 13 Net and there are a lot of studies that have
- 14 already been done and they asked and I guess the
- 15 DEIS did one for this area.
- There is no evidence that wind sales -- wind 16
- 17 farms lower property values. And in a number of
- towns, because of the significant tax reductions,
- 19 there is at least anecdotal evidence that they
- 20 significantly raised property values.
- 21 Because people who don't mind the windmills
- 22 want to live in a town that has lower taxes.
  - I think you hit it on the head. I've done a

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- lot of tax assessment work in my own career and I
  - think, like you said, a person who can buy a house
- 3 either with the windmills or without the windmills
- may be somebody who doesn't want to look at
- 5 windmills and doesn't look at the taxes, so you may
- lose a buyer for that reason.
- 7 But I don't know if that's going to be
  - quantified. I have to tell you, we now have eight 8
  - or nine operating wind farms in New York and
  - there's no evidence of decline of property values 10
  - anywhere in the State. There is evidence of 11
  - 12 increases in property values.
  - 13 MR. BENNETT: Another thing I have, now this
  - 14 is from the Internet, something that Glen Cramer, a
  - councilman from Sheldon, had mentioned. I don't
  - 16 know who did the wind farm out there.

  - 17 MR. SPITZER: My clients did, Invenergy.
  - MR. BENNETT: But it said that they brought 18
  - in 2,000 loads of industrial waste from Bethlehem 19
  - Steel and worked it into the thousands of other 20
  - 21 loads of crushed stone.
  - 22 MR. SPITZER: Yes.
  - MR. BENNETT: I want to know, is that -- did 23

will, is ongoing as to how the entities will split

2 it up.

7

- 3 MR. BENNETT: Okay. That's the only thing
- that will help me deal with it if it's helping my 4
- 5 community sufficiently to make it worth the cost of
- 6 what we're all going to sec.
  - MR. SPITZER: I don't think anyone on the
- 8 Board would disagree with you. That's the bottom
- 9 line absolutely.
- 10 And I really don't think you should feel
- 11 like you should suppress your opinion or negate
- your opinion. The Board is going to listen to what
- 13 you have to say just as they did for the others.
- 14 I would also encourage you, not only to
- 15 visit the windmills, but as I said, we're going to
- 16 take written comment. You can go out and visit
- 17 them and you have some comments, okay, now, I've
- 18 gone and seen them. Here's my comments. Don't
- 19 hesitate to supplement your comments.
- 20 MR. CROWELL: Down in Castile, they did away
- 21 with the taxes after their windmills were put in
- 22 their township.
- MR. SPITZER: Your name please, sir. 23

- 1 that happen? Can that happen here?
- 2 MR. SPITZER: Absolutely. Why not? There
- 3 is 20,000 tons of that stuff in Upstate roads.
- 4 Mr. Cramer is a long time wind opponent who is on
- 5 the Board and he is still trying to kill the
- 6 project even though they have almost built it.
- 7 I actually did a tax case for Bethlehem
- 8 Steel so I know that property really well because I
- 9 represent the City of Lackawanna.
- 10 And starting in about the 1890's, Bethlehem
- 11 would produce this slag and it started pushing the
- 12 slag literally into the lake. Most of the property
- 13 on the west side of Route 5 is actually slag, not
- 1.4 --- the west side of Route 5 is detainly side, i
- 14 real property, at the Bethlehem plant.
- 15 In Bethlehem, they operated for 90 years one
- 16 of the largest steel mills in the world. Starting
- 17 in about 1983, Buffalo Crushed Stone started mining
- 18 that stuff.
- And they mine about 25 million tons which
- 20 the DOT has used in roads all over the place. It's
- 21 industrial slag that the DEC specifically approved
- 22 it for the Sheldon Project.
- 23 There's a letter that the DEC wrote that

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- 1 affect that, so --
- 2 MR. SPITZER: It's a perfectly legitimate
- 3 question. But the company made awfully sure that
- 4 it was approved and not a problem long before they
- 5 used it.
- 6 And what was interesting, Mr. Cramer happens
- 7 to be in the opposition. He is opposed to the
- 8 project. He's the only one of the Board who is.
- 9 The town engineers had asked these questions
- 10 that Mr. Cramer raised in the paper four months
- 1 ago, long before they ever allowed it.
- 12 It was approved by the Town. And it was,
- 13 you know, the Town engineers had made sure the DEC
- 14 had said it was safe.
- 15 MR. BENNETT: Okay.
- 16 MR. SPITZER: And this stuff has been
- 17 sitting in Lake Erie for 80 years without causing a
- 18 problem.
- MR. BENNETT: Like I said, I just had to
- 20 ask.
- 21 MR. SPITZER: Noble, to my knowledge, has
- 22 never used it. They just use gravel. I won't
- 23 speak for them. The only reason I would say I know

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- 1 said, yes, this stuff in fine. And there's a
- 2 gentleman named Paul Wortman, who was the engineer.
- 3 Someone asked him at the Town Board the other day,
- 4 what will this do to my well?
- 5 And he said, well, if you put the slag in a
- 6 glass of water, you could drink the water.
- 7 MR. BENNETT: Okay.
- 8 MR. SPITZER: The water -- it's basically,
- 9 it's not toxic. It's not contaminated.
- 10 MR. BENNETT: So it's --
- 11 MR. SPITZER: It's not --
- 12 MR. BENNETT: -- no other kind of hazardous
- 13 waste or anything like that?
- MR. SPITZER: No. As I said, it has the
- 15 beneficial use determination from the DEC, so it
- 16 can be used that way. It's used in roads all over
- 17 Western New York.
- 18 Mr. Cramer is a bit exaggerating his
- 19 viewpoint is a polite way of saying it.
- 20 MR. BENNETT: It was just something I saw in
- 21 there that struck me as, you know, industrial
- 22 waste, Like I said, I have a water well.
- 23 Everybody in here does. It's big if it's going to

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- 1 about it is because I represented the company in
- 2 Sheldon.
- 3 And if you're interested, I can get you the
- 4 letters from the DEC. It's perfectly safe.
- 5 MS. HOWARD-ROSE: I hauled a lot of it. I
- 6 hope it's not toxic.
- 7 MR. BENNETT: Maybe that's why you are the
- 8 way you are.
- 9 MS. HOWARD-ROSE: It could be.
- 10 I just wanted to address the aesthetics.
- 11 I'm known as not wanting to change anything. Ever.
- 12 I don't want that tree taken down. And this --
- MR. BENNETT: That's why I moved out to the
- 14 country.
   15 MS. HOWARD-ROSE: I understand that. And
- 16 every time there's a change, it's like I grieve17 over it. And so when we went up to Bliss, I was
- 18 prepared to say, I hate this.
- 19 And after I got up there, I do have to say
- 20 that after watching them and looking at them over
- 21 the landscape, I sat there and finally said, you
- 22 know, they are nice. They don't detract. And of
- 23 course, that's my opinion.

Page 51 Page 49 1 MR. BENNETT: Everybody's entitled to their 1 MR. SPITZER: Can I have the next list? 2 2 own opinion. MS. PARK: That is just for people who 3 MS. HOWARD-ROSE: And everyone is entitled 3 signed in. 4 to their own opinion. But just letting you know 4 MR. SPITZER: That's only sign in. that I was one of the people who thought, oh, don't 5 Well, that concludes our list. Who else do this. And then realized that they really are 6 would like to make comments? 7 7 not horribly detracting from anything. MS. ERMER: I would. 8 MR. BENNETT: Okay. 8 MR. SPITZER: But stand up so she can hear 9 MS. HOWARD-ROSE: So I do encourage you to 9 you. 10 go up and take a look at them. 10 MS. ERMER: I will. I had heard that there 11 MR. BENNETT: I have been near them. I is something -- that Noble was being investigated 12 haven't been up to them. 12 by the Attorney General's office of New York State. 13 MS. HOWARD-ROSE: It's kind of a fun drive. 13 Do you know anything about that. 14 And take something to eat because there's no 14 MR. SPITZER: I know a lot about that. But 15 restaurants. 15 I do not represent Noble. I don't know if you want 16 MR. BENNETT: I think the last thing that's 16 to comment on it. 17 on my list that I wanted to ask now is, what -- get 17 The allegations were that Noble and another an explanation of what are good neighbor 18 company had allegedly -- and it really wasn't 19 agreements, stuff like that. Who gets them? Why? necessarily against Noble, it was more against Town 20 MR. SPITZER: That's a private matter 20 Board members that had contracted, but really had 21 between the company and them. I mean, if Noble 21 continued to participate in agreements. 22 22 wants to answer that, it's up to them. But And every wind opponent in the State threw 23 actually it's none of our business as a Town. 23 everything they had up to the Attorney General. Page 50 Page 52 MR. MCCARTHY: Kristin and I don't really They have been investigating. 1 deal with the land work. We deal with the 2 2 If you go on to the Attorney General's 3 environmental. 3 website, he announced today an agreement with Noble 4 MR. BENNETT: Okay. So is that basically 4 and with First Wind, which is the other thing that 5 confined to the people that are within that green 5 they did, was to basically set up an ethics panel. map? 6 He said the investigation is still 7 7 MS. K. MCCARTHY: The people who have them continuing, but it certainly had nothing to do with Villenova. 8 currently are shown on the map. 9 MR. BENNETT: Okay. So the only people that 9 MS. ERMER: No. I know it was for other --10 are going to be approached are the ones within the 10 but I was just wondering a little bit about that 11 grid. 11 because it sent up a little bit of a red flag, 12 I have heard nothing from the wind company 12 like, they are being investigated by the --13 MR. SPITZER: I can tell you that this Board 13 at all. And like I said, I'm a hair of over half a 14 mile from them and I've got neighbors that are 14 has spent a considerable amount of time on the pretty close and they have heard nothing either. 15 issue that the AG has talked about, which is 16 conflicts of interest. 16 MR. SPITZER: Normally they don't offer them 17 to anybody unless they need a setback. So if 17 And they made very sure that even the hint 18 of it does not cross the path. And one member has 18 you're a half mile away, it is not unusual that 19 they wouldn't offer them. 19 recused himself because his wife may have a 20 Again, the Town doesn't regulate the good 20 contract some time in the future, right? 21 21 neighbor agreements. It's none of our business. MR. CHASE: I don't know. 22 MR. SPITZER: She doesn't now, but she owns 22 MR. BENNETT: Again, just a question I 23 wanted to ask. Thank you. 23 a piece of property that is involved.

- 1 MR. CHASE: She owns a piece of property
- 2 that shows on the map. It could be part of that
- 3 parcel in the green.
- 4 But I really think that it was just in the
- 5 drawing up of the map. The line was not on the
- 6 property line where it belongs.
- 7 MR. SPITZER: He recused himself from the
- 8 last vote just so that there is absolutely no
- 9 question.
- 10 This Board has gone out of its way, so
- 11 there's no questions here, I mean --
- 12 MS. ERMER: Well, I just heard about that
- 13 and I was, like, oh, what's that all about?
- 14 MR. SPITZER: It's a perfectly legitimate
- question. Again, I don't know if our friends from 15
- Noble want to say anything. They probably are not
- authorized to. You can get on the AG's website
- because he settled the case with them today. 18
- 19 MS. ERMER: Okay. Thank you.
- 20 MS. HOWARD-ROSE: I only have 1.8 acres.
- 21 They won't put it on my property. So you don't
- 22 have to worry about me.
- 23 MR. SPITZER: Anyone else? I'm sorry. He

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- MR. MCCARTHY: As far as I'm aware, there's 1
- 2 only one to a sub to a site that is nonunion. All
- the rest have all been union, Electrical, Steel.
- 4 MR. SPITZER: I know most of the companies
- 5 that I'm aware of are union shops.
- MR. NOBLES: Okay. Good. 6
- 7 MR. SPITZER: Yes, ma'am.
- MS. N. MCCARTHY: My name is Nadine McCarthy 8
- 9 and I live in Forestville, but I also own property
- on Roundtop. 10
- 11 So I agree with this gentleman with the lack
- 12 of notification to landowners. I also agree with
- his concerns for the visual impact because I too
- 14 brought -- bought the property because I loved the
- 15 view and just the nature up there.
- 16 And I rode to Bliss. And I didn't like how
- it looked and it was very upsetting to me. And 17
- some of my concerns too are more directed towards 18
- 19 Noble which I don't have to get into tonight, but
- when I did address some of my concerns and ask
- questions, well, the response was always, go to
- 22 Bliss or Arcade.
- I'm thinking, well, take me there or 23

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6

- 1 is quicker than you.
- 2 MR. NOBLES: Norris Nobles and I live in
- South Dayton, New York. And I was wondering, I
- have always been a union man. Are you using jobs?

MR. SPITZER: To my knowledge, most of the

- 5 Using the union or union labor?
- 7 was Steel Workers Union. It has always been the
- 8 Iron Workers.
- 9 THE WITNESS: It's not an iron workers or
- 10 carpenters that build the form and all that stuff.
- 11 MR. SPITZER: I don't know --
- 12 THE WITNESS: They don't usually have half
- 13 union job. It's either all union or partial --
- 14 MR. SPITZER: I know there has been no
- protest at the wind farms in Wyoming County, so I'm 15
- 16 assuming they are all union jobs.
- 17 MR. NOBLES: There are a lot of people and
- taxpayers in this area which have made their living 18
- 19 through the different unions.
- 20 MR. CROWELL: Operators all have been
- 21 working down there.
- 22 MR. NOBLES: They have?
- 23 MR. CROWELL: Yeah.

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7

- something. You know, don't just throw that out.
- That's not the way -- you don't deal with people
- that way, if you're on the up.
  - I don't know. For a business, I thought
- that was kind of a poor approach or response. If
- 6 the community benefits, that's a great thing.
  - But yet, again, my concern was that this
  - wasn't my intention for the property to look at
- 9 what I'm going to have to be looking at and dealing
- 10 with.
- 11 So it's a disappointment to me that way and
- 12 I hope down the line if I have to sell the
- 13 property, I can sell it and benefit from the sale,
- 14 but right now I am very disappointed.
- 15 And I was hoping to retire up there and
- enjoy it. But at this point in time I don't think
- that was going to happen. I don't have anything
- 18 else to say, but I just wanted to agree with him.
- 19 MR. SPITZER: Do you want to ask us any of
- 20 the questions that you asked them that you don't
- 21 feel were answered or --
- 2.2 MS. N. MCCARTHY: It was just the -- about
- the noise and people don't like what they look

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1 like. The generators. It just -- I had a lot of

questions and what the revenue was going to be from 2

3 them.

6

7

8 9

4 And actually the first fellow that I talked 5 to, I got different answers from him than the 6 second person that came around. And the second 7 person when I told him, what about -- well, you're 8 way lower than the first guy.

9 He shook his head and said, well, we don't 10 have those kind of turbines up there. Those are bigger ones that are going to generate that kind of 12 revenue.

13 So it was like, I'm thinking, you guys are 14 not on the up and up. You seem like you are kind 15 of scamish or something and you are already out of 16 the Fredonia office, so from --

17 And then when we make phone calls, you don't 18 get return calls. And you hear the beep on the answering machine that they must have several. 19

20 And then the response is, when you do get a 21 call back, well, I'm busy going around on other projects. I don't like as a business how they deal 23 with people and the landowners.

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West Valley for 14 years and all the farms there 2 were cut up into little parcels.

3 And everyone has a dog. Everyone has got 4 noisy cars. And this will actually really benefit 5 all the farmers because you'll have a little bit 6 extra income and it is hard to make -- I'm trying 7 to make money as a farmer. And all my neighbors are trying to make money as farmers.

We won't have to sell off five acres to pay 10 the taxes. Taxes in New York State, for the same sized farm, they are \$850 for 150 acre farm for the 12 school and the Town taxes.

13 And out here, I won't have to tell you that it will probably be a lot more than that. Ten 14 15 times that. All the farms that I've talked to, not just including this one, but they are all very 16 17 happy for it.

18 Even people who have lived in the country a 19 long time, I know that people -- it sounds like the 20 people that lived in the city that came out here 21 are the ones that are opposed.

22 But the people that, you know, were born and 23 bred here, you know, just keep that in mind. It's

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And, again, there's specific landowners that 1 2 have to deal with this and I think they should be compensated somehow. And whoever said the fair --3 4 the good neighbor agreement or something just 5 because you're being inconvenienced.

And not to be compensated, I think is wrong. And the people who are pushing for it, don't see that. Their properties are not affected by it other than the fact they might get a tax 10 break or something, but they are not dealing with 11 these things right in their back door.

12 MR. SPITZER: You want to comment? 13

MR. BARNES: I'm Robert Barnes. I live on 14 Pope Hill Road. I would say for probably 15 years 15 we love our farm. We love the area. And I can

tell some of the people that we're -- we're -- I 16

researched it for about a year because our property 17

18 is included, so -- and it sounds like the Town will

19 be making a little bit more than us, which is fine,

20 you know, because they disburse it around. 21 And another reason I was glad about this was

22 because, not apart from money, but aesthetically a

23 lot people don't think about this, but I lived in

aetually going to help keep the landscape farming.

And they are not very close together.

3 I've been to Bliss. I have a hard -- you 4 can usually only see -- just a few places you can 5 see more than ten at that time.

In my opinion, I mean, everyone lives on a different road or -- so --

8 MR. SPITZER: Anyone else have a comment? 9 MR. EATON: I'm William Eaton. I am from

Cattaraugus. I own property up here on the

Villenova Road and Roundtop Road, 120 acres. 11

12 I am wondering if they acquired the transfer 13 line property that goes out to the transfer 14 station?

MR. MCCARTHY: I believe most of the 15 transmission line has been acquired. We haven't --16 we've got easements to get from the Project to a 17 substation, the connection. 18

19 MR. EATON: Has it been sited for the 20 roadways that go to the turbines? Is there a map 21 that's been produced for roadways that go to the 22 turbines?

23 MR. MCCARTHY: Yes.

#### Page 61 Page 63 1 MR. EATON: Where would I get that? community, if you live in the community, a project 2 MS. K. MCCARTHY: Town Hall. Noble's like this that has been brewing for three to five 3 website. 3 years, everybody is going to have heard of it. 4 MR. BENNETT: It is in volume three. That 4 If you don't live in the community or just 5 shows the intersection improvement and stuff like 5 have property, it may be a surprise. But on the that, but the volume one will show the roadways for other hand, you're here. And I'm not sure what 7 the turbines. 7 other notice there would be. The notice that we've 8 MR. EATON: I would tend to agree with you given is what State law requires. 9 on your notifications. I don't know how it 9 MR. EATON: I understand that. But it would 10 occurred. I don't live in the Town of Villenova 10 have been interesting to have something put -- the 11 and I don't buy the Observer paper, which I came by taxes got to me just fine. The notice to where to 11 12 today. But as a landowner and part of the Project, 12 find the notice to the information about the 13 I don't know how you would get information short 13 meetings or any information to have here would have 14 of -been appreciated. 14 15 MS. PARK: We have -- we have the Observer 15 MR. BENNETT: 1 think something of this 16 is our official paper and we have public notices 16 magnitude really, I mean, a town-wide mailing I 17 just like we're required to do and we put it in in 17 think is what should have been done. 18 plenty of time. 18 Yes, it's a cost. But like I said, 19 MR. SPITZER: Just like any public notices. 19 everybody has an opinion, but they have to be 20 UNIDENTIFIED FEMALE SPEAKER: Where? 20 informed before they can make that opinion. 21 MS. PARK: Observer. 21 And like I said, I don't feel that the 22 UNIDENTIFIED FEMALE SPEAKER: What about if 22 notification, and even though it's legal, I don't 23 you don't buy the Observer, you can't --23 feel it's sufficient. Page 64 Page 62 1 MR. SPITZER: First you have to identify 1 Like I said, this is a massive project. yourself. It's going to affect everybody. 3 UNIDENTIFIED FEMALE SPEAKER: No. I will MS. PARK: Let me address that. We have our 4 monthly meetings that are at 7:30 the second 5 MR. SPITZER: You don't have to shut up. Wednesday of the month. If you'd like to come and 6 She just needs to be able to identify you for the sit in, you're more than welcome and then you're 7 record. We want to know what you have to say. going to find out what is going on. 8 UNIDENTIFIED FEMALE SPEAKER: No. That's 8 MR. BENNETT: I do. I go to the Town of 9 9 Hanover meetings. fine. I just want to listen. 10 10 MR. SPITZER: You know, the problem, first MS. PARK: I know you do. 11 of all, for a public notice that doesn't work, it 11 MR. CHASE: I'm Don Chase and I'm a 12 councilman from Villenova here. 12 seems to have worked pretty well in the case of the 13 Do we have anyone here from the meeting here 13 three people that were concerned about it. 14 New York State Law lays out how you do 14 tonight? 15 public notice. It says that you put an official 15 MS. PARK: That's our trouble. 16 notice in the newspaper of record of the town and 16 MR. CHASE: There's your answer. 17 that's how you get notice out of public hearings. 17 UNIDENTIFIED FEMALE SPEAKER: Because we 18 That's the way it is on any every land use 18 don't watch TV. UNIDENTIFIED MALE SPEAKER: We don't have a 19 matter and that's how it's done here. And the 19 20 newspaper reporter here either. 20 notice is intended to be sufficient to let people 21 know of something that might be of interest to 21 MR. SPITZER: We have a newspaper reporter 22 them. 22 that doesn't show up to the meetings to report on

23 it. We have to shoot somebody to get TV here.

23

So it's -- it's -- I recognize in a small

8

1 Other questions? Comments?

2 MS. ERMER: I just want to make one more

3 comment in response to the fellow -- I don't know

if he's still there.

MR. SPITZER: He is still there.

6 MS, ERMER: Diana Ermer again, I may

7 have -- we moved here a little over nine years ago,

but I'm not a city person. I just want to clarify

9 that.

5

10 I'm not a native from Villenova, but I've

11 always lived in the country and grew up on the farm

12 and I don't want to sound, you know, like a nimby,

not in my backyard, but that's -- I just wanted to 13

14 let people know that.

15 I mean, we moved out -- we loved the view.

16 We loved the house. We fell in love with it

17 sitting on the front porch the day we came to look

18 at it.

5

19 I've always lived in the country, but I

20 lived in the flatlands. And I loved that when I

21 came out here, I was like, oh, this is so

22 beautiful. I can see the lake, I can, you know, it

23 was just like heaven.

1 One is the availability of leased land, the

> 2 availability of large parcels of land. If you

have -- one of the problems, for example, they are

Page 67

Page 68

having in Arkwright, their project, which is a

5 different company from ours is, there's a lot of

land that's broken up into small parcels.

7 So you have to have available land. You

have to have available wind resources. And a lot

9 of people will say, gee, it's always windy here.

10 You have to have wind sustainable of a

11 certain speed and usually 7 1/2 meters per second

12 over a period of time to make the project

13 worthwhile.

14 You have to have it not to too close to

15 other wind turbines so that you don't get into

16 turbulence or other issues. You have to not be in

17 a protected area in terms of streams or other

18 environmental type of things.

19 There's a whole set of criteria that -- you

20 start with these AWS true wind maps that a company

called AWS in Albany prepares and everybody sort of 21

22 uses those like the gold prospector treasure maps.

23 And then you have to get a lease there and

Page 66

you have to have access. You have may have a great

hill, but if the people who have access to that

hill in front of that hill say, we're not going to

give you a lease, go away, you can't get to that

hill, then there's no project on that hill.

I'm not speaking for them, but these are all

the things that go into siting. And I don't know

in your case where the company tried to lease land

9 in your area or --

10 MS. EASTERLY: Nobody did because I never

11 heard anything about this.

12 MR. SPITZER: I suspect that there is not an

13 adequate wind resource there. If they can get into

14 the rest of the system, they should be.

15 UNIDENTIFIED MALE SPEAKER: Maybe what I can

16 say is, they are worried because their hill is

17 being ignored, but one hill at a time.

18 I've heard rumors of a possible project

going on on the other side of the valley so, but 19

just because Pope Hill has it or some of Roundtop

21 has it, doesn't mean they won't someday in the

future want to put windmills on another hill. 22

MR. SPITZER: I was talking to another

1 But anyway -- just -- I'm not a city person. 2 Not that there's anything wrong with city people

3 moving out, but just to kind of let them know that. 4

MR. SPITZER: Remember folks, the Board wants your opinion. You don't have to justify your

opinions or defend yourself in any way. 6

7 The Board wants your comments and your 8 opinions, but don't feel like you have to defend

9 yourself in any way.

10 Anyone else or we can close the hearing, if 11 there's no one else.

12 MS. EASTERLY: Why Roundtop?

13 MR. SPITZER: I am sorry, what?

MS. EASTERLY: Christine Easterly. I live 14

15 over on Dybka Road.

Why Roundtop? Why out of all the areas --16

17 why a north hill versus south hill?

18 MR. SPITZER: I would suspect it has to do

19 with where the wind resource is.

20 MS. EASTERLY: I get just as much wind up

21 there as I am sure they get up on that hill.

22 MR. SPITZER: You would be surprised. There 23 is a number of reasons that go into siting.

23

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that.

System Operator, NYISO.

able to sell your electricity.

the New York ISO.

They -- that basically is the grid. When

And in order to have a project, you have to

get a connection to the grid because you have to be

So anybody who's got even an inkling of a

project, who wants to get in with the queue -- get

only so much room on the grid, you want to be in

Charlotte. I think I remember somebody told me

MR. SPITZER: First Wind, which is the

people who built Steel Winds and built Cohocton.

look and there's hundreds of projects of wind, gas,

So -- but if you get on that website and you

in with the line, because basically if there is

front of the guy who might otherwise take it. There is a project, as I recall, for

MS. PARK: Yes. First Wind.

you talk about the electric grid, the people who

own it are the various utilities and it's called

#### Page 69 project developer in the middle of the State yesterday and their project is 79 megawatts. 3 And they specifically left out turbines 4 because if you go past 80 megawatts, the Public 5 Service Commission has to approve the project. 6 If you're under 80 megawatts, the Public 7 Service Commission has to stay out of it. And 8 frankly, to stay away from another State agency was 9 worth it to them. 10 So there's all sorts of factors that could 11 go into where they choose to put a project. I 12 think the Board member said as -- or this gentleman said, the Board is focused on the fact that the 13 14 impacts are community-wide. 15 And that's what tonight is about, is talking 16 about the impacts and what those impacts are and 17 whether the Project is worthwhile given those 18 impacts. 19 Would you like to say something? 20 MS. WISE: I'm Barbara Wise. I live right 21 here in Hamlet. 22 Maybe if you stop and think about it, if 23 Cherry Creek does something like this, you might be Page 70 1 included in that. Cherry Creek is right on the 2 border. 3 MR. SPITZER: I know where Cherry Creek is. 4 MS. WISE: I mean the road they live on 5 is --MR. SPITZER: I've gotten lost on all the 6 7 roads around here. 8 MS. EASTERLY: And we have a South Dayton 9 address -- South Dayton phone number and a Cherry 10 Creek address and live in the Town of Villenova. 11 It's just that Townline Road is a town line

12 and we are included in some things because of where

UNIDENTIFIED MALE SPEAKER: I heard rumors

13 we live and we are not because of where we live.

16 of projects in Cherry Creek and even the Town of

19 There's a project planned for the Town of

20 Charlotte, but here's how you can tell what's

MR. SPITZER: Here's what you can do.

If you get on a website of an organization

23 called the New York ISO. The New York Integrated

We're saying --

14

15

18

22

17 Charlotte.

21 really out there.

#### coal, every electric project in the State of New 23 York is on there.

Page 72

1 But that -- if you're on that, that will tell you where every single project is real or 2 3 imaginary, but, yeah, I heard Charlotte was looking 4 at one also. 5 You know, I have -- there's one project 6 going on in Allegany County, in the northern part 7 of the County that's Noble is doing. And I get 8 calls all the time from clients and municipalities 9 from the southern part of the County where the 10 hills are higher and steeper. 11 And they don't understand when I tell them 12 that the reason they don't have any projects going 13 on down there is because there's no winds. It's 14 not -- there is just no economically viable wind near enough to transmission lines. 15 16 And it doesn't make sense to them because 17 they think that that part of the County is windier. 18 There's a lot of factors that go into that. 19 Sometimes you just have the easiest thing in the 20 world, Steel Winds on Lake Eric. Can't get better 21 winds. Bethlehem Steel steel abandoned four totally

22 23 new substations in place with some of the largest

	Page 73		Page 75
1	power lines in the State. Just dropped, you know,	1	STATE OF NEW YORK)
2	just a great place to draw up the project. And	2	SS:
3	nobody lives anywhere near there, so nobody has any	3	COUNTY OF NIAGARA)
4	flicker problems or anything else.	4	
5	But it's a very small project, but it's a	5	I DO HEREBY CERTIFY as a Notary Public in and
6	perfect example of siting. I don't know if you	6	for the State of New York, that I did attend and
7	want to say anything about siting, but that's my	7	report the foregoing hearing, which was taken down
8	understanding of siting.	8	by me in a verbatim manner by means of machine
9	MR. MCCARTHY: I think you pretty much	9 10	shorthand. Further, that the hearing was then reduced to writing in my presence and under my
10	covered it.	11	direction.
11	MR. SPITZER: Anyone else have any other	12	disection,
12		13	
13	written comments afterward. You certainly are not	14	
14	quieted.		***************************************
15	-	15	BONNIE S. WEBER,
16			Notary Public
17		16	
18		17	
19		18	
20	I mean, because a big basis on Chautauqua	19	
21		20 21	
22		22	
23		23	
	Page 74	-	
1	enough?		
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1~	- (Deposition continued at our plans)		

# T-2 Public Participation, 2016 SDEIS

Resolution of the Town Board of Villenova (Lead Agency)

The special meeting of the Villenova Town Board, held Jan. 27, 2016 at 1094 Butcher Road, South Dayton NY was called to order by Supervisor Ardillo at 7:00PM after the Pledge to the Flag.

Present: Richard Ardillo - Supervisor

Westley Tessey
Angelo Graziano
Keith Butcher
- Councilmember
- Councilmember

Absent: Sarah LoManto - Councilmember

**Others Present:** 

**Donald Michalak** - Town Attorney

Dan Spitzer - Outside Attorney - Ball Hill Wind Project

See Attached sign in sheet for complete listing

**Recording Secretary:** 

Julie Goodway - Town Clerk

**Richard Ardillo, Supervisor** turned the meeting over to Dan Spitzer, attorney for the wind project. Mr. Spitzer explained the process and the reason for conducting this special meeting. Basically the applicant (RES) is submitting the document – Supplemental Environmental Draft Impact Study to the board for review. The meeting consisted of representatives from RES addressing the key parts of the SDEIS, and each were given the opportunity to respond to questions from the board as well as the public in attendance.

\*\*\*A MOTION was made by Westley Tessey and seconded by Keith Butcher whereby a RESOLUTION ACCEPTING THE SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT UNDER THE STATE ENVIRONMENTAL QUALITY REVIEW ACT FOR THE PROPOSED BALL HILL WIND ENERGY PROJECT, THE CREATION OF A WIND OVERLAY ZONING DISTRICT AND THE REQUESTED AMENDMENT TO THE TOWN LAW

WHEREAS, on or about October 2008, the Town of Villenova Town Board ("Town Board"), acting as Lead Agency pursuant to the State Environmental Quality Review Act [ECL Article 8 and its implementing regulations at 6 NYCRRR Part 617] ("SEQRA") accepted a Draft Environmental Impact Statement ("DEIS") for the proposed wind energy project calling for the development of wind energy facilities, including wind energy conversion systems, access roads and utility infrastructure ("Project") in the towns of Villenova and Hanover;

WHEREAS, development of the Project continued with the submission of several revised layouts utilizing different turbine technology all within the same location or Project Area;

WHEREAS, as a result of the continued development, the Town Board required the preparation of an Supplemental DEIS to describe the revised Project, to identify impacts that were different than those identified in the DEIS and detail the proposed mitigation for such impacts;

WHEREAS, on or about October 29, 2015, in connection with the revision of the Project layout and decision to again utilize different turbine technology, the Town Board adopted a resolution confirming the continued development of the Project, recognizing Ball Hill as Applicant with all the rights and responsibilities of prior developers;

WHEREAS, the Town Board further confirmed its Positive Declaration of Significance, determined that the scope of the Supplemental DEIS should be the same as previously ordered with the addition of analyses of cumulative impact and the requested increase in maximum height, and ordered the preparation of a Supplemental DEIS for the Project;

WHEREAS, the Town Board's independent engineering and legal consultants reviewed the Supplemental DEIS prepared by the Project Sponsor, Ball Hill Wind Energy, LLC, and advised the Town Board as to its completeness and suitability for public comment and review; and

WHEREAS, the draft Supplemental DEIS was provided to the Town Board members for their review given their unique knowledge of the Town and its character, the Project and the Project Area;

NOW, THEREFORE, be it hereby resolved by the Town Board of the Town of Villenova as follows:

- 1. That the Town's engineering consultant's reviewed the Supplemental DEIS and recommended the Town Board accept it as complete for purposes of public review and comment;
- 2. That the Town Board received and reviewed the Supplemental SDEIS and consulted with its consultants on the Project and the Supplemental DEIS;
- 3. That, based on the advice of its consultants and the Board's own review, the Supplemental SDEIS provides the information required by 6 NYCRR 617.9, and is hereby determined to be adequate and is accepted as complete for the purpose of commencing public review and comment;
- 4. That the Town Board shall accept written comments on the Supplemental DEIS for a period of 45 days up to and including March 14, 2016 at 5 p.m. All written comments (including comments delivered by email) shall be submitted to the Town of Villenova Town Clerk, 1094 Butcher Road, South Dayton, New York 14138 (villenova@hughes.net);
- 5. That a public hearing ("Public Hearing") on the Supplemental DEIS, the proposed local laws creating a Wind Overlay District and changing the maximum height requirement and required Project waivers, permits and approvals shall be held on March 2, 2016 at 7 p.m. pursuant to SEQRA and the Town of Villenova Wind Energy Facilities Law at the Hamlet United Methodist Church, 1119 Route 83, South Dayton, New York 14138 or other similar facility as determined by the Town Supervisor;
- 6. That, pursuant to 6 NYCRR 617.12, Ball Hill is directed to prepare, file and publish, as appropriate:

- all required SEQRA notices of completeness including a notice in the Environmental Notice Bulletin,
- b. notice of the Public Hearing,
- c. to display the Supplemental DEIS on the Project website at <a href="www.ballhillwind.com">www.ballhillwind.com</a> in compliance with SEQRA, and
- d. otherwise to take all steps necessary to comply with applicable laws, statutes and regulations.
- 7. That the Town shall refer the Project, the requested waivers and the proposed local law to the Chautauqua County Planning Board pursuant to General Municipal Law Section 239-m as necessary and directs the Town's Special Counsel to submit the necessary documentation for such referral.
- 8. That Ball Hill shall distribute the Supplemental DEIS to all interested and involved agencies pursuant to SEQRA (Part 617.12) and place a copy of the Supplemental DEIS on file at the Town of Villenova Town Hall located at 1094 Butcher Road, South Dayton, New York and the Town of Hanover Town Hall located at 68 Hanover Road, Silver Creek, New York 14136;
- 9. That Ball Hill shall prepare and file the necessary disclosure pursuant to GML Section 809 regarding the interest, if any, of any town board members in the Project; and
- 10. That this resolution shall take effect immediately.

# **PASSED AND ADOPTED by the Town Board of the Town of Villenova** on the 27th day of January, 2016

ROLL CALL	Yea	Nay	Abstain	Absent
Supervisor Ardillo	X			
Councilmember Graziano	X			
Councilmember Tessey	X			
Councilmember Butcher	X			
Councilmember LoManto				X

\*\*\*A MOTION was made by Westley Tessey and seconded by Keith Butcher to adjourn meeting at 7:55PM.

#### Adopted:

Supervisor Ardillo Councilmember Tessey Councilmember Graziano Councilmember Butcher

Respectfully Submitted: Julie Goodway Villenova Town Clerk

# Special Meeting Villenova Town Board – Meeting Sign In Sheets

ime Addre

Name	Address
Mark Sweeney	Delmer NY
histin McCacthy	Alder NY
Spike PON Eyell	Forestille, Ny
Mike Morgante	Clarence, MY
MARKLYONS	Old Say brook. Ci
Dan Boyd	Old Saybrook CT
Jim tippin	Rochester, NY
Myar 4	Frestille
Heiry Park	forestville
Jua Dragano	Toustulle
BENNE BOTTETH	South Office
Sharn State	Dooth Deyton
Indy Philips	Toustrike
Leav Canghell	Forestvall
How Aid Crowd	Forestville
	· ·

Date: 1-27-120 Ball Hill Windpark

### Notice of Public Hearing on March 2, 2016 – Letter mailed to property owners

368 Pleasant View Drive, Lancaster, New York 14086 Tel: (716) 684-8060, Fax: (716) 684-0844

[Addressee]

Re: Ball Hill Wind Project – Notice of Public Hearing

Dear Sir/Madam:

PLEASE TAKE NOTICE that the Town of Villenova Town Board, as (New York) State Environmental Quality Review Act (SEQRA) Lead Agency, will hold a public hearing on the *Supplemental Draft Environmental Impact Statement* (SDEIS) for the proposed Ball Hill Wind Project; the proposed local laws creating a Wind Overlay District; and changing the maximum height requirement and required Project waivers, permits, and approvals; to hear all comments for or against the Project pursuant to SEQRA and the Town of Villenova Wind Energy Facilities Law on March 2, 2016, at 7 p.m. at the Hamlet United Methodist Church, 1119 Route 83, South Dayton, New York 14138.

Written comments on the SDEIS shall be accepted for a period of 45 days up to and including March 14, 2016, at 5 p.m. All written comments shall be submitted to the Town of Villenova Town Clerk, 1094 Butcher Road, South Dayton, New York 14138 (including comments delivered by email to <a href="mailto:Villenova@hughes.net">Villenova@hughes.net</a>).

Notice of Public Hearing on March 2, 2016 - Published in the *Dunkirk Observer* 

LEGAL NOTICE
PLEASE TAKE NOTICE
that a public hearing on
the Supplemental DEIS
for the proposed Ball Hill
Wind Project, the proposed local laws creating
a Wind Overlay District
and changing the maxmum height requirement
and required Project
waivers, permits and approvals to hear all comments for or against the walvers, permits and approvals to hear all comments for or against the Project shall be held on March 2, 2016 at 7 p.m. pursuant to SEQRA and the Town of Villenova Wind Energy Facilities Law at the Hamlet United Methodist Church, 1-119 Route 83, South Dayton, New York 14138. Written comments on the Supplemental DEIS shall be accepted for a period of 45 days up to and including March 14, 2016 at 5 p.m. All written comments shall be submitted to the Town of Villenova Town Clerk, 1094 Butcher Road, South Daytorf, New York 14138 (including comments delivered by email to Villenova @huches net) O-160199 Feb. 21, 2016 -Adv.

#### **AFFIDAVIT OF PUBLICATION**

State of New York

County of Chautauqua

City of Dunkirk

Sheila McWillson, being duly sworn, deposes and says that she is the Principal Clerk, for Ogden Newspapers of New York Inc. the publisher of The OBSERVER, a daily newspaper published in the City of Dunkirk, Chautauqua County, State of New York, and that a notice of which the annexed is a printed copy, was inserted and published in said newspaper on the following dates

Feb 21, 2016

Sheila McWillson

Signed before me this 22<sup>nd</sup> day of February 2016

ROSALEE J. OWEN

Note a Public, State of New York

Qualified in Chautauqua County,

My Commission Expires

Word 30.70/1

## Written Comments Pertaining to the 2016 SDEIS



Public Service Commission Audrey Zibelman

Chair

Patricia L. Acampora Gregg C. Sayre Diane X. Burman Commissioners

Kimberly A. Harriman General Counsel Kathleen H. Burgess Secretary

Three Empire State Plaza, Albany, NY 12223-1350 www.dps.ny.gov

March 14, 2016

Via Email: Villenova@hughes.net
Villenova Town Board
c/o Villenova Town Clerk
1094 Butcher Road
South Dayton, New York 14138

Re: SEQRA SDEIS Comments - Ball Hill Wind Project

To the Villenova Town Clerk and Town Board:

The Department of Public Service (DPS) has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the Ball Hill Wind Project to develop a wind energy project in the towns of Villenova and Hanover in Chautauqua County.

DPS includes the Staff of the New York State Public Service Commission (PSC) and has been an involved agency in the State Environmental Quality Review Act (SEQRA) review since the original filing of the project in 2008. Pursuant to Public Service Law (PSL) §68(1), Ball Hill must file a petition for a Certificate of Public Convenience and Necessity (CPCN) if the project will operate above 80 megawatts (MW). The §68(1) review will include consideration by the PSC of the capability of the developer to function as an electric corporation and to provide safe and reliable service.

Also, as noted in the SDEIS, the increase in design capacity from a 115 kV to a 230 kV transmission line subjects the transmission facility to the jurisdiction of the PSC under Article VII of the PSL. As such, early consultation with Staff regarding the transmission facility is encouraged.

Attached are comments regarding the Project SDEIS. Please feel free to contact me at (518) 486-2853 with any questions or comments regarding Staff's review.

Respectfully,

Andrew C. Davis
Utility Supervisor

cc: Renewable Energy Systems Ltd.

Robert Gibson, Ecology & Environment, Inc. rgibson@ene.com

# Comments of the New York State Department of Public Service on Ball Hill Wind Project SDEIS

1. The SDEIS describes one significant change in the project transmission line: the prior project included a 6-mile long transmission line rated at 115 kV, whereas the SDEIS describes a 6-mile long 230 kV transmission facility (SDEIS, pg. 1-8). As indicated in the SDEIS, this increase in design capacity makes the transmission facility subject to the jurisdiction of the New York State Public Service Commission (NYSPSC or PSC) under Article VII of the Public Service Law (PSL) at §120, et. seq. Article VII supplants other procedural permits and approvals otherwise applicable to the major transmission facility including the 230 kV transmission line, and associated substation and switchyard components. While the identification of potential environmental impacts associated with the transmission facility as a part of the overall review of the "Ball Hill Wind Project" including cumulative impacts is appropriate in the EIS record, the EIS should acknowledge that Article VII reviews are classified as "Type II actions" in the SEQRA regulations, and thus are not otherwise subject to SEQRA procedural provisions (6 NYCRR 617.5(c)(35).

SDEIS-0001-1

2. PSL Article VII essentially supplants other state and local permitting requirements and approvals of a procedural nature (PSL §130) for major transmission facilities, so certain statements in the SDEIS should be modified in the FEIS. For example, Section 2.4.3, under "Minimization of Impacts during Construction and Operation of the Project" the "NYSPSC" should be added to the statements "Ball Hill will follow all NYSDEC and USACE permit requirements regarding restoration of wetland impacts" and "An invasive Species Management Plan (ISMP) will be fully developed in consultation with NYSDEC and USACE" (SDEIS, pg. 2.4-15). Likewise, the New York State Department of Public Service staff (Staff) should be referenced at discussion of the Mitigation for Permanent [Wetland] Impacts (SDEIS pp. 2.4-16 and -17).

SDEIS-0001-2

 Likewise, discussion of the transmission facility Article VII permitting for protected stream crossings should reference NYSPSC rather than NYSDEC permitting (SDEIS pp. 2.5-10; 2.5-14 and -15; and 3-1). SDEIS-0001-3

4. At page 1-17, the SDEIS states that

SDEIS-0001-4

"underground collection lines would be installed via trenching or using a directional bore at stream locations. Streams that are not normally dry at the time of crossing would be temporarily dammed, and water would be pumped around the construction area to allow collection lines to be installed in dry conditions. The equipment that would be used to install the collection lines cuts a trench, places the cable, and backfills the trench in a single pass, thereby reducing the duration of stream disturbance. If directional boring machine is used, a horizontal boring machine will install a bore sufficiently below the bed, and cables will be pulled back in the bore."

<sup>&</sup>lt;sup>1</sup> The record indicates that the Ball Hill Wind Project was formerly known as "Ball Hill Wind Farm" and "Ball Hill Windpark".

SDEIS-0001-4 Continued

DPS recommends that trenching machines not cross significantly classed streams (including classes C(T) and above and any intermediate waterbodies greater than 10 feet). Instead, during dam and pump around or similar installation methods, proper erosion control devices should be placed along the stream bank; the trench can then be excavated from either side of the control measures.

I SDEIS-0001-5

5. The SDEIS indicates on page 1-12 that there will be construction of an approximately 6 mile long overhead 230 kV transmission line which will transfer the energy produced by the Project from the new substation to the new switchyard. The switchyard would be constructed in the Town of Hanover. This switchyard would provide a connection to an existing 230-kV National Grid overhead transmission line.
It would appear that there would be a potential for reduction in environmental impact (including reduction in forest clearing, land use, visual exposure, etc.) if the new collection substation were to be constructed north of its currently proposed location. By placing the substation in a more northerly location, the length of the overhead transmission facility and ROW area would be reduced. The FEIS should explain whether any alternative locations for the collection substation were explored, whether any reasonable alternatives were identified, and provide a comparison of potential impacts.

SDEIS-0001-6

6. Page 1-15 of the SDEIS notes that "this area (staging area) could be used as short term staging for verification of match marking, a quality receipt inspection, washing, and any necessary rigging adjustments prior to site delivery. Please provide an explanation of the term "match-marking."

SDEIS-0001-7

7. Page 3-5 of the SDEIS notes that

"if overhead collection lines were to be required in future site design, it would reduce wetland impacts or be placed due to topography constraints. The transformers are interconnected through a collection system consisting of both underground and above ground power lines on wooden poles that will connect all of the turbines together electrically...The majority of the collection system, as currently designed, will be installed underground...As currently planned, the collection system is entirely underground in compliance with the Town's local law requirements. Accordingly, overhead collection lines will only be used if necessary in a few select areas to avoid drainage and wetland features or other areas where burial of collection lines is problematic from an engineering standpoint as contemplated by the towns."

If available, provide a map with the potential collection line locations that may be installed overhead; an accompanying explanation would also be beneficial. Also, if available, provide the required clearing ROW width for installation of overhead collection lines.

8. Without repeating prior comments on the DEIS regarding potential impacts of the proposed transmission line, DPS remains concerned that the proposed location and design of the 230 kV line involves clearing and access road development on

SDEIS-0001-8

SDEIS-0001-8 Continued

steep slopes and construction of transmission structures close to protected streams. The SDEIS does not provide any updated Transmission Line Plan and Profile drawings reflecting the upgrade of design from 115 kV to 230 kV (DEIS Drawings BH-T-301 Sheets 1 through 6 were for a 115 kV facility). Final facility design and location will be subject to the NYS PSC review pursuant to PSL Article VII.

I SDFIS-0001-9

#### NOISE

9. Regarding discussion of facility Noise impacts, DPS previously identified operational noise of major electric substation equipment as having a potential significant impact. In comments on the DEIS submitted in November, 2008, DPS identified the need to assess tonal noise from transmission grade transformers. The SDEIS does not provide analysis of potential for tones from the substation. The substation analysis is based on "one MVA, 120 kV utility scale transformer" rather than a 230 kV transformer as now proposed for the Ball Hill Project (SDEIS, Appendix O, page 6-3, footnote 1 to table 6-7). Furthermore, DPS considers that the sound power level estimates for the transformer need supporting information either by supplementing their derivation or by documenting with sound tests. Given the proximity of the 50 dBA noise contourline the likelihood of occurrence of a prominent tone should be analyzed as well as the potential to exceed local law limits or cause annoyance or complaints at closer noise sensitive receptors. Please see attached Appendix A for details.

SDEIS-0001-10

#### VISUAL

SDEIS-0001-11

- 10. The depiction of an existing substation at the SVRA may not be fully representative of the scale of facilities needed for the proposed 230 kV transmission line (SDEIS, Appendix M, Section 3.8. photograph "Substation Example", pg. 55). The "Substation Example" photograph depicts the Bliss Windpark substation from the Wyoming County NY Town of Eagle. DPS notes that the Bliss substation is a 115 kV facility, not a 230 kV facility as proposed for the Ball Hill Project. The scale of certain equipment is typically larger on higher voltage installations.
  - The FEIS should provide appropriate representations and descriptions of proposed facilities so that appropriate characterization and consideration of cumulative impacts of the Ball Hill Wind project and associated major electric transmission facility is documented.
- 11. DPS previously provided specific recommendations for substation lighting design and impact minimization. The SDEIS addresses certain aspects of these recommendations, but does not fully address impact minimization through requiring lighting design specifications (e.g., SDEIS Section 2.6.3.4, pg. 2.6-32). DPS repeats its recommendations: fixtures should be specified as full-cutoff with no drop-down optics. Task lighting should be controlled by manual switches to allow workers to light areas appropriate as needed to accomplish tasks. Motion triggered lighting can be inappropriately triggered by wildlife, blowing trash or vegetation, and is not recommended. Manufacturer's cut sheets should be provided, which specify lighting illuminance levels and pattern, and which list features as discussed above regarding light cutoff, shields, and optic criteria.

SDEIS-0001-12

SDEIS-0001-13

#### **CUMULATIVE IMPACTS**

12. In consideration of cumulative estimates of bird and bat fatalities, the SDEIS refers to the Cassadaga Wind project as proposing "70" turbines (SDEIS Section 4.2.2 Avian and Bat Species, including Table 4.2-2, pg. 4-6; Table 4.2-3, pg. 4-7; and discussion at pp. 4-8 and -9). DPS suggests that the calculation of total cumulative fatalities of birds and bats be reviewed based on the current proposal by Everpower Inc. for the Cassadaga Wind Project currently in development of an Application pursuant to PSL Article 10 in Case 14-F-0490. Pre-application materials identify the Cassadaga Wind facility as a "proposed 126 megawatt" project including construction and operation of "up to 62 wind turbines" (Cassadaga Wind Project Preliminary Scoping Statement, September 2015).

#### OTHER PERMITS AND APPROVALS

Agency from June 18, 2008, and November 10, 2008.

The FEIS should acknowledge the appropriate jurisdictional role of the NYS PSC in the overall Ball Hill Wind Project development, siting and permitting program. In addition to the Article VII jurisdiction described above, the Wind Project will be subject to PSL §68(1) authority as an Electric Corporation if the final design exceeds 80 MW, as previously described in DPS correspondence to the Lead

If the final design will exceed 80 MW, the attached list of standard information requests regarding Wind Energy Project subject to PSL §68 CPCN Review should be addressed in a Petition for Issuance of a Certificate of Public Convenience and Necessity. To the extent that any of these questions relate to environmental findings, they should be addressed in the FEIS.

SDEIS-0001-14

Ball Hill Wind Project -- Substation Noise Assessment

Section 6.1.3. includes sound power levels (dBA) for one MVA, 120 Kv utility transformer with 5 dB noise reduction by octave band.

- 1. Confirm whether electrical power for the proposed transformer is 1 MVA. Explain if sound emissions for a 240 Kv transformer are expected to be different than those estimated for a 120 Kv transformer.
- 2. Provide version and year of publication of NEMA Standard used for sound power determination. Specify if the standard corresponds to the most recent version.
- 3. Provide estimated NEMA rating for proposed transformer.
- 4. Provide justification for the 5 dB noise reduction at all octave bands.
- 5. Provide estimated dimensions and envelope area applicable to sound power estimates, if available.
- Provide clear derivation of sound power levels estimates or alternatively provide sound test including Sound Power Levels for proposed transformer from the Manufacturer.

Sound Level Assessment Report doesn't include an evaluation of tonality for proposed substation noise sources.

- 7. Provide full text of local laws and any section applicable to noise emissions from the substation including any noise reductions to be applied on any noise limits should a tone, as defined by local regulation, be present.
- 8. Report measured fractional band ambient noise levels (L90) in the vicinity of proposed substation.
- 9. Provide assessment of tonality at the most potentially impacted noise sensitive receptors. Specify if prominent tones are expected to be present at those locations.

Figures 6-1 and 6-2 show the 50 dBA noise contour line very close to adjacent noise sensitive receptors.

- 10. Provide expanded figures to show in better detail, proposed noise sources within the substation site, site property boundaries, and adjacent noise sensitive receptors.
- 11. Specify any increase in ambient levels based upon existing L90 ambient noise levels and forecasted ambient levels from the substation at the most impacted sound sensitive receptors including and excluding noise levels from the closest proposed wind turbines.
- 12. Estimate potential for annoyance and complaints from noise emissions at the closest noise sensitive receptors including any corrections for tonality, if applicable. Briefly explain and provide justification for the use of selected methodology for assessment of community noise reaction.



#### **Public Service Commission**

Audrey Zibelman Chair

Patricia L. Acampora Gregg C. Sayre Diane X. Burman Commissioners

Kimberly A. Harriman General Counsel Kathleen H. Burgess Secretary

Three Empire State Plaza, Albany, NY 12223-1350 www.dps.ny.gov

March 16, 2016

Via Email: Villenova@hughes.net

Villenova Town Board c/o Villenova Town Clerk 1094 Butcher Road South Dayton, New York 14138

Re:

SEQRA Supplemental Draft Environmental Impact Statement (DEIS) SDEIS Comments –

**Ball Hill Wind Project** 

To the Villenova Town Clerk and Board:

The Department of Public Service (DPS) Staff inadvertently neglected to attach a document referenced in submitted comments regarding the Supplemental Draft Environmental Impact Statement for the Ball Hill Wind Project, dated March 14, 2016. Please see the attachment entitled "Standard Information Requests for Wind Energy Project §68 CPCN Review"

SDEIS-0002-1

Please accept my apologies for any confusion this may have caused. Please call me at (518) 486-2853 with any questions regarding this matter or general comments pertaining to Staff's review.

Respectfully,

Andrew C. Davis
Utility Supervisor

cc: Renewable Energy Systems Ltd.

Robert Gibson, Ecology & Environment Inc. rgibson@ene.com

#### Standard information requests for Wind Energy Project §68 CPCN Review

- 1. Provide a list of engineering codes, standards, guidelines and practices that the company intends to conform with when planning, designing, constructing, operating and maintaining the wind turbines, electric collection system, substation, transmission line, inter-connection, and associated buildings and structures.
- 2. a. Provide a list of the permits, approvals and permissions the company will have to obtain to construct, operate, maintain and retire the wind turbines, electric collection system, substation, transmission line, inter-connection, and associated buildings and structures.
- b. Provide an estimated schedule for the application and receipt of items in item "a." above.
- 3. Provide a Quality Assurance and Control plan, including staffing positions and qualifications necessary, demonstrating how applicant will monitor and assure conformance of facility installation with all applicable design, engineering and installation standards and criteria as indicated in question 1 above.
- 4. Provide a statement from a responsible company official that:
- a. company and its contractors will conform to the requirements for protection of underground facilities contained in Public Service Law §119-b, as implemented by 16 NYCRR Part 753;
- b. company will comply with pole numbering and marking requirements, as implemented by 16 NYCRR Part 217.
- 5. Provide plans and descriptions indicating design, location and construction controls to avoid interference with existing utility transmission and distribution systems. Indicate detailed locations and specify design separations of proposed facilities from existing electric, gas, and communications infrastructure. Indicate measures to minimize interferences where avoidances cannot be reasonably achieved.
- 6. Provide description and indicate details of plans to limit public access and assure security at substations, collection points, wind energy facilities and aboveground components of electrical collection system..
- 7. Explain how the design and operation of the facility will avoid interference with radio communications, including cell phones, AM/FM/SW radio, television, radar, GPS and LORAN, and microwave transmissions.
- 8. Provide transmission facility design and construction plans, indicating vegetation clearing and disposal specifications, structure locations, access requirements, grading and access improvements, and environmental control measures including stormwater and erosion control practices and facilities.

- 9. Provide facility maintenance and management plans, procedures and criteria. Specifically address the following topics:
  - a. turbine maintenance, safety inspections, and tower integrity;
- b. electric transmission, gathering and interconnect line inspections, maintenance and repairs;
  - (i) vegetation clearance requirements;
  - (ii) vegetation management plans and procedures;
  - (iii) inspection and maintenance schedules;
  - (iv) notification and public relations for work in public right-of-

way; (v) minimization of interference with electric and communications distribution systems;

- c. vegetation management practices for switchyard and substation yards, and for danger trees around stations; specifications for clearances; inspection and treatment schedules; and environmental controls to avoid off-site effects.
- 10. If the company will entertain proposals for sharing above ground facilities with other utilities (communications, cable, phone, cell phone relays, etc.) provide criteria and procedures for review of proposals.
- 11. Provide emergency response plans, notification and coordination procedures. Specify plans and procedures for addressing electric line outages, specification of 24-hours per day storm and emergency response situations. Include measures for communication and coordination with operators of existing utility facilities, and residents of adjoining or affected locations.
- 12. Specify commitments for addressing public complaints, and procedures for dispute resolution during facility construction and operation.
- 13. Specify commitments for end-of-life facility retirement and decommissioning, with specific references to electrical gathering and transmission system, interconnection and substation facilities.
- 14. Provide switchyard and substation design drawings and site plans, indicating:
  - a. property lines and setbacks; access road location, width and gradient; site grading, cut and fill, drainage and environmental controls; all proposed improvements and equipment; fencing and gates; permanent erosion control measures;
  - b. Indicate any station lighting needs, and appropriate design criteria;
  - c. provide a statement indicating that any future lighting will be designed to avoid off-site lighting effects (i.e., avoid up-light direction except for as-necessary maintenance task-lighting; avoid drop-down optics to minimize light trespass);
  - d. listing of all electrical equipment and specifications for substation and switchyard facilities;
  - e. interconnection facility design plan and profile information.
- 15. Provide a status report on equipment availability and expected delivery dates for towers, turbines, transformers, and related major equipment.

- 16. a. Specify turbine design setback requirements for the following structures: occupied structures (residences, businesses, and schools); barns and unoccupied structures; electric transmission lines.
  - b. Explain the rationale for the setback distances for each type of structure or facility.
  - c. Provide a detailed explanation as to why local setback provision from transmission lines cannot be accommodated in facility layout.
- 17. Provide an analysis of the electrostatic and electromagnetic fields for the proposed 115 kV or greater electric transmission line. Include a cross-section diagram and chart showing the results of the field strength analysis at average annual and annual maximum conductor current flow (maximum conductor rating). The cross-section diagram should demonstrate the electrostatic and electromagnetic field strengths extending horizontally from facility centerline to a distance of 300 feet.
- 18. Please provide production estimates as follows:
  - a. How much power does the applicant expect the project to generate annually?
  - b. What daily, seasonal and annual variation in production is expected?
- 19. For the entire project provide a list of all local, state and federal development and production inducements, subsidies, tax reliefs; and provide an estimate of the dollar value of each for the life of the project.
- 20. Provide documentation regarding the status and results of third-party review and certification (type and project) of wind turbines proposed for construction and operation at the electric plant.

## **NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

Division of Environmental Permits & Pollution Prevention 625 Broadway, 4th Floor, Albany, New York 12233-1750 P: (518) 402-9167 | F: (518) 402-9168 | deppermitting@dec.ny.gov www.dec.ny.gov

March 14, 2016

Town of Villenova Town Clerk 1094 Butcher Road South Dayton, NY 14138

Re: Ball Hill Wind Project, DEC Comments on Supplemental Environmental Impact Statement (SDEIS)

Dear Ms. Goodway,

The New York State Department of Environmental Conservation (NYSDEC or Department) appreciates the opportunity to submit comments on the January 27, 2016 Supplemental Environmental Impact Statement (SEIS) for Ball Hill Wind Project (Project), a proposed 79-100 MW, up to 36 turbine, wind powered electric generating facility located in the Towns of Villenova and Hanover, Chautauqua County, New York. To satisfy the requirements of the State Environmental Quality Review Act (SEQR), the Final EIS must contain sufficient information and analysis to allow the Department to produce a Findings Statement that supports NYSDEC's final permit decisions. As an involved agency in this process, NYSDEC is submitting these comments related primarily to its permitting authority with an emphasis on wetland, stream, invasive species, listed species and stormwater impacts.

The comments are provided with headers referring to the applicable section of the SEIS.

# **Executive Summary**

Section Alternative Project Location and Design

This section states that the preliminary analysis of the Project Area was conducted in 2006 and later continued in 2015. Since conditions and potential constraints within the Project Area have changed during this time, the SDEIS should address how the alternatives analysis was updated given the length of time that has elapsed.

#### 2.3 Water Quality

Section 2.3.1 Construction Impacts

A detailed discussion of each individual stream crossing is required to demonstrate that the proposed construction impacts could not be avoided or further minimized. An elaboration of the specific and necessary impacts would allow NYSDEC to weigh costs and benefits in our SEQR Findings. As part of this process, photos and plans for the access road crossing and buried collection line crossing sites are essential and site visits by NYSDEC staff to examine the crossings may be required.

NEW YORK STATE OF OPPORTUNITY Environmental Conservation

SDEIS-0003-1

SDEIS-0003-2

In general terms, permanent roads will require bridges or culverts. If the crossings are temporary, a timber mat or other temporary equipment crossing is acceptable. No inwater crossings will be allowed such that equipment cannot be driven through streams unless the work is performed in dry conditions.

SDEIS-0003-3

SDEIS-0003-4

With respect to stream crossings, the applicant shall abide by our document "Stream Crossings: Guidelines and Best Management Practices" found at <a href="http://www.dec.ny.gov/permits/49066.html">http://www.dec.ny.gov/permits/49066.html</a>. Stream crossings should be designed to protect stream continuity. All crossings of class C(T) or higher streams should be completed using temporary or permanent crossing structures. The use of bridges is preferred over culverts, however, if culverts are used, they must meet the guidelines referenced above. Likewise, if NYSDEC regulated streams are impacted, the Project must meet standards established by NYSECL Article 15 (Protection of Waters) unless directional drilling is used to avoid all disturbance to the bed or banks of protected streams. If buried collection lines are to be placed by trench method, the work area must be isolated by damming and pumping, or similar method, and the work must be performed in dry conditions.

#### 2.4 Wetlands

# Section 2.4 Delineated Wetlands

SDEIS-0003-5

Regional NYSDEC staff conducted field verification site visits in 2008 and 2012 for previous Project delineations. However, the jurisdictional determinations associated with these site visits were either not finished or have expired. These "historic" delineations must be re-visited and updated where needed and combined with new delineation information before submission to NYSDEC for updated field verification. The delineation report should also include delineation shapefiles.

SDEIS-0003-6

The potential for unmapped wetlands that meet State jurisdictional criteria must be evaluated. For example, a wetland found to be >12.4 acres or otherwise meeting State criteria for jurisdiction, is a NYDDEC regulated wetland. Further, any delineated wetland found to be part of the same wetland complex as a currently mapped State-jurisdictional wetland is also regulated. Thus, NYSDEC regional staff must validate all wetland delineations.

## Section 2.4-1 Construction Impacts

SDEIS-0003-7

Upon field verification, confirmation of NYSDEC jurisdiction of wetlands, and additional avoidance and minimization measures, calculations of impacts such as in Table 2.4-2 should be updated and included in the FEIS. Impacts to NYSDEC wetlands must be explained including why each impact could not be avoided and how impacts have been minimized.

SDEIS-0003-8

Under NYSDEC policy, wetland impacts are not permitted, even with mitigation, until other alternatives have been explored, including avoidance, minimization or reduction of impacts. Generally, applicants are required to examine alternative project designs that

avoid and reduce impacts to wetlands, develop plans to create or improve wetlands or wetland functions to compensate for unavoidable impacts to wetlands, and demonstrate overriding economic and social needs for the project that outweigh the environmental costs of impacts on the wetlands.

SDEIS-0003-8 Continued

SDEIS-0003-9

DEC recommends that information regarding potential wetland impacts should be formatted such that wetland and adjacent area impacts are listed by wetland (including wetland name and agency jurisdiction) and include the type of impact (road, tower, transmission line, etc.). Preliminary plans of each area of impact which includes a written description of the impacts, both temporary and permanent, to the wetland and adjacent area must be provided. This description should also include the name, size and class of the wetland, the type of habitat impacted, the type and size of impact, a discussion of the restoration planned after construction, a justification of the impacts, and the steps taken for avoiding and minimizing these impacts.

Moreover, when developing the Project plan, the Applicant must consult the following manual and guidelines:

SDEIS-0003-10

- "New York State Department of Environmental Conservation Wetland Delineation Manual (1995)." The applicant should refer to DEC's Wetland Delineation Manual when delineating freshwater wetlands regulated under 6 New York Codes Rules and Regulations (NYCRR) Part 624 (Freshwater Wetlands).1
- "Wetlands Regulation Guidelines on Compensatory Mitigation (1993)." If unavoidable wetland impacts are expected to result from project construction activities, compensatory mitigation may be required to demonstrate compliance with the 6 NYCRR Part 624. Proposed mitigation should conform to DEC wetland mitigation guidelines<sup>2</sup>.

SDEIS-0003-11

# Section 2.4-2 Operational Impacts

Same comments as 2.4-1, above.

SDEIS-0003-12

# Section 2.4-3 Mitigation

## Mitigation for Permanent Impacts

In addition to proposed USACE mitigation, the SDEIS should also detail proposed NYSDEC mitigation.

### 2.5 Biological Resources

## Section 2.5.1 Construction Impacts-Upland Vegetation

This section erroneously states that Section 2.2 discusses Biological Resources and this should be changed to "Soils." Table 2.5-1 provides a detailed description of expected impacts to various habitat types in the Project area. This section indicates that a large portion of the Project area is forested, particularly in the southern areas, and the

SDEIS-0003-13

SDEIS-0003-14

<sup>1</sup> Found at www.dec.ny.gov/docs/wildlife pdf/wdelman.pdf

<sup>&</sup>lt;sup>2</sup> Found at www.dec.ny.gov/docs/wildlife pdf/wetmitgdln.pdf.

SDEIS-0003-14 Continued

habitat fragmentation due to construction of the Project is described as "minor in comparison with the overall acreage of forested land within the Project Area."

NYSDEC staff notes that the dominant cover type within the Project footprint and surrounding area is forest and more than half of the turbines are currently proposed to be built in these forested areas. Table 2.5-1 indicates that a total of 155.6 acres of forest would incur temporary impacts and 81.5 acres would sustain permanent impacts. NYSDEC staff considers the clearing of all forested habitat to be a permanent impact due to the time it takes a forest to regenerate to pre-construction conditions. The applicant should amend Table 2.5-1 and all other vegetation impact analyses to reflect that the construction and operation of the Project will result in 155.6 acres of permanent loss of forest.

SDEIS-0003-15

Although the shrubby young forest may provide valuable habitat to a suite of bird species after clearing, the forest interior species that depend on contiguous forest will be negatively impacted by the loss of cover and habitat fragmentation caused by turbines, roads, and other infrastructure. Any contiguous forest block of 150 acres or larger is valuable forest habitat—viable for many bird species that require interior forests for breeding. Most of these species are protected by federal and State laws such as the Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), Part 182 of New York Codes, Rules and Regulations (NYCRR), and Article 11 of the NYSECL.

SDEIS-0003-16

The applicant should consider layout design and factors to minimize impacts to forest interior breeding birds and bats and to mitigate for unavoidable forest clearing. These may include but are not limited to, placing turbines as close as possible to forest/field edges to reduce impact to both habitat types, conducting all tree clearing outside of the primary bird nesting season (April 1-August 31) and bat emergence, roosting and swarming period (April 1-October 31); and communicating with NYSDEC and USFWS about options to mitigate for direct and indirect loss of forest interior habitat.

# 2.6 Bird and Bat Resources

**Breeding Bird Survey** 

It is unclear why information on existing bird and bat resources in the Pproject area would be located in Section 2.11, Traffic and Transportation. One grasshopper sparrow, a State species of special concern and grassland breeding species, was observed during the 2011 breeding bird survey. Information on precisely where the bird was observed, the duration of each observation, any breeding behavior seen, and other relevant notes should be provided to determine if any Project components may impact this species.

SDEIS-0003-17

SDEIS-0003-18

Eagle Surveys

The eagle population in the vicinity of the Project has increased significantly since eagle surveys were conducted and the number of eagle nests near the Project has also increased. Throughout this section, these changes in the eagle population should be incorporated into the discussion of potential impacts.

SDEIS-0003-19

SDEIS-0003-20

Eagle surveys should be repeated within the project area with updated survey points that adequately sample the current proposed project layout.

Passive Bat Acoustical Study (2012) and Northern Long-Eared Bat Acoustic Survey (2015)

SDEIS-0003-21

During the acoustic survey conducted in 2012, the two detectors placed on a meteorological tower recorded 2243 calls that were able to be identified, 469 (20.9%) of which were Myotis species. No further analysis of the Myotis species calls were conducted, as the northern long-eared bat (NLEB) was not listed as threatened at the time, so it is unknown how many of these calls may have been made by northern long-eared bat. The 2015 survey determined probable presence of NLEB on the site, and it is possible the species was recorded in 2012 as well. NYSDEC requests the 2012 acoustic data be reevaluated to determine if NLEB were detected on site, and the date(s) of any potential NLEB calls.

SDEIS-0003-22

2.6.1 Construction Impacts

This section states, "....it is uncertain when tree clearing activities would be conducted" and "tree clearing during the late spring, summer, or early fall would have the greatest potential to have an adverse impact on nesting birds." Sections 2.6.1.1 and 2.6.1.2 both declare that no significant adverse impacts are expected as a result of construction of the Project. The applicant should explain why no adverse impacts are expected during Project construction when the dates of tree removal have not been determined.

SDEIS-0003-23

Section 2.6.1.2 also states that the majority of construction activities would occur in agricultural fields; however, based on the maps provided in the SDEIS (e.g. Figure 1.1-2), over half of the turbines appear to be sited in forested areas. NYSDEC staff requires that no tree clearing take place between April 1 and October 31 to protect birds and bats during the breeding, migration, and fall swarming period.

SDEIS-0003-24

# 2.6.1.3 Construction-Potential Impacts on Threatened or Endangered Bird Species

This section briefly discusses monitoring in grassland and forested areas for the presence of sensitive and listed species. NYSDEC requests more information on the protocols to be used during such monitoring, including the locations, timing and duration of surveys, number of personnel involved in the monitoring, and how notification of the discovery will be conveyed. The applicant should describe the proposed avoidance and minimization techniques if a nest is found.

SDEIS-0003-25

As the project footprint, access road and turbine layout change, the applicant should provide the most current GIS shape files NYSDEC to facilitate timely and accurate review of potential impacts.

SDEIS-0003-26

2.6.1.4 Construction-Potential Impacts on Bats

This section commits to minimizing adverse construction impacts on bats and their roost trees, should tree clearing take place during the spring, summer or early fall periods. In

coordination with NYSDEC and USFWS, a qualified biologist(s) will conduct tree inventories and monitor for presence through the use of acoustic detectors and/or exit surveys. To date, NYSDEC has not participated in discussions about this activity and staff encourages the applicant to develop a protocol for such work, should tree clearing occur during the time bats may be active on the site.

SDEIS-0003-26 Continued

2.6.1.5 Construction-Potential Impacts on Threatened or Endangered Bat Species As previously noted, tree clearing is prohibited between April 1 and October 31 if State and federally threatened northern long-eared bats occupy a site. Since the presence of northern long-eared bat has been determined to be probable in the Project area during the summer, DEC recommends no tree clearing take place during that time.

SDEIS-0003-27

2.6.2 Operational Impacts

DEC recommends an operational curtailment regime designed to minimize direct impacts to bats. The applicant should engage in discussions with NYSDEC and USFWS to determine the appropriate timing and environmental conditions during which curtailment should take place.

SDEIS-0003-28

2.6.2.1 Operational-Potential Impacts on Migratory Birds-Passerines

The Department does not agree with the statement that the Project area is not immediately proximate to any large waterbodies that nocturnal migrants would use as stopover areas because all of the turbines are less than 12 miles from Lake Erie and the northern portion of the Project area is less than five miles from the Lake shore. As migrant birds, particularly songbirds, moving north in the spring utilize the areas along both Lakes Erie and Ontario, there is the potential for a higher than average mortality rate to occur at the Ball Hill project. The applicant is encouraged to work closely with NYSDEC and USFWS to develop appropriate post-construction monitoring studies that estimate bird and bat mortality and avoidance levels.

SDEIS-0003-29

2.6.2.2 Operational-Potential Impacts on Breeding Birds

Department staff believes that Figure 1.1-2 does not support the statement that the majority of the turbines would be sited in agricultural fields and open areas. In fact, Figure 1.1-2 shows approximately 19 turbines, or just over half, will be located in forested habitats. Additionally, some of the access roads, electric collection lines, and a large portion of the transmission lines are also located in forested areas. The post-construction monitoring study will investigate the indirect impacts on birds in forested and grassland habitats from turbines and other project components and will be developed in consultation with NYSDEC and USFWS.

LSDEIS-0003-30

2.6.2.5 Operational-Potential Impacts on Threatened or Endangered Bat Species
The applicant must discuss the need for an incidental take permit for northern longeared bats with NYSDEC staff due to the potential risk of collision with turbines at
Project. The applicant should coordinate with NYDDEC and USFWS to discuss
avoidance, minimization and mitigation techniques that will provide adequate protection
to northern long-eared bats. Appropriate turbine cut-in speeds may vary with the time of
year, time of day, and weather conditions.

SDEIS-0003-31

2.6.2.6 Bird and Bat Fatality Approximations

Table 2.6-4 should be updated to reflect all the available post-construction monitoring reports from New York available to date including the Steel Winds project. Steel Winds is the closest operating project to Ball Hill and is located on the shore of Lake Erie in Lackawanna. Bird mortality estimates at Steel Winds ranged from 7.15-8,46 birds per turbine and 2.89-3.38 birds per megawatt in 2012, and 6.92-15.5 birds per turbine and 2.77-6.2 birds per megawatt in 2013. This information should be used to calculate fatality estimates in this section and elsewhere in the SDEIS.

SDEIS-0003-32

4 Summary of Cumulative Impacts.

While the section discusses aspects of cumulative impacts from the proposed Cassadaga and Arkwright wind projects, this section should further elaborate on the issues raised in the above comments with respect to bird and bat impacts, cumulative loss of habitat, and habitat fragmentation as a result of the construction of all proximate projects. The SDEIS states multiple times that cumulative impacts to habitat are not expected to be significant and that "wildlife would likely relocate to adjacent suitable habitat during construction or, upon cessation of construction, make use of areas temporarily disturbed, as revegetation takes place." No further information is provided to support this and it is unlikely that interior forest bird species will utilize cleared areas for breeding purposes since those areas will take decades to return to pre-construction conditions.

SDEIS-0003-33

Though DEC is unaware of exact roost locations for northern long-eared bats near the project area, the species is known to occur in Chautauqua County. Individuals have been captured in mist nets in the towns of Chautaugua and Ellington and the applicant's acoustic monitoring suggests northern long-eared bat is present on site. To reduce potential impacts to bats, NYSDEC recommends all tree clearing be conducted in the winter, between November 1 and March 31. DEC also recommends operational curtailment during periods when bats may be present and most active.

SDEIS-0003-34

south/southwest and the Arkwright project to the west/southwest collectively covers a

The proximity of the Project to the proposed Cassadaga wind project to the

SDEIS-0003-35

SDEIS-0003-36

large area of northern Chautaugua County. The applicant should thoroughly describe and evaluate the cumulative impacts of all these projects on birds, bats, and their habitats, including estimated mortality levels and the indirect effects of fragmentation of SDEIS-0003-37 contiguous forests, grassland, and wetlands. As changes are made to the Project area,

access roads, electric lines, and turbine layouts, the applicant should provide the most current GIS shapefiles to NYSDEC to facilitate a timely and accurate review of potential impacts.

SDEIS-0003-38

Appendix C-Draft Progress Wetland Delineation Report

Although Regional NYSDEC staff has conducted field verification site visits in 2008 and 2012 for previous delineations for the proposed Project, the jurisdictional determinations associated with these site visits were either not finished or have expired. These "historic" delineations must be re-visited, updated and combined with the new delineation information before submission to NYSDEC for updated field verification.

SDEIS-0003-39

When the delineation report is submitted, NYSDEC requests updated Project and wetland delineation shapefiles.

# Appendix E Stormwater Pollution Measures

Before commencing construction activity, the applicant must obtain coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity. The SWPPP subject to the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) shall include Erosion and Sediment Controls designed, installed and maintained in accordance with the most current version of the "New York Standards and Specifications for Erosion and Sediment Control." Additionally, for projects that include the construction of permanent gravel access roads, the SWPPP shall include post-construction stormwater management practices designed in accordance with the most current version of the "New York State Stormwater Management Design Manual (Manual)" (see Table 2, Appendix B of GP-0-15-002). Chapter 4 of the Design Manual should be used to determine the *minimum* sizing criteria for these post-construction controls.

SDEIS-0003-40

SDEIS-0003-41

# Appendix F-Draft Environmental Management Plan and Invasives Species Management Plan

SDEIS-0003-42

An acceptable invasive species plan must detail survey methods to identify existing invasive species, listed in NYSDEC regulations found at 6 NYCRR Part 575, in the Project area to ensure that these areas can be avoided. At a minimum, the plan must:

- Specify the method used to ensure that imported fill and fill leaving the site will be free of invasive species to the extent practicable, and whether fill within the site will either be free of invasives or only used within the area infested with the same invasive species;
- Address how site grading and erosion and sediment control will work together to prevent invasives;
- Detail all cleaning procedures to remove invasive species from
  equipment, preferably with a power-washer, including personnel, location
  of designated equipment cleaning stations, location of off-site disposal (if
  the material is not rendered incapable of growth or reproduction) which
  must be either a landfill, incinerator or State-approved disposal
  facility. The procedures must ensure that the equipment will arrive and
  leave the site clean and all equipment and clothing-cleaning stations must
  be constructed so that invasive species seeds are removed;
- Describe the Best Management Practices or procedures that will be implemented to ensure that Project activities do not result in introduction or spread of invasive species, especially in or near regulated areas of special interest to NYSDEC Natural Resources staff such as areas

SDEIS-0003-42 Continued

containing protected species or habitats within the Project area;

- Provide measures for educating workers about invasive species and how
  to prevent their spread, identify work areas which trigger cleaning
  activities (such as prior to using mats in streams and wetland and wetland
  adjacent areas) and identify methods to prevent and control the transport
  of invasive species as well as how to clean equipment and clothing using
  acceptable methods;
- List all planting and seeding materials to be used;
- Detail post-construction monitoring and survey approaches, preferably for at least 5 years, which would ensure that the objective of no net increase in invasive species was accomplished. If areal coverage of invasive species in the ROW Project area increases over the baseline survey level, remedial action should be considered in consultation with NYSDEC and USACE. If the goals of the invasive species control plan are not met within five years post-construction, a revised control plan containing additional control actions for an additional monitoring term must be submitted.

NYSDEC staff comments on the proposed ISMP are summarized below:

- 1) A major shortfall of the proposed ISMP limits survey work and area of concern to NYSDEC jurisdictional areas. The ISMP should extend to the whole Project area involving soil disturbance such as access roads, collection lines, staging/laydown areas, and all turbine sites. Pre-construction surveys of the entire Project corridor (in addition to wetlands and riparian areas) should be conducted to document infestations of invasive species that should be contained.
- The Plan should include employee/staff invasive species training.
- References to "post-construction surveys" of the area for invasive species should be changed to post-restoration surveys. In other words, surveys should be scheduled from the point that restoration is complete – not from when construction ends.
- 4) "Comprehensive surveys" of the area should be extended to the whole Project area (to include upland areas) and specifically target garlic mustard in addition to the other species listed. Areas of infestation should be mapped using GPS and coordinates included in the survey report – along with a GPS shapefile. The shapefile of infested areas will be included on construction drawings – where applicable.
- References to the Federal and NYSDEC regulated wetlands, riparian areas, and NYSDEC adjacent areas (FDRA) should be changed to "Project site" in all

SDEIS-0003-43

SDEIS-0003-44

SDEIS-0003-45

SDEIS-0003-46

SDEIS-0003-47

references in the document

SDEIS-0003-48

6) BMPs should be used to clean equipment, etc. when leaving an infested area in order to prevent spread to non-infested areas. .

SDEIS-0003-49

 BMP 2 "Inspection of Fill Sources", fill sources should be from certified weed free facilities only.

SDEIS-0003-50

8) BMP 3, "Coordination with Agencies", the phrase, "all chemical treatments will be undertaken...." should be changed to "all chemical treatments will be applied...." And "removal of topsoil to a depth of 16 inches..." should be changed to "removal of topsoil to a depth of three feet...." When Japanese knotweed is concerned. References to "infected" should be changed to "infested..." and infested soil should be only disposed of in a certified sanitary landfill – not in upland areas. Eurasian milfoil is not the only plant that should be removed by hand and placed into 3-mm thck black containers but also phragmites, garlic mustard, Japanese knotweed, and purple loosestrife.

SDEIS-0003-51

9) Post-construction surveys should extend to the entire Project site and cover crops should be non-invasive. As mentioned above "infection" should be replaced with "infestation" and "undertaken" should be replaced with "applied." Annual rye should be defined as "Lolium perenne".

SDEIS-0003-52

10) BMP 4 "Equipment Sanitation", the sentence "Earth moving and excavation equipment used in an FDRA where invasive species are present will be cleaned free of debris and soil within an upland area near the infected area prior to the removal of the equipment from the FDRA" should be changed to read "Earth moving and excavation equipment used where invasive species are present will be cleaned free of debris and soil prior to moving the equipment to an uninfested area."

SDEIS-0003-53

11)BMP 5, "Restoration", the term "FDRA" should be replaced with "Project site" as mentioned above. The second sentence should read "An appropriate seed mixture shall be used." An upland seed mix should be defined as is the wetland seed mix.

SDEIS-0003-54

12)BMP 6, "Restoration Monitoring", the applicant should provide the NYSDEC with annual monitoring reports and FDRA should be replaced with "Project site."

SDEIS-0003-55

13) BMPs 8 and 9, the term "areal" should be replaced with "aerial". And – as should all references in the document, FDRA should be replaced with "Project site." Post-construction should be replaced with post-restoration. The last sentence of Condtion 9 should read "If the goal of this ISMP is not met within the first two years of post-restoration monitoring, Ball Hill will review its control efforts with NYSDEC and USACE, submit a revised ISMP plan, and implement applicable control actions and an additional monitoring term."

Appendix J-Conceptual Wetland Mitigation Measures

The applicant must work closely with NYSDEC and Army Corps of Engineers in developing appropriate mitigation with the understanding that mitigation is only an option after avoidance and minimization have been exhausted as possibilities.

Appendix K-Results of 2011 Breeding Bird Surveys at the Ball Hill Wind Energy Project Area, August 2011

Additional information on the grasshopper sparrow, a State species of special concern and grassland breeding species, should be provided. This species was recorded in the 2007, 2008, and 2011 surveys. Information on precisely when and where the birds were observed, the duration of each observation, any breeding behavior seen, and other relevant notes should be provided to determine if any project components may impact this species. As all of the breeding bird surveys were conducted as points, rather than transects, post-construction surveys may not be directly comparable if done following current recommendations. The SDEIS should discuss the NYSDEC protocol that will provide the best data for post-construction breeding bird surveys.

Appendix K-Eagle Surveys at the Proposed Ball Hill Windpark, February 2013
There are currently 18 known bald eagle nests within 10 miles of the current Ball Hill
Project boundary: 2 within 2 miles, 5 between 2 and 5 miles away, and 11 between 5
and 10 miles away. Nesting bald eagles in this area are known to use the proposed
Project Area. The potential for significant impacts to these and other nesting pairs,
exists if the operating Project causes a direct injury or mortality or if birds avoid the area
due to the presence of turbines. The applicant is encouraged to request and review the
most recent information available from the Natural Heritage Program regarding listed
and sensitive species, and continue to communicate with NYSDEC and USFWS about
avoidance, minimization and mitigation for any potential impacts to eagles as a result of
the construction and operation of the Project.

Appendix L-Bat Acoustic Monitoring Report for the Proposed Ball Hill Windpark, February 2013

NYSDEC requests the 2012 acoustic data be reevaluated to determine if northern longeared bat were detected on site, and the date(s) of any potential northern long-eared bat calls. As 20.9% of all calls identified were Myotis calls, it is possible that northern long-eared bat were recorded during the 2012 surveys.

Appendix L-Bat Acoustic Survey Report for the Ball Hill Wind Project, November 2015

Acoustic monitoring conducted July and August, 2015 following USFWS 2015 guidance indicated the State listed threatened northern long-eared bat may be present on site. Since State regulations prohibit the taking or disturbance of a listed species within their habitat without a permit, NYSDEC encourages the applicant to discuss next steps to avoid, minimize and mitigate for impacts to this species as a result of the construction and operation of the Ball Hill project. Such avoidance and minimization measures may

SDEIS-0003-56

SDEIS-0003-57

SDEIS-0003-58

SDEIS-0003-59

SDEIS-0003-60

SDEIS-0003-61

include date restrictions on tree clearing and operational curtailment during periods when bats are likely to be most active.

SDEIS-0003-61 Continued

SDEIS-0003-62

# Required Items Not Provided

A Spill Control and Countermeasure Plan must be provided. Based on NYSDEC's experience with similar wind energy projects, spills of petroleum and other chemicals may occur during the construction and operational phases of the project. As such, the applicant should develop a spills management plan that is consistent the Department's regulations regarding petroleum bulk storage, chemical bulk storage and spill response and remediation. As guidance, the applicant can refer to the Department's guidance document entitled "Leaks, Spills and Accidents Management Practices Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in New York State," found at the following link: <a href="www.dec.ny.gov/docs/water-pdf/leaksspillsbmp.pdf">www.dec.ny.gov/docs/water-pdf/leaksspillsbmp.pdf</a>. The applicant can also refer to spill management plans that have been developed for other recent wind energy projects such as the Marble River Wind Project. The applicant should work with Regional NYSDEC spill response staff to ensure that the plan is adequate.

Thank you for the opportunity to provide comment on this Wind Project. If you have any questions, please contact Rudyard Edick at (518) 402-9150, or by email at Rudyard.edick@dec.ny.gov.

Sincerely,

Rudyard Edick

Cc:

Ball Hill Wind Project LLC
A. Davis, NYS DPS
J. Bonafide, OPRHP
M. Connerton, USACE
T. Sullivan, USFWS
P McKeown, DEC Region 9

DEC Review Team

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent: To: Thursday, March 10, 2016 12:00 PM

Subject:

Sweeney, Mark Fwd: wind turbines

----- Forwarded message -----

From: Mark Sweeney < mark.sweens16@gmail.com >

Date: Wed, Mar 9, 2016 at 8:40 AM

Subject: Re: wind turbines

To: Town of Villenova < villenova@hughes.net>

Thank you.

Mark Sweeney

Sent from my iPhone

On Mar 9, 2016, at 8:16 AM, Town of Villenova < villenova@hughes.net > wrote:

From: martin huber [mailto:mhubes9619@qmail.com]

Sent: Tuesday, March 08, 2016 4:04 PM

To: <u>villenova@hughes.net</u> **Subject:** wind turbines

Villenova Town Clerk,

My name is Martin Huber, my family has lived on Round Top Rd. for over forty years. I am very concerned about the wind turbine project proposed for our town. I want you to know that I am very much against construction of these wind turbines. I believe that living literally right next to one of these towers will negatively effect my land value, and quality of life. I have lived near the wind farm near Warsaw NY while attending college, and I know firsthand that living in one of these farms is not pleasant. If you want to see what will happen to our town just take a ride up route 20a near Warsaw and take a look around. There are windmills as far as the eye can see in every direction. This has completely destroyed the beautiful landscape that area once had. I sincerely hope that you take into consideration the feelings of your constituents before any decisions are made.

SDEIS-0004-1

SDEIS-0004-2

SDEIS-0004-3

# Thank you,

# Martin Huber

Law Office of Mark T. Sweeney 16 Keith Road Delmar, New York 12054 p: (518) 461-6838 e: mark.sweens16@gmail.com

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Monday, March 14, 2016 9:44 AM

To:

Sweeney, Mark

Subject:

Fwd: Ball Hill Wind Project Comments - scan

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 14, 2016 at 9:30:14 AM EDT

To: <mark.sweens16@gmail.com>

**Subject: Ball Hill Wind Project Comments - scan** 

	March 9, 201	
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	Hamburg, Ny	
	Villenova Town Clerk	
	1094 Butcher Road	
	So. Dayton, Ny 14138	
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	RE: Town Council Meeting with Renewable Energy Systems (R.E.S)	
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	without the knowledge of property owners	_
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From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Monday, March 14, 2016 9:43 AM

To:

Sweeney, Mark

Subject:

Fwd: Public comments and questions on Ball Hill wind farm

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 14, 2016 at 8:19:01 AM EDT

To: <mark.sweens16@gmail.com>

Subject: FW: Public comments and questions on Ball Hill wind farm

**From:** Greg Snow [mailto:snowgreg26@gmail.com]

Sent: Friday, March 11, 2016 12:14 PM

To: villenova@hughes.net

Subject: Public comments and questions on Ball Hill wind farm

#### Comment:

I am opposed to the Ball Hill Wind project, the proposed turbines are too large to be sited near people. This project will permanently negatively impact the quality of our rural life and the monetary value of our homes. This project should be put on hold pending completion of the Arkwright wind project so Villenova residents can properly evaluate the impacts of an industrial installation of this magnitude.

# Ouestions:

Public access to information:

We have made repeated attempts to download and view Appendix A volumes I, II and III, the downloads never finish and we keep getting "file is damaged and cannot be opened", why is this important information unavailable to the public?

Why are the .pdf's of the SDEIS and appendices secured (locked) documents? This has made them extremely difficult for us to work with as we are unable to print and copy/paste these files.

# Sound and vibration:

Our area is extremely quiet and our average sound levels, especially at night, are far below those typically encountered in most suburban and rural areas. Was this reality actually measured here and taken into account when calculating the sonic impacts?

SDEIS-0006-1

SDEIS-0006-2

SDEIS-0006-3

SDEIS-0006-4

SDEIS-0006-5

What are the very low frequency and subsonic sound emissions (1 to 31.5Hz) of the proposed turbines at most critical wind speed?

Since low frequency noise is a primary problem with wind turbines and the most difficult to mitigate, why was C weighting or very low frequency data not used in the modeling?

SDEIS-0006-7

SDEIS-0006-6

Please detail sound measurement methodology employed by the turbine manufacturers, this information is not on their websites or addressed in the SDEIS.

SDEIS-0006-8

Per the noise study, where can we find the "modeling receptor ID #" applicable to our home so we can determine who is in the top "worst case for low frequency sound levels"?

SDEIS-0006-9

The GE 2.3-116 turbines have a "low noise trailing edge technology" option, if these turbines are selected will the low noise option be included and installed on all turbines?

SDEIS-0006-10

Since all machinery produces vibrations and the turbine's generator, transmission, bearings and blade vibrations and imbalances will produce vibrations that will be transmitted into and through the ground, where is the study that addresses this issue applicable to local stratum?

SDEIS-0006-11

What is the process for filing complaints on noise problems? How can we be certain all complaints will be addressed and resolved?

SDEIS-0006-12

Will a turbine be shut down during critical times (eg. overnight) if noise problems cannot be resolved?

SDEIS-0006-13

The sound level assessment states that no pure tones were identified in sound spectra, what about swept tones, low frequency sounds that are produced by rotating blades plus the Doppler effect?

SDEIS-0006-14

#### Financial:

SDEIS-0006-15

How will homeowners be compensated in the event they are unable to sell their homes or can't sell them at a fair price (their inflation adjusted pre wind farm value)?

Greg Snow 1726 Stafford Road Forestville, NY 14062 716-673-5219

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Monday, March 14, 2016 9:43 AM

To:

Sweeney, Mark

Subject:

Fwd: Public comment on Ball Hill.docx

Attachments:

Public comment on Ball Hill.docx; ATT00001.htm

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 14, 2016 at 8:17:20 AM EDT

To: < mark.sweens16@gmail.com>

Subject: FW: Public comment on Ball Hill.docx

----Original Message----

From: Cw [mailto:cw.warner@yahoo.com] Sent: Sunday, March 13, 2016 2:08 PM

To: villenova@hughes.net

Subject: Public comment on Ball Hill.docx

Please let me know this is received and will be read for public comment as I will be unable to attend. I work evenings!

Thank you so much!

Chris Warner 1827 straight rd

#### To whom it may concern:

want shades in the house like myself.

I am writing to express my frustration in supporting green energy, but being left out until the last minutes in changes and size adjustments to an already very large change in our very rural land scape. As a result I must voice my strong opposition to the siting of extremely tall wind turbines on Ball Hill in the Town of Villenova unless some changes are put into place. My residence and farm is on Straight Road in the Town of Arkwright, less than 1.5 miles from turbine #2.

SDEIS-0007-1

SDFIS-0007-2

SDEIS-0007-3

I purchased my property in Arkwright, which was an abandoned farm and farmhouse at the time of purchase, because I wanted to invest and improve in the property, invest in the community, be a good neighbor, and live and farm in a rural, quiet, beautiful and peaceful region of Western New York. The construction of large wind turbines, that are taller than every building or tower in Chautauqua, Cattaraugus and Erie County, except for the HSBC tower in downtown Buffalo, will dramatically change the landscape, in particular, imposing a constant visual and audial disturbance in this rural area. I live on a farm, with barns, farm animals, fields and wooded land. The Ball Hill Wind Project proposal should not be called a wind "farm" proposal, it is a proposal to install extremely large industrial power generators in a farming area. It will change the area significantly and at least for the rest of my lifetime.

I oppose the siting of turbines where I will be able to see from my property large blades turning, constant motion will be a visual distraction. I am also concerned with the potential for turbine "flicker" if sun is behind the turbines, and do not agree the statement within the Ball Hill Supplemental Draft Environmental Impact Statement (1/19/2016) that flicker that occurs shortly after sunrise will not impact residents because they "are typically asleep with the shades drawn" (page 2.7-12). The SDEIS apparently wasn't written by farmers or residents who wake up early or don't need shades for privacy or SDEIS-0007-4

I oppose the siting of turbines where I will hear the repetitive or low frequency sound of blades turning. This will destroy the quiet atmosphere rural residents are accustomed to. The SDEIS says the noise will be like an "episodic event such as passing of cars or barking of dogs" (page 2.8-1). The regular, repetitive, or low-frequency drumming of turbine noise is not appropriate to compare to dog and car noise I experience because of the frequency. I only hear one car drive up my dirt road every hour or two, or hear a dog bark a few times once or twice a day if at all.

SDEIS-0007-5

I am very concerned about the health of my children, age 6 and 7, with the turbines so close to the house. One of my sons has recently been diagnosed with a learning disability and sensory issues, and I do not want the repetitive turbine motion or repetitive sound to create negative stimulus for him, and cause me to have to move to keep my family healthy.

SDEIS-0007-6

my property value has not decreased and recommend that as part of this review all residences within a 10 mile radius of the Project receive a current property assessment. The SDEIS says that studies show that there is no statistical difference in property values before and after turbines are constructed, but I

If I am forced to move due to the wind turbines negative impact on my family, I want to make sure that

SDEIS-0007-7

am concerned about property values for residences like myself which are very close to turbines (0 to 1.5 miles). A paper I looked up said that broadly there is no statistical negative impact on property values,

SDEIS-0007-7 Continued

SDEIS-0007-8

but there is the possibility for negative impact to properties very close to the turbines (this information is from an article by Corey Lang, "The windy city: Property value impacts of wind turbines in an urban setting" Energy Economics 44 (2014)). I would like an assessment and a guarantee that if I have to sell because of the health of my children I will be compensated for the difference

I am concerned about the impact the turbines will have on birds. I have been feeding migratory ruby-throated hummingbirds at my residence for 18 years. I have counted from 16-22 hummingbird individuals that feed on my property, and on average 6-8 pairs nest next to the feeders on my property each year. I am also aware of a nearby bald eagle nest, and am concerned that bird strikes will occur due to the size and speed of the turbines- 160 miles per hour. I care very much about the health of the wildlife, and do not want to see birds or bats killed by the turbines.

SDEIS-0007-9

I care about producing green energy. I have recently installed solar panels at my residence to generate electricity without consuming fossil fuel. The solar panels do not move, do not tower over my house and trees, do not make noise and do not kill wildlife. I would have much rather seen a much smaller scaled green energy project developed to produce energy for use by local residents. One or two smaller turbines or a solar panel array could serve much of the energy need of the surrounding area, and provide benefit to all in the community that would bear the burden of having structures placed in or near our backyards. Instead, the power generated by these turbines will be transmitted outside of Chautauqua County, and due to the distance it will have to travel and the inefficiency of transmission lines, much of this energy produced on the backs of my community, will be lost before it reaches its final destination. I would like to know how much of the 100 MW of energy that would be generated by the Ball Hill Wind Project would be lost during transmission? While I want to see more green energy production, and less fossil fuel production, I am very concerned that green energy is being lost when wind power plants like Ball Hill Wind Project are not being sited closer to the cities that are using the power.

SDEIS-0007-10

SDEIS-0007-11

I am concerned about the cumulative impacts multiple large Wind Projects will have along the Chautauqua Ridge. I participated in public hearings on the Arkwright Summit Wind Farm years ago and thought the project was not moving forward until newspaper articles announced that it would be constructed in 2017. I have heard there are other projects planned in the area, such as the Cassadaga Wind Project, in addition to the Arkwright Summit Wind Farm and the Ball Hill Wind Project, and believe that in an effort to get their project approved, any individual project developer will minimize and underestimate the combined, cumulative negative impact on community residents who will be surrounded by turbines, as well as birds and bats that migrate along the ridge and through the area. The Ball Hill Wind Project and the Arkwright Wind Farm are so close (the closest turbines are 1.4 miles apart according to the SDEIS, page 4.1) that the projects environmental impact should be assessed together, as once constructed residents and wildlife will just be living within and migrating through and around one extremely large industrial wind project. All the communities within and near the three projects should receive benefits, as we are those that will be living with the turbines every day. Compensation to property owners within the broader footprint of these three projects could be given such as free green energy, to help retain or improve properties and residences for those living near the turbines. This could aid to the ability of those attempting to go green with greenhouses operate and improve our

community. Green energy and other benefits to nearby properties, not only those properties where the turbines are actually sited, should be negotiated by all the impacted towns, together. I think the town, and the residents could gain much more for what the impacted community is losing and risking. I don't think the impacted residents' needs are currently being represented well enough, and strongly encourage the town to work for better protections for us.

SDEIS-0007-11 Continued

SDEIS-0007-12

I believe that a computer model should be created that can show every resident within a 10 mile radius of the Ball Hill Wind Project what the turbines will look like and sound like, when the turbines are in motion, from their actual property. I believe this kind of virtual reality model will help our impacted community better understand what it will be like living with tremendously large turbines, every minute of every day.

SDEIS-0007-13

I work evenings and have been unable to attend community meetings so far. This doesn't mean I'm not very interested and I believe that in order for projects like this to be a success, the entire community should be involved and benefit. Project developers want to build turbines on the Chautauqua Ridge, the town has more negotiating power that it thinks. These are long-term impactful changes proposed for our community; I feel the town should negotiate for higher community compensation, compensation benefiting all individuals that are impacted visually, audibly and physically. Without this I feel we are getting the very short end of a very big stick.

SDEIS-0007-14

Thank you for taking my concerns and recommendations seriously. I hope you organize more community meetings and work to better represent us all. Please contact me if you have any questions.

Sincerely,

**Christopher Warner** 

1827 Straight Road

Forestville, NY 14062

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Monday, March 14, 2016 9:42 AM

To: Subject: Sweeney, Mark Fwd: Windmill

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < <u>villenova@hughes.net</u>>

Date: March 14, 2016 at 8:16:07 AM EDT

To: < mark.sweens16@gmail.com>

Subject: FW: Windmill

----Original Message----

From: Charlie Leone [mailto:charlie@gothiccity.com]

Sent: Sunday, March 13, 2016 6:13 PM

To: Villenova@hughes.net

Subject: Windmill

To whom it may concern,

My name is Charlie Leone and I am a concerned property owner in Hanover and Villanova. I have been looking over these beautiful hills for 52 years and am devastated that the landscape is in danger of losing that beauty. The proposed windmills are a monstrosity. They are an eyesore and a danger to wildlife. I strongly oppose going forward with their construction.

Sincerely,

Charles Leone=

SDEIS-0008-1

SDEIS-0008-2

From:

Mark Sweeney < mark.sweens16@gmail.com>

Sent:

Monday, March 14, 2016 11:23 AM

To:

Sweeney, Mark

Subject:

Fwd: Wind mills

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 14, 2016 at 10:30:08 AM EDT

To: <mark.sweens16@gmail.com>

Subject: FW: Wind mills

From: Doug Rumsey [mailto:rumseydoug39@gmail.com]

Sent: Monday, March 14, 2016 9:45 AM

To: villenova@hughes.net Subject: Wind mills

I have heard alot of talk of windmills being put In our community. All i can say is. I am not for it. If I have to pay taxes. Then I shouldn't have to look out my window and see this. Our hills look fine like they are. Plus the decrease in property values for this. Doug rumsey.

SDEIS-0009-1 SDEIS-0009-2 SDEIS-0009-3

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Tuesday, March 15, 2016 9:52 AM

To:

Sweeney, Mark

Subject:

Fwd: Comments on the Ball Hill EIS

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 15, 2016 at 8:36:26 AM EDT

To: <mark.sweens16@gmail.com>

Subject: FW: Comments on the Ball Hill EIS

From: Jonathan Titus [mailto:Jonathan.Titus@fredonia.edu]

Sent: Monday, March 14, 2016 8:55 PM

To: Villenova@hughes.net

Subject: Comments on the Ball Hill EIS

Dear Sir/Madame,

I am writing this letter to express my concern with the Ball Hill Wind Energy Project. We are supporters of alternative energy projects, however, appropriate siting is critical to any project. My first concern is that even though we are taxpayers who own property in Villenova we only found out about the project a few days ago. We were then surprised to find out that the EIS public comment period ended today. Our property is adjacent to one of the project sites and I believe we should have found out about the project much earlier in the process. We then found it difficult to download sections of the EIS – it appears that some of the sections are corrupted. I urge you to please extend the public comment period and be sure that the EIS is easily accessible and neighbors notified. I do have a number of comments on the EIS based on a rather cursory examination of the portions of the EIS I could access.

- 1. It is very important that a foolproof guarantee be associated with the project such that if the project is abandoned or decommissioned Renewable Energy Systems is obligated to restore all of the sites to the highest possible standards. This must be a large enough bond such that a clean-up will occur regardless of the status of Renewable Energy Systems. A lack of protection to local communities from abandoned energy projects has been a problem across the country.
- 2. Our property in Villenova is subjected to constant invasions by non-native invasive species, which we have to pull so that the woods do not become completely overrun. These

SDEIS-0010-3

SDEIS-0010-2

SDEIS-0010-1

non-native species are spreading due to dispersal along roads often by construction vehicles. The invasive species appendix of the EIS is insufficient in that no mechanism is proposed to stop the spread of invasive species which will occur along the access roads during and after the construction process. Cleaning the construction vehicles will help but the invasive species will spread along the roads and into the nearby woods, regardless. The invasive species section is also out of date having been written in 2008. New data and an updated analysis are needed.

SDEIS-0010-3 Continued

3. The bird surveys detected some important grassland bird species such as bobolinks, savanna sparrows and one grasshopper sparrow to name a few. The most recent survey was 5 years ago in 2011. In section 2.12.2.2 "Potential Impacts on Breeding Birds" the EIS states that impacts on breeding birds will be minimal, however, no evidence is presented as to why this is the case. Likewise in the next few sections impacts to raptors and bats are minimized. These sections need current data and evidence to support these statements.

SDEIS-0010-4

4. I am concerned that the noise analysis does not adequately address low frequency sounds.

SDEIS-0010-5

5. The species lists on the wetland data sheets are incomplete as is stated in the appendix. It is clear that the work was conducted outside of the growing season and the plant lists on the wetland data sheets are lacking in detail. To adequately assess wetland impacts and plan appropriate mitigation measures more data from growing season wetland assessments is needed. The mitigation plan proposed in the EIS is not adequate.

SDEIS-0010-6

Thank you for considering my comments. Please consider lengthening the comment period and increasing access to the EIS.

SDEIS-0010-7

Sincerely,

Jon Titus

\*\*\*\*\*\*\*

Jonathan Titus Biology Dept. SUNY-Fredonia Fredonia, NY 14063

From: Mark Sweeney <mark.sweens16@gmail.com>

**Sent:** Tuesday, March 15, 2016 9:51 AM

**To:** Sweeney, Mark

Subject: Fwd: Public Comment concerning BALD HILL SDEIS

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < villenova@hughes.net>

Date: March 15, 2016 at 8:36:09 AM EDT

To: <mark.sweens16@gmail.com>

Subject: FW: Public Comment concerning BALD HILL SDEIS

**From:** Priscilla Titus [mailto:priscillatitus@yahoo.com]

**Sent:** Monday, March 14, 2016 5:07 PM

To: villenova@hughes.net

Subject: Public Comment concerning BALD HILL SDEIS

Dear Representative,

As a landowner in the Town of Villenova, I was dismayed to learn from a friend that the deadline for comments regarding the Ball Hill SDEIS was today. Our property lies within the project area and two structures are proposed within sight of our property. Although I live in the Village of Fredonia, the tax bill for our Villenova property always arrives on time. Why was no written notice sent regarding the comment period for this analysis? To further complicate my review of the analysis, I was unable to access Appendices Volumes I,II, and III of the DEIS from the website because the files are apparently corrupt; and, because I am recovering from surgery at this time, I am unable to travel to the Town offices in order to look at hard copies. I see no evidence that this project was listed in the NYS Department of Environmental Conservation's Environmental Notice Bulletin. Thus,I feel the public review process for this project is inadequate and the period for public review should be extended to a date not less than 90 days after a notice has been sent to every landowner in the project area describing the current analysis and providing detailed instructions that enable access to review documents.

From my cursory understanding of this project, given the inadequate time and resources in which I had to review it, I respectfully submit the following comments:

In general, I believe the development of alternative energy production facilities is necessary and
worthwhile, but appropriate siting is crucial both to the success of the facility and to appropriate
minimization and mitigation of unavoidable adverse impacts. This modified project comprises the
construction and operation of 36 wind turbines, each of which is nearly 500 feet tall, in a area that
is rural in nature and not appropriate for a project of this magnitude.

 The invasive species management plan needs to be updated to reflect the spread and introduction of additional invasive species in the area since the time of the 2008 survey, and SDEIS-0011-2

SDEIS-0011-1

SDEIS-0011-3

adaptive management plans for the maintenance roads and the areas around the structures should be developed.

- I have concerns regarding long term maintenance of the structures in the event that this project does not yield the financial rewards that are anticipated. Who will be responsible for decommissioning the structures should they fail to perform as desired?
- The noise impacts are not adequately analysed to reflect low frequency sound anticipated with the current project design.
- The wetland analysis is incomplete.
- Adverse impacts to wildlife including birds and bats is inadequately addressed because it does
  not take into account the effects of habitat degradation and fragmentation and the effects of noise
  and visual disturbances including those involved in maintenance.
- I do not agree that potential construction impacts would "generally be confined to the properties of participating landowners, and would be temporary in nature." Obviously, neighboring property owners will be affected by the project both during and following construction in many ways, some of which are long-term.

SDEIS-0011-7

SDEIS-0011-3

SDEIS-0011-4

SDEIS-0011-5

SDEIS-0011-6

Continued

SDEIS-0011-8

Thank you for your consideration of these comments and your efforts to ensure that the project is truly in the best interest of all concerned.

Sincerely, Priscilla Titus 15 Maple Avenue Fredonia, NY 14063

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Tuesday, March 15, 2016 9:50 AM

To:

Sweeney, Mark

Subject:

Fwd: Ball Hill Wind Project

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < <u>villenova@hughes.net</u>>

Date: March 15, 2016 at 8:30:10 AM EDT

To: <mark.sweens16@gmail.com>
Subject: FW: Ball Hill Wind Project

From: Gong Garden CSA [mailto:gonggarden@yahoo.com]

Sent: Monday, March 14, 2016 3:59 PM

To: <a href="mailto:villenova@hughes.net">villenova@hughes.net</a>
Subject: Ball Hill Wind Project

Dear people,

I am an Arkwright resident.

I feel this project is very bad and wrong. Outdated turbines, not enough bond money, lousy corporate secrets, the usual corruption.

If these come any closer to Arkwright you will have the fight of your corporate lives.

Thank you, Peter Calanii

"The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings." Masanobu Fukuoka

SDEIS-0012-1

From:

Mark Sweeney <mark.sweens16@gmail.com>

Sent:

Tuesday, March 15, 2016 9:50 AM

To:

Sweeney, Mark

Subject:

Fwd: Opposition to Ball Hill Wind Project

Mark Sweeney

Sent from my iPhone

Begin forwarded message:

From: "Town of Villenova" < <u>villenova@hughes.net</u>>

Date: March 15, 2016 at 8:28:57 AM EDT

To: <mark.sweens16@gmail.com>

Subject: FW: Opposition to Ball Hill Wind Project

----Original Message----

From: Jonathan Townsend [mailto:jonathanptownsend@gmail.com]

Sent: Monday, March 14, 2016 2:20 PM

To: villenova@hughes.net

Subject: Opposition to Ball Hill Wind Project

Dear Sir or Madam,

My name is Jonathan Townsend, and I am writing to voice my strong opposition to the proposed wind energy development at Ball Hill. There are undoubtedly many reasons that one might write in to protest this project, so I will focus on an area I am uniquely qualified to comment on - the risks this poses to bats. As someone who has had a lifelong passion for bat conservation, and as a bat biologist, I am opposed to any wind energy development at the scale and intensity that will be found at Ball Hill. My opposition to the project falls largely into two categories, habitat fragmentation and loss, and bat fatalities associated with construction and operation of the facility.

Habitat fragmentation, while admittedly is less of an issue for bats as opposed to birds or other organisms, will still result in a net loss of roosting habitat or direct loss of roosts through clearing of forests to put in access roads or transmission lines. It will also result in bat fatalities, stress on bat populations through construction activities, and a change in the landscape that will have an impact on the bat populations found there. Yes, bats do often forage in open areas in the canopy, and yes this project will create such openings. However, forests in the County are already fragmented, and there are no lack of forest clearings for bats to exploit. There IS a lack of contiguous mature forest for roosting habitat, which is exactly the type of habitat that species such as the northern long eared bat utilize. As you may know, the northern long eared bat is a species that was recently listed as "Threatened" by the USFWS, and from bat surveys associated

SDEIS-0013-1

SDEIS-0013-2

with this project has been deemed likely to be living within the project area. Additionally, bats can travel well over 10 miles in an evening while out foraging, so there is the potential to impact bat populations not surveyed for or quantified in the SDEIS.

SDEIS-0013-2 Continued

Construction activities are part of the process of habitat fragmentation. The Ball Hill SDEIS claims that construction activities "would not be expected to have a significant adverse effect on bat populations because bats are most active at night when construction is not taking place and because they can temporarily relocate". Bats ARE most active at night, but they still need to sleep, which occurs during the time that construction activities are occurring, so this will still have an impact. Bats CAN relocate - but this relocation puts stress on bats that would normally

not occur, places them at an elevated risk of predation, and lowers their success in reproduction

SDEIS-0013-3

Long known for the impact on bird populations, the wind energy industry actually has greater impacts on bats. On average, around

and foraging, which can potentially impact the entire local population.

SDEIS-0013-4

500,000 individual bats are killed each year in the United States as a result of wind turbine operation. Couple this with the losses from White Nose Syndrome (WNS), a disease affecting cave hibernating bat species, and this becomes a very real conservation issue. Nearly 6 million bats have died in the US since WNS was discovered, also in that time an additional 5 million bats may have died from wind energy related fatalities.

SDEIS-0013-5

Depending on whether you use the SDEIS estimates of bat fatality regarding individual turbines or based on the overall megawatts of turbine production, mortality rates of up to 1440 - 1630 individuals per survey season (roughly April to November) are possible. Bats reproduce slowly, generally having just one pup per year. When populations become impacted in this way, it becomes harder and harder for these species to replace those lost each year, and still maintain a viable, thriving population. Wind energy disproportionately impacts the migratory "tree" bats, while WNS largely impacts "cave" bats - between both of these major sources of mortality each group has been put under extreme pressure. These are just two sources, among dozens of other issues such as human persecution, environmental toxins (heavy metals, pesticides, herbicides etc), and an unstable, unpredictable climate. Each individual bat is crucial, especially for species such as the northern long eared and little brown bats - who have experienced dramatic declines (90-98%) in NYS resulting from WNS, and who are likely to inhabit or utilize the project area for this wind park.

SDEIS-0013-6

We cannot hope to turn the tide for our local bats if we keep justifying the need for projects such as this based on anthropocentric minded values. While I applaud the desire to move away from fossil fuels, I do not think this is the right direction to take. As a consultant conducting post construction bat and bird fatality studies in WNY it wasn't unusual for me to drive 800 miles in a week to document fatalities, and when factoring in diesel truck operation for clearing, constructing and maintaining these facilities; as well as the removal of trees that store carbon; it becomes clear that the industry overall is anything but fossil fuel free.

SDEIS-0013-7

Human activities have created immense tracts of developed land - parking lots, roof tops and streets, that we can utilize for less intrusive methods of electricity generation like solar, or smaller scale, more bat friendly, wind energy units. Projects like this one at Ball Hill will take a rural, agricultural, or forested region, and dot it with enormous, intrusive turbines that will irrevocably change the landscape. Bats everywhere are in deep, deep trouble. Not just locally, but worldwide. They are also extremely crucial organisms, and the more biologists study them, the more crucial they appear to be. In this age of spreading mosquito borne pathogens, destructive agricultural pests, or other insect related issues, it makes sense to conserve our bats,

SDEIS-0013-8

SDEIS-0013-8 Continued

not add to their woes. If not for their intrinsic value, let's conserve them based on ecological economics, for bats provide billions of dollars in ecological services that often go unnoticed. I ask that you please consider the impact this project will have on bats - ANY impact is unacceptable when considering the mounting issues they currently face.

Thank you for the opportunity to voice my views on this matter, if you have any questions please feel free to contact me. I appreciate your time and consideration.

Sincerely,

Jonathan Townsend

Judy Phillips 9850 Silver Creek- South Dayton Road Forestville, New York 14062 716-988-7727 March 14, 2016

Villenova Town Board 1094 Butcher Road South Dayton, New York 14138

## To the Villenova Town Board:

This is the second letter I've submitted to the Villenova Town Board as the SEQRA lead agency for the proposed Ball Hill Wind Project. For the following reasons, I am asking the board members to stop this proposed industrial project from <u>any further continuance</u> by not accepting or approving the SDEIS and vote for the <u>no build</u> alternative.

- Many Villenova residents are not well informed about the details of the industrial Ball Hill Wind Project and how their involvement can affect it, the procedures and steps involved with its approval, host agreement and PILOT incentives, other agencies involved in the project, and the timelines and deadlines that influence the outcome.
- For residents with the limited forms of access in our area to the internet, the slow download of the many appendixes is frustrating and may deter residents from reading about the project on the Ball Hill web site.
- This project would cause health problems for residents.
- Construction and operation of this project would cause damaging, irreversible, wildlife and plant habitat fragmentation, considerable long term environmental and major negative visual impacts to our rural community.
- Wind power is intermittent, unreliable and heavily subsidized by taxpayer awards (surcharges on electric bills) though the NYSERDA renewable energy contract.
- Town of Villenova wind laws would have to be amended to allow 500 foot turbines.
- Decommissioning agreement may be very difficult to enforce with another perhaps oversees located wind company. Turbines could be rebuilt or replaced on land after their 20 year "lifespan". Wind farms are often sold multiple times because any new owner will receive tax incentives based upon the <u>higher</u>, <u>original start-up value</u> of a turbine.

I've spent many hours trying to understand this complex project, after reading the SDEIS, I am against this industrial project being constructed in the Towns of Villenova and Hanover.

Sincerely,

Judy Phillips

SDEIS-0014-1

SDEIS-0014-2

SDEIS-0014-3

SDEIS-0014-4

SDEIS-0014-5

SDEIS-0014-6

SDEIS-0014-7

SDEIS-0014-8

SDEIS-0014-9

## Comments Recorded at the March 2, 2016, Public Hearing

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## BALL HILL PUBLIC HEARING

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Proceedings held at 1119

Route 83, South Dayton, New York, taken on March 2, 2016, commencing at 7:00 P.M., before ERIN L. McPARTLAN, Notary Public.

- 1 RICHARD ARDILLO: We're here tonight for a public
  2 hearing on our environmental impact study with
  3 the wind project.
- 4 Could I have a motion to open the meeting?
- 5 ANGELO GRAZIANO: I'll make a motion.
- 6 KEITH BUTCHER: I'll make that a second.
- 7 RICHARD ARDILLO: All in favor? Okay. Motion
- 8 carried.
- 9 DANIEL SPITZER: Just for the record, if you would
- just let the stenographer know who made the
- 11 motion and who made second.
- 12 RICHARD ARDILLO: Angelo Graziano made the motion and the second by Keith Butcher.
- At this point I'm going to turn the meeting
  over to our attorney representing the Town of
- Villenova for the wind project, Mr. Dan Spitzer.
- He'll be conducting the meeting from here on out.
- As you're given the opportunity to speak,
- 19 please when you do so, if you stand, state your
- 20 name so that we have a record of who all said
- 21 what. Okay? Thank you. Dan?
- 22 DANIEL SPITZER: Thank you, Mr. Supervisor. Good
- evening, everybody. Hopefully everybody made it

safe and sound here. We came up 83 and there was a car flipped over on its side and they were definitely going a little faster than we were, so I'm glad you're all here safe and I hope whoever -- I didn't see anybody hurt or anything, so hopefully no one was hurt tonight.

We are here tonight to talk about and to move forward the next phase of the Ball Hill wind project. To those of you who have been following along in the community, the project has been moving along at a pace that really reflects the wind industry in New York. As the industry has looked for the opportunities to work with the state and move forward this project has moved along, and here is where we're at and here's what we're going to do tonight.

Whenever you have a project of this scope it's important to take a look at the environmental impacts along with the economic and social impacts, and that process is done through a document known as a draft environmental impact statement. The draft environmental impact statement, or DEIS, is prepared based on a scope

which are the things that are to be studied that is set out by the town board. The town board initially adopted a scope and the project applicant prepared a DEIS for this project a number of years ago. Since then the project has changed to reflect technology, the fact that there are more powerful turbines capable, now the less turbines are needed to produce the same amount of energy, other changes within the industry, and as well as to reflect any changes that have gone on in the local environment.

So the current document that in front of the town was -- is called a supplemental environmental impact statement. It basically looks at the changes that happened since the original DEIS. Now, tonight we're looking at everything related to the project.

In addition to asking questions about the DEIS and the SEIS, this is also the time for you to state what your opinions are about the project, yea or nay, and to ask any questions about the projects approval. This is also the public hearing for the town on the zoning aspects

of the approval, so if you live in the Town of Hanover where this project is also located, the Town of Hanover will have its own hearing if it goes forward with the project. But for -- anyone who is here can ask questions, but they want the way it works tonight is this is a public hearing which means generally you can make any comments you want. You can ask any questions you want. It's not generally intended to be a debate, though, or back-and-forth. The applicant has agreed to try to answer any questions he can, but keep in mind that the process requires that any questions that are asked tonight or any question that you submit in writing to the town hall in the next ten days will be answered in a document called a final environmental impact statement, so every question will be answered whether it's answered tonight or not.

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The way we're going to proceed tonight is

I'm going to turn things over to the applicant.

They are going to make some introductory remarks about the project. They are going to turn it over to the environmental expert who is going to

give an update of what was done on the DEIS and explain the most recent changes, and then we're going to -- going to open it up to the public, to you, for your comments.

As the supervisor said, please be sure to say your name and address so that we have it for the record. Try to limit everybody in terms of -- we're not going to try to hold to tight rules, at least to start with and how much time, but we do want to make sure everybody gets a chance to speak, so we have to try to keep the comments within three to five minutes if you can, at least the first time through, so that we all get home at a decent hour, but also to make sure everyone has a chance. Remember, you can submit anything that you think of after tonight in a written comment to the town, so everybody will get answered.

So the wind project is proposed by the applicant, RES Americas, and at this point I'll turn it over to Dan and your team to move forward.

DAN BOYD: Thanks. Good evening. I'm Dan Boyd. I'm

a senior director of development for RES

Americas. We're the developer for the project.

As Dan kind of mentioned already, I'm rather

familiar with the project. I used to work for

Noble Environmental Power, the original applicant

on the project, and we have a lot of the same

people still working on this project today.

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I'd like to kind of start off by telling you a little bit about how -- I think some people in the audience know a little bit because they have seen us, Kristin, some of the team might have been in to see you at your homes or businesses. But RES Americas, we are part of a hundred-and-forty-five-year-old family-owned construction company, started building aqueducts and railroads in Ireland, Scotland, about a hundred and forty-five years ago, still owned by the family, fourth generation of family leadership. In the '80's started a company called Renewable Energy Systems focused on renewable energy. In 1997 they started RES Americas, and since then we've been the leading developer and constructor of renewable energy

projects here in the U.S. We've built over eight thousand megawatts of projects, to put this in perspective, and this is a project here that's going to be in the range of eighty to a hundred megawatts, so it's a pretty -- pretty large number completing over eight thousand. We've built about ten to twelve percent of the operating wind in the country when you look at it at that scale. We do projects that we both develop and construct, which is -- this is a project like that, but we also build projects for a lot of the other leading developers in utilities.

So a little bit about our team. As I mentioned before, I'm familiar with this project probably since 2008 when it was -- when our company as Noble first came up with it, and since then I've been a few different places, always focused on renewable energy. Now my roles and responsibilities are basically to focus on the development efforts for places here in the northeast, and with me is Mark Lyons who is the project manager on this particular project. Mark

and I have also worked at Noble together. We worked together for the last eleven years, have built a number of wind projects, and now it's other technologies like solar and energy storage.

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Also as part of the RES team with us is Sean Flannery who leads our permitting efforts for Sean is in the Minneapolis office and supports all of the efforts for permitting in the Also from RES is Aaron Lowe. northern U.S. Aaron represents our pre-construction team and is helping us make sure we have all of the right things in place as we go through the next steps and into construction. And then from our legal counsel for the project is Mark Sweeney. Mark's also familiar with the project. He's been with the project as special counsel since its inception back in 2008. And then our land agent, Kristin McCarthy who I think many of you know also was with us back in the day at Noble Environmental Power and is our local land agent And then from ecology and environment is Mike Morgante as the project manager on the environmental aspects. His team is responsible

for basically everything you're looking at in front of you, making sure that we follow the law that Dan mentioned before, and get all of the appropriate studies complete and into the document, and he's also been along with the project since 2008.

So as I mentioned, this is something that the team feels very strongly about, where we are happy to be continuing the project along. We hope to bring a successful wind project here to the town for your benefit and the benefit of -- of our environment.

I think at this point I'll turn it over to Mike to kind of walk a little bit through the project. It's a -- originally it was a fifty-one turbine project. We've reduced the number of turbines due to upgrades of technology. We were talking about a thirty-six turbine project, now twenty-eight turbines would be in the Town of Villenova with eight turbines being in the Town of Hanover. There's a substation and a transmission line that brings us through the Town of Hanover up to the transmission lines that run

through the area, just so they kind of parallel the I-90 corridor. And really that's the project, but I'll let Mike kind of get into the details.

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MIKE MORGANTE: Thank you, Dan. So 2008 may not seem like it's all that long ago, but think of your phone, your car, your computers. Things have changed a little bit. So if you're going to do an EIS, there was a draft EIS back from Noble, the original applicant in 2008 that's about wind turbines and construction and everything else that's building a wind energy project. It has advanced quite a bit. advanced. one of the things that as Dan Spitzer explained, you needed to do a supplemental environmental impact statement updating what has changed, what conditions have changed from that original draft EIS that was accepted -- accepted by the towns, and things outside of technology changed as well. The environment changes in a number of different ways, so what the town board had asked the applicants and RES to do was to provide a supplemental environmental impact statement

addressing about ten different topics specifically to see what has changed over the last few years with those topics, and then also to update it for the newer technology.

You have a -- as Dan just mentioned, you have fewer turbines because technology has gotten advanced so that each turbine can generate more power. This makes them taller. It lets you have fewer of them, unless you have a smaller footprint than you did in 2008. All of these different things affect many of the resource areas that were evaluated in the original draft EIS.

So what RES tasked ecology and environment and several others on the team is to go ahead and update these areas and provide the supplemental environmental impact statement, so comprehensive studies were done for what was needed to gather that and to look at -- you know, assess what the potential impacts are from this current layout and plan of a wind energy project.

One other thing that changed, as we do have a different company involved and they do things a

little different way, and in particular they have some of their own standards and setbacks and some of the previous applicants had a little bit less, and RES actually has a more conservative approach to that, so these things need to be taken into account in terms of -- in terms of the analysis.

No, I'm not going to go over the entire supplemental SEIS. We do want people to get home tonight. I'm going to generally go through a summary of the ten different topics here briefly that are also behind me that you can see after if you want to stick around and look at that. So there are different resource areas. Again, there are about ten topics. I'm going to highlight a few of them.

You know one of them is land use and biological resources, you know, update any impacts on land use, vegetative communities, wildlife and specifically threatened and endangered species, including bald and golden eagles. So give bald eagles a few years around here. With the great success you're having you'll have more of them.

So one of the things they have done is checking with the wildlife agencies, getting a better handle on the local bald eagle community. There were additional surveys done specifically looking for bald eagle use throughout the project area. There were also breeding surveys done, some concern with bats on a number of fronts with white noise syndrome decimating their populations across New York State and elsewhere. Some additional studies were done in the project areas since the original draft EIS so this information was taken -- it's included in the supplemental EIS in full detail and an updated look at what the existing conditions and elevating those potential impacts may be.

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Other areas, visual resources, perhaps, you know, for many what may be the biggest impact. The biggest change in the community is you're seeing them for -- once it's built, so we did bring a couple of examples here. There is a full update visual resource assembly that was completed for the current proposed project that you can see in the EIS. We brought a couple

diagrams here with the top row being existing conditions photographs, and then the bottom row being what it would look like in actual conditions if the proposed turbine was in its place, so obviously there are -- this is only three sets of photos -- represented photos.

There are many, many more that were completed as part of the visual resource assessment, so these are -- again, visual resources is a big area.

Sound is another one of the topics that the town wanted the applicant to go over and refresh, so a new sound level report was constructed with changes based on, you know, the technology, the fewer turbines. And like I said, you know, that affects -- even in turbine models affects what the sound is assessed, was so that was updated and is included in the supplemental EIS.

Wetlands is an area that RES had Fisher

Associates get out and start doing wetland

delineations for the updated layout and

footprint. Wetland delineations cannot take

place year-round, so as far as -- as far as they

got into the fall within the acceptable seasons

for the wildlife agencies we worked with, that data and previous data, and once April comes around I believe is the start date they will finish off the delineations. And the plan is for all that information to be included in the final EIS to update wetland conditions. Those things change over time as well, so that was initiated and will be completed soon in 2016.

Those were sort of the big four topics I wanted to highlight. Some of the other areas were soils and, you know, what type of impacts or changes might there be with the new layout or, you know, farmable land and any other changes in land use of the community. And similar to wetlands with water resources and seeing what the new layout has in terms of impacts for groundwater, for surface water, for stream crossings and stream delineations, those were associated with the wetland delineations mostly completed this fall but will be completed in the spring for the rest of -- for everything that wasn't initially captured.

And then communications. You know, tall

structures such as the turbines could potentially interfere with communications such as AM/FM and microwave networks and television signals, you know. An updated study was done to look at that, and those results are included in the environmental impact statement and cultural resources.

While this has changed a little bit through the years, the project boundary has pretty much stayed the same, so the layout and proposed locations of where the different turbines are changed a little bit through the years and fewer of them in terms of cultural resources and architectural and archeology surveys, a lot of the footwork really had already been done because it's been the project boundaries, so that was updated for current conditions. These reports are included in the supplement and a cumulative impact.

So as far as part of the environmental impact statement, you need to look and evaluate the potential impacts of your own projects, but then you also need to look at the other projects

that are in the vicinity. In 2008 the other proposed projects are very different than what they are now, so that was -- cumulative impact analysis was changed to represent the Ball Hill project in addition to the Arkwright Summit project and the Cassadaga project, so that was pretty much an update.

So I just took several minutes of your time to summarize a document that if printed out is about that big and many pages for you to view online with the supplemental EIS. It's just a summary. It's certainly not even close to all the details. That is representative of the different topics and analyses that were done that went into the supplement and more so that the ten or so items and resource areas that the town board asked the applicant to review specifically for the supplement were completed, which they were.

So I'm going to turn it back over to Dan.

DAN BOYD: Many of you are here -- you got notice or saw it in the paper or whatnot, but the document that Mike is talking about, you know, the

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summary, as he said it here some of the excerpts,
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 2
       but the whole document is available online at
 3
       Ball Hill Wind dot com and is also searchable, so
 4
       you can download and review and receive any of
5
       those -- review those and also at town hall.
6
       Okay.
7
   DANIEL SPITZER:
                     Thank you very much. Okay.
8
       comes your turn. So what I'd like -- as I said,
9
       if you would stand up, talk loudly so the
10
       stenographer can hear you, say your name and your
11
       address.
                And we're ready. Who would like to go
12
       first?
13
    TINA GRAZIANO: I don't have a lot of questions but I
14
       have a letter.
    DANIEL SPITZER: If you'd like you can ask questions,
15
16
       or if you want you can submit the letter to the
17
       stenographer -- to myself. We'll give a copy to
18
       the stenographer and any questions that are in
       the letter will be answered. The letter becomes
19
       part of the record.
20
    TINA GRAZIANO: I'd rather read it.
21
22
   DANIEL SPITZER: Please.
23
    TINA GRAZIANO: Good evening. Tina G-R-A-Z-I-A-N-O.
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And a lot of you here -- I know this is not even close to the total number of people that live in Villenova. A lot of people I'm sure didn't even  $n^{SDEIS-001}$ 5-1 know this was available online or anything like That's kind of an issue I have right now. that. I would like to request another public hearing and have the deadline for written comments extended until after the next public hearing. The reason for this request is a lack of notification to the residents of this township. Town law states it only requires to place a legal notice in a local paper. Well, very few here received this paper, and even so, who looks in the legal notices? It all appears when you do to be sneaky and private.

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Last meeting Angelo stated that -- we all stated that we need to get this info out to all the residents. I suggested letters with the proper time and place, and maybe even a postage-paid survey included with a mail-by date before the next public hearing. Everyone has an address and mailbox. This way every resident will be properly included. I would take up Gary

Park's invite for the Southgate Fire Hall to meet at. It's large and available for all with plenty of parking. Every resident needs the opportunity to voice their feelings and questions.

Please do not divide this community. My
husband, son, and I moved to property on the
Wentworth Road in 1992. I lived in Arkwright and
Villenova for the majority of my life. We wanted
to build here and stay here. This spot was
picked for the beautiful view of the hills and
the skyline. We moved our mobile home up here
and made plans to build behind it. In the late
'90's we began. We staked out the basement -excuse me -- just right for the awesome view and
designed and drew out our plans and the two of us
built our home.

We finished it in 2001. From the front steps we can see Arkwright to Round Top to North Hill to Ball Hill and on, and guess where the turbines are going according to the map of the project -- which was also online that tells you what you can see, we will see over twenty-five.

Our beautiful view will be full of steel. I had

no idea this would ever happen. I always thoughtenined we would preserve our wonderful landscape. It's what we're known for here. That's why we are here and that's why we are living here. If we wanted a man-made skyline we would live in a city.

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Not only will we constantly have this in  $our_{SDEIS-001}$  is  $our_{SDEIS-001}$ face, I have to observe every turbine killing and maiming our wildlife. I counted twenty-two SDEIS-0015-4 turbines all around wet spots. What are you thinking? There's nothing on these turbines about the bats. They will get a permit to allow them to cover the eagle kill. Just look up sometime and notice all the bird activity we enjoy. Our eagles are here, the herons, hawks, ducks, geese and songbirds will be executed or injured daily. Birds that get too close will have their lungs ruptured. This is disgusting,  $\frac{1}{150}$  and  $\frac{1}{150}$ cruel waste for nothing gained. Cuomo is going to hand out a hundred and seventy-five million dollars for five New York State projects with Ball Hill listed as the largest bill. That's all money from us. You can find it right on your

SDEIS-0015-7

SDEIS-0015-8

electric bill.

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But why hurry now? There is a new design for a bladeless turbine coming out soon, no blades. It is said it's cheaper and easier to maintain with less moving parts, bird friendly, and easier on the landscape.

Right now the proposed turbines hold about a hundred gallons of oil, just an environmental hazard waiting. We can wait and see how everyone handles Arkwright's project. Let them be a sacred cow. Once you have them in your face you might change your mind.

Thank you.

DANIEL SPITZER: Thank you. Who would like to go

15 next?

16 GREG SNOW: Over here.

17 DANIEL SPITZER: You can come up or stand up.

18 GREG SNOW: I heard her comment on notification and

19 at the second meeting. I have to agree with

20 that. Most of my neighbors I've spoken to

21 received no notification, had no idea that this

22 meeting was happening or that this project was

23 even a thing. I believe we should have another

meeting with proper notification for all other residents of the town.

DANIEL SPITZER: Next?

4 ANGELA HUGHES: Angela Hughes, 1141 Cassadaga-Hamlet
5 Road.

And a couple of things. First of all, I'm retired military. I've traveled all over the world and they've had -- for many, many years overseas we have had them, and I have nothing but good things to say about them.

Number one, if you're talking about -- I

mean, it's cleaner than any other energy you can

use. I really totally believe that with my whole

heart. And if the birds are that darn stupid -
I don't know. I mean, I'm not trying to be

funny, but there's not that many birds killed

compared to the, you know, environmental issue on

it.

And plus I'm saying I was down in North

Carolina and I heard about this meeting and I

know -- I seen it as well online because I was

keeping up with this, so if I'm coming from North

Carolina, so I have the other aspect. You could

be right in what you're saying, but my issue is is that if I heard it from North Carolina, why didn't the other people hear it? Just a thought.

So -- but anyways, I'm for it and I can't see

Number one, I believe, and I may not be speaking right, but it's going to help us with our taxes. It's going to help us with our historic properties here, and we've got to admit this town is really going down and it needs some help and everyone could use some tax money here.

If there's anyone here that can't use help with their tax money, raise your hand. Okay. We need

MEETING ATTENDEE: That ain't gonna help us with our taxes.

DANIEL SPITZER: We really need to go one at a time so everyone can get their name on, everybody.

Not really a debate. Thank you.

We need help --

nothing but good things.

help.

ANGELA HUGHES: So I'm just for it. I am. And like
I said, I can't stress enough, I was all the way
down in North Carolina and I heard about the
meeting, so -- and I have coffee and tea and

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drinks and some snacks over at my house if
1
       anybody wants after, so --
 3
                     Thank you.
   DANIEL SPITZER:
 4
   ANGELA HUGHES:
                   Thanks.
5
   DANIEL SPITZER: Who would like to go next? Yes,
6
       sir?
7
   RICHARD HAGEL: In relation to the what people in --
8
   DANIEL SPITZER: Sir, would you tell us your name and
9
       address?
   RICHARD HAGEL: Main Street, South Dayton, New York,
10
11
       14138.
12
   DANIEL SPITZER: Thank you, sir.
                                                         SDEIS-0015-14
13
   RICHARD HAGEL: If she got it online there's a whole
14
       bunch of us old timers that don't even have a
15
       computer, so that puts us right out of that
16
       equation right there. I'm for it, by the way,
17
       but if it takes a computer to find out there's
       meeting, there's a whole bunch of old farts like
18
       me that don't have a computer.
19
20
    DANIEL SPITZER:
                     Next? Who would like to go next?
21
       can't believe that's everybody. Okay.
22
   HOWARD CROWELL: Howard Crowell, C-R-O-W-E-L-L.
23
       was on the town board here back in 2008 the when
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this proposal was first brought to us, and I think after this many years if the community didn't know whether there was going be windmills SDEIS-0015-15 here had their head in a hole somewhere, but I'm surprised there's this much opposition at all. Ι hadn't heard of any opposition across the townspeople that I talked to. And as far as -as far as the Burke Hill, they talked about that | SDEIS-0015-16 I remember reading one of the Burke Hill studies back then and the list of priority on what killed the birds, the automobile and the birds of prey, and the last thing the front of your house and all that stuff right down through there, your neighborhood kid with a BB gun, you get down about ten, twelfth place, about one or two percent of your bird kills that's where the There's stuff killing birds long windmills is. before any windmills kill birds. And if you look at something -- you're talking about maybe afraid they're going to ruin their view, as far as I understand, I think they are beautiful. I got pictures of the sunrise on my cell phone with the background and the windmills and I think they are

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beautiful. 1 2 ANGELA HUGHES: They are. 3 DANIEL SPITZER: I need people to not comment on the 4 other people's comments. SDEIS-0015-18 5 RICHARD CROWELL: I think this is something the town 6 could use. They need this money to do some work 7 for the buildings and our roads, get them up to 8 where they ought to be. And we had a gentleman there back in 2008, he was -- I can't remember 9 10 his name, but he was the supervisor in the Town 11 of Eagle. He came up and talked to us on the town board at that time and he was talking about 12 13 how it helped them drop their tax rate to almost 14 nothing and with all the extra money they could 15 spend on the buildings and roads and stuff, and I 16 think we could use it up here and we've needed it 17 for a long time. DANIEL SPITZER: Who would like to go next? 18 19 CHARLIE BRECHT: Charlie B-R-E-C-H-T, 9709 Round Top 20 Road. 21 Some of these turbines are going to be down 22 the road from us. Greg Snow told us Sunday --23 you know, we get the paper. We've been up there

for a little over twelve years, you know. We knew about it in 2008, but we had no notification of this meeting at all tonight. So you know, we have a small piece of property. We only have five acres, but if it wouldn't have been for him we wouldn't be here. And I'm not saying for or against or anything like that, but I agree that the notification should go out to everybody that's -- that has to do with this project.

That's it. Thank you.

DANIEL SPITZER: Next? Mark Lyons, do you want to say something?

MARK LYONS: I just want to confirm we're going to respond to every question and comment that's made here tonight, but I just wanted to clarify that with regard to notice, we did what we were required to do under the State Environmental Quality Act, but we also sent notice to about two hundred and eighty additional homes, landowners around the site. Now, it's not a perfect world. We may have missed some people. Obviously people are here tonight. Somehow they got notice. But I just wanted to assure everyone that there will

be another public hearing in this process. There will be another public hearing when we finalize our amendment application, our application amendment when this environmental process is completed in about three or four months' time. So we're going to take all the input, continue our studies, finalize the environmental impact statement, and then go back to the towns, file whatever amendments we need to to comply with the town law at that point and reflect all these changes and there will be another public hearing. DANIEL SPITZER: And I can confirm on account of the town there's going to be not only one here, but one now for the same purpose -- so really my knowledge of the law, at least there will be two more public hearings and we can certainly recommend to the town board maybe two hundred eighty homes wasn't enough, maybe recommend that there be a notice sent to the assessment roll.

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And by the way make, sure the addresses are right on the roll because by state law it goes to the address on the assessment roll, but that's something the town board can consider too in

terms of the notification of the next few months as they are working with the applicant in terms of the form of notice. But Mark is correct, there is going to be at least another hearing and the town board I think is certainly concerned about making sure there is full notice.

Next question or comment?

CLIFF RUMSEY: Cliff Rumsey, 1593 Cassadaga Road in

Forrestville.

We hear a lot about the things where they are supposed to help townships and county -- I don't know if anybody has really done any homework. In the Pike area you see a lot of them up there. How much has it affected their area? Have their taxes been -- do they have a reduction in their taxes up there or is it just the landowners that made money or what is it?

There's a lot to this.

Myself personally, I can remember the Pike area when they didn't have any and it doesn't look too pretty up there no more, so -- and SDEIS-0015-22 there's a lot of them there. And we're going to have the same thing here, but the benefit to them

SDEIS-0015-22 Continued

is that it's -- it's gonna help the township a lot I could understand, but what from I've read about these I don't think so.

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DANIEL SPITZER: So let me ask you a question generally. In terms of any funding that the town receives it's up to the town board to decide how to use that funding, and therefore the community could never promise you -- or, the current town board couldn't promise you that your taxes would definitely go down because it's up to the current town board if they receive any funds and future town boards how to receive the money. I am very familiar with the projects. On Wyoming I worked on all of them except the Eagle project and I worked on the second part of the Eagle project. Every one of those towns has no or very little Each of those towns decided to use the taxes. money first to reduce the taxes from the town, the town share of the taxes. In Weathersfield I think in addition you wrote a half a million dollar check at the end of the project to the town that they used to improve the roads. one of the communities -- you can go to them or

contact the elected officials. Every one of these communities reduced the taxes. Every one of those communities has improved its roads, every one of those communities has used them to improve historical sites. That's part of the requirement for any of these projects in New York that they work with SHPO to restore historical improvement.

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The Arkwright project has -- expects its The town board has initially indicated budget. they intend to use the money they are going to receive if the project is built starting in 2018 to reduce taxes. They are expecting their levy to be reduced by three hundred twenty thousand dollars, so that's the benefit that would be spread across their town. And I don't know what their total levy is so I don't know what the percentage is. I can tell you the first projects I worked on with Mr. Lyons with Noble, Clinton, Altona, Ellenburg, and then Chautauqua, and not a single one of these towns has a local tax anymore. Every one of these used it to wipe out the local taxes.

If you go to the Tug Hill area you'll find about twenty dairy farms that are still operating because of the revenues from that project, which doesn't involve any of these applicants. go to the Clinton area probably about forty dairy farms that are still operating as a result of the Noble projects and that's on the second half that you mentioned, the land owners getting a benefit. So there's no -- the financial benefits have been pretty well documented now because we've had wind farms going back to the one in Madison County about ten, eleven years now, and the actual benefit to the communities are something that you can find out about and they are pretty well documented that the communities have benefitted. CLIFF RUMSEY: That's what I would like to know, because, you know, everyone can say what it is, but this has already been done in other communities and that's what we should know, not if -- I mean, what really happened happens, you That's all I got to say. DANIEL SPITZER: Who would like to go next? LISA BRAIN: Lisa Brain, B-R-A-I-N, 8994 North Hill

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Road, South Dayton.

I'm kind of like in the middle, I guess.

Like you know, yes and no. I think it's just more information and more learning about this.

Yes, I agree the global everything, but as far as yeah, they do look beautiful but not in my back yard. Maybe in the far distance.

I'm concerned very much about the noise because from my house on that map I think there is twenty-eight, and I think four of them are

literally going to be wrapped around my propertisces.0018-25

The money issue, the town could benefit.

Great. I'm for that. Like there's a lot of

things I'm for, but you're talking a windmill is spended that is two hundred fifty foot by twenty-five foot per wing, is that what we're talking about, the real big ones?

MARK LYONS: Yes.

LISA BRAIN: And five hundred feet tall. But the wing span itself, okay, and then so that's kind of major, I think, in my back yard. And then the post just being -- if it's here you're talking -- okay. So that's kind of a huge thing, you know,

just to have in your back yard. 1 2 DANIEL SPITZER: Would it help you to have one of the 3 RES folks describe the wind tower, and then you 4 can begin your questions? 5 LISA BRAIN: Yes, but I have a couple more questions, 6 maybe if you want to answer all at the same time. 7 DANIEL SPITZER: We weren't going to cut you off. SDEIS-0015-27 8 LISA BRAIN: I have done reading and research because 9 it is important to me, something with the sun reflecting on it like a strobe-type lighting 10 11 reflection. 12 Shadow flicker, it's called. DANIEL SPITZER: 13 LISA BRAIN: I have two people that have epilepsy in 14 my house and worry about them. 15 DANIEL SPITZER: There's been many studies shown that 16 shadow flicker doesn't move fast enough all over the world to cause epileptic seizures. 17 studied in Germany where they are -- in terms of 18 where they are in the earth it's a much greater 19 20 problem in terms of the wind farms. And that's something -- shadow flicker, that's the kind of 21 22 question that they will provide a much more 23 formal and specific answer to within the SDEIS.

SDEIS-0015-28 1 LISA BRAIN: Also like I said, the noise. I'm worried about so many. Am I even going to be able to hear the TV if I have my windows open in 3 What else did we have? 4 the summer? The other 5 thing was -- I had a whole bunch of them in my 6 head and now --7 DANIEL SPITZER: We can come back to you. 8 mentioned also, you have several weeks to put 9 them in writing. SDEIS-0015-29 LISA BRAIN: Also, we were never notified of this 10 11 meeting. I only know about this going on because my neighbor who I work with, he's getting one oh 12 13 his property and so he was informing me of stuff 14 as we went along. But no, I never received a 15 letter or anything. And as everyone knows, 16 computer service, Internet where we live is like near to impossible, so putting it on the Internet 17 is not going to do nothing. 18 19 DANIEL SPITZER: Thank you. Who else would like to 20 talk? 21 JUDY PHILLIPS: My name is Judy Phillips, 22 P-H-I-L-L-I-P-S, 9850 Silver Creek, South Dayton 23 Road in Forrestville, New York, 14016.

I have been a thirty-three-year-resident
here and I am sixth generation of my family to
reside in Villenova. I was involved -- my family
was involved with this project back in 2008.

I've had a long time to look at all sides of
this. I've also read the entire binder. I do
not see a picture up here of the photo
simulations of Route 93, the photo simulations
that were taken from up on top of Flipper Hill.

I have a question for this company, because we were once landowners that were approached back in 2008 for leasing. Our family discussed this project when it fell through with Noble. I wasn't aware of it, but when I tried to reach representatives, because our family had more questions, we weren't able to. Has this company ever had a project where subcontractors put liens on landowners' properties?

MARK LYONS: I --

20 DANIEL SPITZER: I think they're going to have to go

21 back to their company to get you a full answer.

22 JUDY PHILLIPS: Well, can it be done?

DANIEL SPITZER: I can tell you there was a company

in the area around Weathersfield that had some liens put on, and they weren't put on the farmers' lands. They were put on the towers and the towers are all given their own property number because the taxes are handled by the wind companies. I don't know how these folks are going to do it. I'm telling you how it's done in New York State. So the lien has to go over the tower because if it has to go on the farmer's property the farmer doesn't owe money, so it's not doing the contractor any good. So the liens -- and as I said, I've dealt with this specifically for a number of companies. Ι represented a company that brought some of these liens. Liens go on the towers. The towers are separate property from the underlying land. JUDY PHILLIPS: Okay. So that is the answer to that as far as --DANIEL SPITZER: In terms of how it works in New York, I think they are going have to have gone back to their company and answer it because this is a big company. The folks can't --JUDY PHILLIPS: That was one thing back when we were

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approached in '08 that we never ever would have thought that as participants in a project that there could be the possibility of liens put on the property if there was disputes between subcontractors or owners, wind companies, so I'd like that answered.

DANIEL SPITZER: And the thing I want to mention too about liens in New York, anyone can file a lien. It doesn't make it legal. I represent the Town of Grand Island. We got in the mail today a building that we lease and I wrote a letter this afternoon, thank you for the letter about the lien, it's null and void, we don't own the building and there's no public funds involved. You can't lien public property anyway, only public funds, so people -- anyone with basic filing can file a lien. It doesn't mean it's a valid lien.

And I can tell you in New York the way these are set up, it would never be a valid lien against the underlying lessee where that comes a lot is not with the wind farms. Where I deal with it a lot in my practice, I deal with the

telecom towers, because the telecom towers may 1 2 change hands a lot. Sometimes they don't pay the 3 Sometimes they don't pay the contractors. 4 Sometimes there is disputes with telecom on 5 there, so there's a lot of stuff that's going on 6 with those. And the liens are never against the 7 farmers. Farmers aren't the ones who owe the 8 money. 9 JUDY PHILLIPS: But they are considered participants 10 in the project, the construction of -- during the 11 production. 12 That doesn't make them legally DANIEL SPITZER: 13 liable for anything that goes on on the project. 14 So worst case example, somebody is hurt during a 15 project, the property owner has no liability, in 16 fact, is completely exemplified. Doesn't matter what kind of company you're talking about or what 17 kind of project you're talking about. 18 19 JUDY PHILLIPS: I would like RES Americas to --20 If you want to answer that. DANIEL SPITZER: 21 MARK SWEENEY: I would. My name is Mark Sweeney. 22 I'm the attorney representing RES. And Dan is

accurate with towers and things of that nature.

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The lien would go on that property. There is no
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        underlying dispute or money owned between the
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        landowner and subcontractor, for example, so no
               It doesn't necessarily stop somebody from
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        incorrectly filing something. That can happen.
6
        However, if that does happen, there's no way for
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        them to enforce it and it could be -- if it had
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        to be removed it could easily be removed, so it's
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        -- again, it's -- you can stop a third-party from
        doing something that isn't correct but there's no
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        -- nothing that's going to happen in the
        construction that is going to make a link that
12
        would enable them to lien your property.
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    JUDY PHILLIPS:
                    Okay.
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    MARK SWEENEY:
                   Okay.
16
    DANIEL SPITZER:
                     Who would like to go next?
17
        sir?
    DON CHASE: Don Chase. 307 Route 322, South Dayton,
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                                                         SDEIS-0015-32
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        14138.
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             If shadow flicker is not covered under the
        SDEIS, what is covered under it?
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    DANIEL SPITZER: It is covered under the DEIS.
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        There's a specific recommendation in the DEIS.
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They did a study and one of the things they 1 2 updated was a shadow flicker study to reflect the 3 change in turbines, so there is a specific shadow flicker study and an estimate of -- usually the 4 5 way it works is you estimate the amount of hours 6 any particular resident would be exposed, 7 correct? 8 DAN BOYD: Yes. That is in there. 9 DANIEL SPITZER: SDEIS-0015-33 10 DON CHASE: What about vacant land you were planning 11 to develop? 12 I think if you asked them DANIEL SPITZER: 13 specifically a particular property they should be 14 able to tell you what the impact was, but if you 15 look at the study I think you can tell. 16 MARK LYONS: Excuse me, but there's a map in the DEIS 17 that shows the area that would have various numbers of hours of shadow flicker, whether it's 18 vacant or not. And as Dan said, if you want us 19 20 -- if you want some more specific information 21 we're happy to get that to you. 22 DON CHASE: Yes, I believe with the additional five 23 hundred feet added on my wife's property that

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would be impacted with a shadow flicker.
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    DANIEL SPITZER:
                      You mean the height of the tower?
 3
    DON CHASE:
                Yes.
                      It's not five hundred feet higher,
 4
    DANIEL SPITZER:
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        it's seventy feet higher than it was originally.
                                                          SDEIS-0015-33
                                                          Continued
6
    DON CHASE:
                Now the top of the thing is at four
7
        ninety-five and the total is four ninety-five
8
        where previously it was four twenty?
    MARK SWEENEY:
                   Just under four hundred.
9
10
                      So it's an additional hundred feet.
    DANIEL SPITZER:
11
    MARK SWEENEY:
                   And we've set them back an -- they set
        them back an additional six hundred forty feet
12
        which obviously also reduces the shadow flicker,
13
14
        the distance the shadow flicker is visible from.
15
        But if you have any specific questions, if you
16
        can figure them out through the map -- the map,
        get in touch with me or the company and we'll get
17
        you a very specific answer about your particular
18
19
        property or anyone else's particular property.
20
    DON CHASE:
                Thank you.
21
    RICHARD HAGEL:
                    Richard. I gave you my name and
                                                          SDEIS-0015-34
        address before.
22
23
             This power that the wind turbines generate,
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where will it be sold to? Who will this power to?

DANIEL SPITZER: Do you know yet?

MARK LYONS: We don't have a contractual buyer for the power yet. We are seeking one in the wholesale market. But electrically, what happens when you generate power at this voltage, it goes into the grid and the electrons basically flow to where they are needed on the grid, so there's no guarantee that an electron from this windmill will stay in this community. That's not the way the grid works. We all share in the grid. We will benefit from the grid.

RICHARD HAGEL: I was just hoping it would stay in New York State, but apparently you don't have any idea.

MARK LYONS: We don't. I mean, in order to accurately answer that question you need to do a load flow study to figure out at any given point in time based on the balance of the grid where that electricity is likely to be used. Some may end up going to Pennsylvania, I don't know, but I think by and large it will stay in the New York

State grid. 1 2 DANIEL SPITZER: I think the Arkwright folks didn't 3 enter in a contract to sell their energy until 4 two weeks ago, about the same time they got final 5 approvals, so the -- Arkwright just entered into 6 a deal with Bloomberg and the point that Mark's 7 making is very important. Bloomberg is buying 8 the energy. The way the grid works, you put energy into the grid, you take it out. 9 Even if you're hundred miles away it's considered to be 10 11 the same. It's not necessarily the same exact electrons. So Bloomberg doesn't have any 12 facilities in Western New York. The facilities 13 14 are in New York City, but they are buying power 15 from a Western New York wind farm. Does that 16 help? 17 RICHARD HAGEL: I hope so. 18 MARK LYONS: It's like a big pool. You put some water in one end of the pool and you take it out 19 20 It's not necessarily the same of the other. SDEIS-0015-34 Continued 21 drop. 22 RICHARD HAGEL: We have the best power project in 23 country probably in Niagara Falls. What gets me

is a lot of that energy goes to Ohio, you know, and it doesn't help our bills at all.

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So there's credit for these DANIEL SPITZER: electrons going to seven states, but it doesn't necessarily mean that those electrons themselves are actually even leaving the area. They go to where they are needed at the closest. But you're right, congress authorized that plan and congress does as -- my law firm actually helped write the Niagara Development Act. We represented all of the people who got power from the Schoellkopf plant that fell into the gorge that led to that plant being built, and congress basically gave that power from that plant to seven different states because it's power generated by the water that comes through the whole Great Lakes system, and that was back in the '50's when they did that. But that is correct. The law is that what is created by the Robert Moses plant in Niagara Falls is shared by numerous states.

Who else would like to speak? I see a couple people. Go ahead, sir.

BARRY NOBLES: I'm Barry Nobles and I'm with my

SDEIS-0015-37

sister here. I am the son of Hinkley Nobles.

And we just recently bought a small piece of property that's adjacent to my father's property up on Villenova Road from my dear Uncle Norris.

I would agree with the letter thing. We only found out about it from hearing from my parents. We never received a letter. A couple of the concerns I think I would have, and I would invite my sister to stand up and share any concerns she has, is you know, what happens in the long-term with these things when they get how old and do they need to be shut down? Is there some kind of bond that's put up that these will be maintained?

ability to remove them if the company doesn't.

BARRY NOBLES: Okay. Another thing is I'm from a community that has a landfill and we have a host agreement with the landfill and from the landfill point of view management of that is very important and the company that does that does a very good job, but it's important for the community to understand what goes into that. You

DANIEL SPITZER: Yes, a bond that gives the town the

SDEIS-0015-37 can see some of the benefits so that's a case Continued 1 2 where that does work well. It's a tough thing. 3 I think it's really important when everybody cah 4 get the information everybody can look at it and 5 get people that are willing to listen to that. Ι 6 think energy independence is very important. 7 just try to push energy independence forward. ₩e 8 don't have to send people to the Middle East to 9 try to get resources. 10 So I would open it up to my sister if she 11 has any other questions. 12 I have a question and this is very. DAWN OSSONT: 13 DANIEL SPITZER: Just your name was? Dawn O-S-S-O-N-T. Question, with the 14 DAWN OSSONT: 15 height of these turbines -- turbines, how close 16 can they be to houses or cabins or that kind of 17 -- any kind of structure? Are there I did go through some of the 18 requirements? documentation online and I couldn't find that, 19 20 but I imagine it's probably in there somewhere. SDEIS-0015-39 21 So how close can they be? 22 I also noticed that the 2012 layout to this 23 proposed layout, there is some changes as to

where they were. Because of the taller turbine sontinued will that -- does that change again? Because for example, in 2012 there was one that was very, very -- a hundred yards of my parents' property, which is not on their property but very close to it. In 2016 it isn't there. Once -- if this all happens, are they going to move around, it's suddenly going to appear again where it wasn't?

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I'll start with the last MARK SWEENEY: Yes. question that you had. Yes, the project has evolved and the development is continuing with RES at this point. At some point changes may be made to the project where turbines are going to move, but it's unlikely at this point you're going to have an entirely new location. happen, but given the technology that's being proposed in the SDEIS and the layout that we see there may be slight changes to avoid wetland impacts or other impacts of tech resources, things of that nature, so everything would be to reduce those impacts so it's unlikely to change. And so that's step one.

Step two of your question was about post-community agreements and payments to the town, correct?

4 DAWN OSSONT: No.

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DANIEL SPITZER: That was the last one.

MARK SWEENEY: All right. So this type of project is appropriate for those types of agreements. worked on many, many wind projects with all of these people here and all of those projects have used post-community agreements, road use agreements, and in order to make sure that the roads are taken care of and maintained and not -if they are damaged during construction repaired, and then restored at end of construction, also post-community agreements. Then a pilot agreement which is a payment which would go with various jurisdictions, school districts, the towns that are involved, so there's different avenues for those as well.

And then your other question was about the nature of the setbacks. In this case, the town laws put a setback of about a thousand feet from a residence. There's different -- five hundred

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from the road, a residence has a different
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        setback.
                  And in this instance RES proposes a
 3
        larger setback on its own projects that are more
 4
        conservative in their approach. They create a
5
        five-hundred-meter setback, about sixteen hundred
6
        feet, give or take. I'm not great with metric.
7
        But so you're getting about a
8
        six-hundred-foot-plus greater setback than what
9
        was proposed in the 2008 or 2012. So that's what
        that is.
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11
    DAN BOYD:
               And that's a lot of the reasons why the --
12
        they have been in the area and are no longer in.
13
        We're not able to put them in some areas because
14
        there's a lot of houses.
15
    MARK SWEENEY:
                   Did I get all of all of the parts of
                                                          SDEIS-0015-39
                                                          Continued
16
       your question?
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    DAWN OSSONT:
                  Is it different if it's a full-time
18
        residential home versus a seasonal cabin?
19
    DANIEL SPITZER:
                     I think the way we wrote the town
20
        law was that we excluded hunting cabins, but
21
        anything that was being used as a residence is
22
        governed by the setbacks.
23
    MARK SWEENEY: Correct, that's my understanding as
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well. 1 2 DANIEL SPITZER: We're going back a ways. I think it 3 was 2007 we wrote the law. 4 DAWN OSSONT: So how would you define -- is a hunting 5 cabin then defined as -- I mean, no toilet or are 6 they --7 DANIEL SPITZER: If someone uses it throughout the 8 year it's not a hunting cabin. Generally you 9 look for that at some point did it meet a building code, something like that. 10 And I -- but 11 generally that's the way most of the towns have 12 written the laws is that the hunting cabins, 13 because they don't know what they are or where 14 they are, is not -- are not covered, but SDEIS-0015-40 15 everything else is. 16 BARRY NOBLES: What was the answer to the long-term 17 shutdown twenty years from now and when everything is rusty? 18 19 DANIEL SPITZER: So what the town is -- every town 20 across the state requires is what is called a 21 decommissioning bond. And the law requires when 22 they reach the end of the useful life or end of 23 the financial life the company must take them

down, but if the town doesn't assume that the 1 2 company will do so. The law requires a bond that 3 is updated on a regular basis so that the town 4 can remove them at the company's expense if the 5 company doesn't. Did I -- do you see what I'm 6 saying? So the towers will not be there if they 7 are not operating. SDEIS-0015-41 8 DAWN OSSONT: So how long do they -- what is -- how 9 long do you expect them to be functional? DAN BOYD: Useful life is twenty-five years, but it's 10 11 like anything. Your car, if you take care of it, do the right maintenance, it operates much longer 12 SDEIS-0015-42 than that. 13 14 LISA BRAIN: What about ice build-up on that? 15 live in wintery stuff. How would that -- I know 16 you said you set them back so far, but like I 17 mean, that's like a big icicle heading your way, I guess, for -- for what --18 So yeah, that's obviously -- most places 19 DAN BOYD: 20 where the wind blows -- blows enough to have a 21 wind farm it's cold and we get weather. The way 22 the turbine works, it's not a fan in your home 23 that pushes the air or gets caught by the air.

It's like an airplane. So if you go on an airplane they de-ice your wings. If you have ice build-up on the wing it's not the same aerodynamic shape to create lift and lift the plane off the ground. So if there's ice build-up on the blade of the turbine it wouldn't be spinning at the rate it's supposed to be for the speed up there, and the systems in the turbine know and they do not operate when there is ice build-up on there, so they stay until that ice sheds off of them, which is one of the main reasons why you have them set back.

DANIEL SPITZER: Who would like to go next?

JUDY PHILLIPS: I actually have a statement with some

15 questions on it.

16 DANIEL SPITZER: Please.

17 JUDY PHILLIPS: Judy Phillips.

First of all, I'd like to say it's very difficult for me to speak in public and so by doing this I'm representing myself as having some very strong beliefs. I have read the entire binder. And as I stated before, I was aware of the project in 2008 when it was Noble.

They talked in the winter a lot about mitigating -- making things less destructive or interfering. The one thing that cannot be mitigated, in my opinion, is that I believe our community's greatest asset and most valuable resource is our picturesque landscape. It helps define the self-image of our residents who choose to inhabit. They choose it and it gives them a sense of place to the change in seasons. It isla dynamic backdrop to people's lives. I hope many of our residents, tourists and hunters value the aesthetic unadulterated view of our own scenic rolling hills with some views as far as Lake Erie. Building this industrial project would exploit and ruin our landscape and irreplaceable aesthetic. RES Americas is the company in charge of constructing this project and will request amendment of Villenova and Hanover's wind laws, four hundred twenty feet limitation on maximum turbine height increased to four hundred and ninety-eight feet. The year-round visual impact would be significant and cannot be mitigated dub to the introduction of thirty-six

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five-hundred-foot turbines, the height of a Continued fifty-story building. The large area of our town involved with the project, the ongoing movement of a hundred and eight massive rotor blades and the project's total seven-point-five-mile view. |SDEIS-0016-44 Approval of this type of project could cause community discord and division among neighbors, as it has often been reported in other rural SDEIS-0015-45 communities.

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There are people that have lived here all their lives, recently moved here, built or renovated their homes, own a summer home, pay their mortgages or plan to sell their home within twenty years. Their home may be the largest lifetime investment towards their retirement. The building of industrial wind turbines could devalue the property. They will tell you that might not. Common sense dictates that given twb identical properties in a rural area, one that next to an industrial turbine versus one whose view does not include such a facility is likely considered more valuable.

The project will affect all of our

residences in different ways, whether they
measure their property in feet or in acres. What
benefits some should not harm others. Infrasound
sound disturbances caused by air pressure
variances and shadow flicker generated by blade
rotation may cause negative health effects and
quality of life issues. These environmental
problems may be difficult to prove, but with
approval of this project these problems could
adversely affect our own community. Are you
willing to roll the dice?

An eagle nest is located less than a mile from some of the proposed turbines. There are four eagle nests involved. Though it is a protected species, majestic bald eagles are killed by rotating blades, and other birds and bats.

It is upsetting to learn turbine blade rotation can cause loss of my over-the-air TV reception. That basically means that I use an antenna to receive TV signals. I asked the board to inquire and make public whether known weather signals are also disrupted. Many people in

energy services in our community rely on doppler for accurate rain and forecasting.

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SDEIS-0015-49

Am I correct in understanding Villenova does not have a comprehensive plan but includes decommissioning requirements in our local zoning laws? Do we have a removal clause for non-operation for a specific time so that non-removal would then become a zoning enforcement matter? If so, what does that specify? The industrial projects are frequently sold multiple times to different corporations. After twenty years the town's decommissioning agreement may not be signed with the current owner of the industrial turbine facility. Ιt could prove difficult to impose the town's agreement with a large corporation that may be Can there be re-evaluation, based overseas. replacement or re-powering of the turbines after Mr. Norton, Arkwright town twenty years? supervisor, made reference to Article 10 of the public service law in his December 15, 2015 letter to The Observer. The Arkwright project may be the last to generate the funding through

host agreements associated with the local community. Do we have a host agreement and can it be still be implemented?

SDEIS-0015-49 Continued

SDEIS-0015-50

Serious financial issues have surfaced for the town hosting the aging -- which is the oldest, fifteen-year-old New York Madison wind farm and problems are also foreseeable in the near future for New York State's largest and now technology outdated Mapleridge wind turbine facility. And I have been there. I hope the board has researched problems in other rural communities due to wind turbine facilities.

SDEIS-0015-51

Some Villenova residents own seasonal homes, other residents are snowbirds. They are not in our community at this time of year and would be unaware of this project or unable to attend this meeting.

SDEIS-0015-52

Wind power is infinite. The power capacity could vary between zero to a hundred megawatts at any given time for a hundred megawatts. When needed wind power cannot be called on to increase the power generation and thereby continues to rely on power from the grid. Perhaps many of our

questions and concerns we can answer for ourselves by seeing what happens in Arkwright.

Thank you.

DANIEL SPITZER: Who would like to go next?

MICHAEL EMKE WALKER: I'm going to go this time.

Michael Emke Walker, I live on North Hill. I'm a town worker. I also own a farm, a dairy -- I hope to be a dairy farmer some day. And nobody -- I hope nobody gets all pissed off because I'm for it and it seems like a lot of people are against it.

SDEIS-0015-53

I believe there's a lot of questions that need answering and I believe a lot of people are scared. I have been up to the Tug Hill snowmobiling. I've walked outside. I've listened to them in the dark, didn't seem to bother me anything. I thought it was kind of cool. I drove around. I actually drove off the snowmobile path because I'm looking at them driving by because I think they're cool.

And I tell you guys, look at this. How many people in here, residents, are in their thirties? In their twenties? None? This town is dying.

What reason is there for young people to even come? There's nothing. My good friends from Hanover laugh at me, hell, Villenova doesn't even have a pop machine. I say it's true. What does Villenova have? It's going downhill. There's nothing here.

And I don't know. There is some people that are probably set with their money, but I am trying to farm and taxes are going up every year and I can't afford to keep paying them. That's the reason I'm trying to farm, because I would like to have a bigger chunk of land so I could farm. I can't have a bigger chunk of land because I can't afford the taxes on it. Right?

I mean, it makes sense to me. I mean, I heard -- I'm not going to say any names, but at the town board meeting I heard lets fire up the old coal plant. Oh, yeah. Okay. You're all worried about the birds and the environment but you want to pump all that coal and dust and everything into the atmosphere. It seems like we're going back. I mean, same thing with gas. Who is sick of gas prices? Who is sick of going

to the gas station filling up the car? Why don't we do something to change it. Here we're having a change for the better and nobody wants to take the step. You know, you're never going to get nowhere if you don't take a chance. That's all I got to say.

DANIEL SPITZER: Who would like to go next?

ROBERT CROWELL: Robert Crowell, South Dayton -- 1414

Cassadaga Road, South Dayton just up the road

here.

I think I own the most land in the town of
Villenova. We have a very large farm and I knows the pay the most taxes. I think I'm in favor of
it. I'd love to go down to the Pike and Warsaw areas and see them. I've talked to quite a lot of farmers down there. I know quite a few in that area who have them on their own land, and I have two sisters that live right in the middle of the area. They say nothing but good things about them. We talk about their taxes and what they do to the community. And I read the articles, the things about the hills, and connect it a little bit with the Arkwright to know what's going on

there. I know that it will bring a lot of revenue to the town and also I think there's probably at least two school districts and maybe the third that will benefit from the income that would be helping our taxes, and so I really -- I got to say that I don't know when they moved them now, but I did have one on the original proposal on Ball Hill, but --

DANIEL SPITZER: Thank you. Who would like to go next?

again. I'd like to know if the town gets a percentage of the generating money, the actual power that's generated. I also would be interested in knowing how this project was transferred from Duke Energy, what the possibilities are of it getting transferred again before the project is complete.

Also have -- I have a question regarding these new much larger turbines. There are two proposed for this project and I'm going to assume we're going to get the largest of the two, the GE which is four hundred ninety-nine feet high.

It's great that you've got some glossy pictures
that also seem to picture cows, but I'd like to
know where I can go and see and hear one of these
GE's for myself. I'm very concerned about the
noise, is pretty much the only thing that bothers
me about this project.

DANIEL SPITZER: Thank you.

8 GREG SNOW: That's it.

DANIEL SPITZER: These are questions that we'll answer in the SDEIS, but I think you can probably give some general answers to the extent you want to.

MARK LYONS: Yes. This question about transfer of ownership has come up before. I think someone over here had some concern about it with regard to the decommissioning obligation and I think it's important to note that yes, ownership in land and farms does change. It happens all the time in the industry. But in these towns no one can own or operate this wind farm without a town permit, a special use permit from the town that is granted under the town law and that permit owner has to abide by all of the provisions of

the host community agreement, and there will in fact be a host community agreement for this project in each of these towns.

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And so one of the provisions of the host community agreement is that we have a decommissioning plan and we provide the financial security to decommission that is available to the It doesn't come through us. It's put at the town's disposal from the get-go. So if and when another company comes along there are other provisions in the host community agreement that allow the town some discretion over the assignments of the operating rights to that additional entity. They have to take over all the responsibilities of the original permit owners. With regard to the GE two point two point three -- two point three machine, I think it's important to note the final choice of the turbine technology has not yet been made. And we do this for a number of reasons, technical reasons and commercial reasons. It wouldn't do us any good if we said, you know, on day one at the beginning of a yearlong process we're going

to use this turbine because they wouldn't have
much negotiating leverage or --

GREG SNOW: I understand that. I'm saying assume for the purposes of like seeing for myself --

MARK LYONS: I understand that.

GREG SNOW: -- the larger one I want to see.

MARK LYONS: I understand that and we can do a bit of research and find out where the GE two point three machines are in operation and get that information to you, but I just hasten to -- to tell anyone -- tell everyone that in the course of the next few weeks a final turbine selection will be made, and I think what will be important to you is that you know where you can go and see that turbine.

DAN BOYD: Ultimately the key here, and we talked about this in the beginning, the turbines you're seeing are evolutions of the turbines that have been built. So yes, they may not have the same capacity as the previous one, but are built on that same platform and they are evolutions of the same thing. If you drove a 2016 Chevy Silverado it doesn't look the same as a 2014 because they

change it every couple of years, but you know,
you can tell it's the same.

SDEIS-0015-60

GREG SNOW: Are you saying that we could get even larger turbines?

DAN BOYD: By the time we build this project I do not know what is there. We've tried to keep things as looking at -- as big a possibility at this point. On that note, when it comes to noise, the noise profiles of the turbines are all in line with each other and will fall well within the guidelines of the law and that's what we're required do and we will definitely do it.

MARK SWEENEY: And each turbine is analyzed for its own -- we're not assuming one to cover everything. We're analyzing those reports, the specific models that are being provided, so that we're getting accurate information. And if there's a different model that is chosen that information would have to be updated and provided in the final environmental impact statement.

And just one other little piece on the transfer issue is that there's provisions in the wind law, the town zoning law, that addresses

when projects can be transferred. There's a distinction when it goes from one entity under RES America umbrella to another just for corporate purposes, as opposed to being transferred out, so there -- so all of that is done with the knowledge of the town board and on full notice and all of that, so there's requirements in there that address that particular issue. So it's not just sold off and all of a sudden nobody knows anyone involved at all. And that's all that will be -- that will all be condition -- conditions included in the report.

DANIEL SPITZER: If I may shed --

II I may shed --

15 GREG SNOW: Part of my question there is how this

16 project was transferred. How did you people end

17 up with it from --

DANIEL SPITZER: They can answer in the SDEIS. Just how it's none of their business how you transfer your farm, your home, it's not our business how they transfer the company. All we care about as a municipality is who owns the security. The town does, not the company. And as a new company

that we approved, agreed to take on the obligations, but to be honest with you, it's not our business how they transfer. They can answer that on the SDEIS if they want to.

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I think you said something that is important for you to understand as you mentioned about changes, the SEIS that's in front of you evaluates impacts based on the worst case If they were to come in with the scenario. turbine that was larger, first of all, that wouldn't necessarily mean more noisy. turbine would be taller, even larger. Or in that regard if there are significant changes in the project they have to again study that so nothing gets approved without the community knowing what the impacts are and the impacts are always assumed to be the most reasonably foreseeable worst case scenario, so I think you made a very good point about what happens with the changes of technology. I think you'll find if you look at that, the noise of these turbines has actually been reduced as compared to the power output, that they have actually got pretty decent. Also,

as you look at setbacks increasing, obviously the noise diminishes, so that's part of it too. However, nothing can get built that hasn't been studied and nothing can get built that doesn't follow the law. And you don't have to take my word for that. When you build a two or three hundred million dollar wind farm you have two creatures called investors and bankers, and they really, really know every inch of the legality and make sure the town has done everything right, as well as the IDA and the other entities. one of the things that is required is a contract, the seeker also and everything has to be studied for that before that money flows, so there's really a lot of protection in terms of getting the answers.

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I'll leave it to the company whether they want to talk about the corporate affairs, but I can tell you from the town's point of view where we don't get involved with people's business affairs.

What was the rest of your question?

GREG SNOW: Whether or not the town gets a percentage

SDEIS-0015-62 Continued

of the generation.

DANIEL SPITZER: The town does not get a percent of royalty based on generation. The town gets what is called a host community fee and a share of the -- in lieu of taxes. They are basically both things are really best seen as -- fees are really best seen as a substitute for taxes. It's based on the real property valuation and the -- in terms of the assessment.

The county IDA has a policy based on the megawatt nameplate and host community agreements are made in the same way. In addition, there are other financial benefits that I mentioned in terms of roads not tied to generation in any way. Generally, you don't have the ability to tie things to generation because that's a tax and the tax -- the sales taxes and things like that that may be -- obviously this is wholesale so they won't pay sales tax, but there's no authority for taxing generation or getting a payment based on generation.

Okay. Who else would like to go? Yes, sir. CHUCK LUCE: Chuck L-U-C-E. I'm the highway

superintendent in the Town of Villenova and I live on 1072 Smith Road, Forrestville, New York, pretty close to where the windmills will be.

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SDEIS-0015-63

Did you ever have one of these towers come down? I know they recently had one in Denmark, the wind over-speeded it and it come off the blade and chopped the tower off.

DANIEL SPITZER: We've had two of them come down in The first one was GE -- GE's fault. New York. believe when you build these facilities, and as I -- if you want to correct me, but basically when you build these things you use a pair of like jumper cables to like short out the engine and make sure the blade stays in place. GE did -does all this because these are GE -- GE, as I understand it, they had to remove two sets of these jumpers. The way wind farms work, when the grid goes down the wind farm stops. happened in Altona, as I understand it, the grid went down and two of the turbines didn't stop because of this mistake that GE made and one of them they hand cranked the speed down but the other one kept spinning and the fiberglass blade

eventually hit the tower and cracked the tower.

What was interesting about that is I represented the Town of Altona when that We sent an engineer out there to happened. measure the debris field, because -- because if they fall how far do they fall. And the debris field was about one and a quarter the height of the tower, as I recall. I don't think you were Noble then. But it was a very small debris field. That's what the town was interested in, sort of the question about what happens.

The second one that came down in New York was a failure of a bolt. The foundation bolts failed in a project in Madison County and it tipped right over. Those are the only two that have had any failure in New York. There's one in Oklahoma that caught fire. I don't know of any others in the United States that have come down.

But, Chuck, I think to your point, stuff MARK LYONS: can happen, you know, in spite of the best engineering construction practices and quality SDEIS-0015-64

control.

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CHUCK LUCE: How fast of the wind can they handle?

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1
    MARK LYONS: I don't know.
    AARON HOGAN: Depends on the model. Like the smaller
 3
        rotor GE one point five, the eighty meter -- I
       mean, that's just the only one I think, off the
 4
5
        top of my head, they shut off about -- the bigger
6
        towers, it's going to be a little less wind
7
        speed, maximum wind speed before.
8
    DAN BOYD:
               That's when the tower stops its generation
        and then feathers its blades out of the wind so
9
10
        it doesn't overspeed.
11
    AARON HOGAN:
                  Each tower has a meter. It measures
        the wind speed constantly and as soon as it gets
12
       past the threshold it zeros the blades and stuff. | SDEIS-0015-65
13
14
    CHUCK LUCE:
                 A braking system?
15
    MARK LYONS:
                 This is the -- why we enforce such big
16
        setbacks, because if something -- if an accident
                                                          SDEIS-0015-66
        does happen which is unforeseen, obviously --
17
18
    CHUCK LUCE: How many of these towers do you have up
       now, you know, the whole outfit?
19
20
    DAN BOYD:
               The number of towers as far as so many
21
        generations from ones a couple hundred kilowatt
22
       range, thousands of them. We've built over eight
23
        thousand megawatts.
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SDEIS-0015-67
    GREG SNOW: How many in New York State?
1
 2
    DAN BOYD:
              RES has not built any projects in New York
 3
        State today. That's why, fortunately for me,
 4
        they hired me about eighteen months ago to start
5
        development here. But eight thousand megawatts
6
        throughout the U.S. and Canada and hopefully this
7
        will be our first project here in New York and
8
        we're going to start construction here this year
        on a project in Chili, so you've got quite a bit
9
        of --
                                                          SDEIS-0015-68
10
11
    CHUCK LUCE:
                 You're paying royalties by what, you're
        metering it somewhere?
12
13
    DAN BOYD: Every electrical generation project is a
14
        metered project.
15
    CHUCK LUCE: Like a meter station or is every power
16
        metered?
17
    DAN BOYD: Yes and yes.
18
    CHUCK LUCE:
                 That's what you base your royalties on
19
        right?
20
               It's usually a percentage of the whole
    DAN BOYD:
21
        project, just so if one has a shutdown for a
                                                          SDEIS-0015-69
22
        while somebody doesn't get the bad deal.
```

One more. Where are these built, the

23

CHUCK LUCE:

SDEIS-0015-69 Continued

windmills even installed?

DAN BOYD: So the majority of turbines that are being installed in the U.S. today are from the two manufacturers, are manufactured here in the U.S., even though Vestas is a Danish company, they are built in a facility in Colorado.

CHUCK LUCE: Are any of the local people going to be involved in the construction?

DAN BOYD: That's the hope. We've been doing a lot of pricing recently to make sure that we have all the right numbers. And I talked to a couple gentlemen at the last town meeting that they had actually been contacted from our construction folks about materials and things. And I talked to another gentleman tonight and we have his information and we do the construction, you know, but we do -- we're not bringing everything here. That doesn't make financial sense. So you know, we're going to be sourcing a lot of materials, equipment and people in this area to help with the project.

22 CHUCK LUCE: Is that power --

23 AARON HOGAN: I mean, as far as employing locals, a

```
lot of times we employ a lot of locals as labor
1
       operators, stuff like that.
                                                          SDEIS-0015-71
 3
    CHUCK LUCE: Okay. Is that tower trucked in then in
 4
       pieces or is it -- how many pieces does it come
5
        in?
6
    AARON HOGAN: You'll have a truck for each blade so
7
        it would be three blades, the hub comes on its
8
        own truck, the cell on its own truck and each
        individual tower section, so depending on how
9
       high the tower is, how many sections, you know,
10
11
        it's between three and five normally.
                                                          SDEIS-0015-72
12
    CHUCK LUCE: A pretty good roadway to haul that up to
       the sites then.
13
14
    AARON HOGAN:
                  Yup.
15
    CHUCK LUCE:
                 I guess that's it.
16
    DANIEL SPITZER: Who else would like to ask a
17
        question or make a comment?
                                                          SDEIS-0015-73
18
    JUDY PHILLIPS: Again, Judy Phillips.
19
             Am I correct in what I'm reading here, that
20
       RES Americas has a balance of plant contractor
21
       balance of plan contractor at the Mehoopany win
22
        farm in Pennsylvania? Was there -- it says here
23
        that a blade crashed I believe in 2014 and it was
```

SDEIS-0015-73 operational in 2012. Continued 1 2 MARK LYONS: That is correct. 3 Who else would like to make a DANIEL SPITZER: 4 comment or ask a question? Gentlemen? Please. SDEIS-0015-74 5 ANGELA HUGHES: And good questions. Are you saying 6 that it's going to bring more local jobs? 7 DAN BOYD: Yes, ma'am. SDEIS-0015-74 Continued 8 ANGELA HUGHES: Okay. Then I like that idea. 9 I'm really for it even more, so -- and I do have 10 to add, I love our community, Chautauqua County. 11 I was born, raised, went into the military, pai $\beta$ my taxes to Chautauqua County while I did my 12 13 twenty years and I came back, bought a place, put 14 a lot of money into this town of my own, just the 15 fix up a place that was falling down. And I love 16 this town. And I'm really -- I agree with you. 17 We've got to look for the youth. We have to. And we need to look -- if we can get a few jobs 18 here that's fabulous. 19 20 But anyways, again, I -- I have coffee and 21 tea at my house. That's it. SDEIS-0015-75 22 DANIEL SPITZER: Yes, sir? 23 HOWARD CROWELL: We have a lot of gas wells in the

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SDEIS-0015-75
        area and they have continued issues. Will thes continued
1
 2
        windmills have tenders, people that come around
 3
        and check them every so often or daily or weekly
 4
        or monthly?
5
    AARON HOGAN: They will have a whole maintenance
6
        team.
                                                           SDEIS-0015-75
                                                           Continued
7
    HOWARD CROWELL:
                     How often will they be in this area?
8
    DANIEL SPITZER: Actually, windmills are monitored
9
        twenty-four hours, seven days a week, three
        hundred sixty-five days. Whether it's on
10
11
        location or monitored, it's every second of the
12
        day.
    AARON HOGAN: Monitored remotely and there's a
13
14
        maintenance team.
15
    HOWARD CROWELL: Monitored remotely? Remotely I
16
        quess is the --
17
    AARON HOGAN:
                   They constantly transmit data by a
        computer, but there would be a team of people on
18
        site that maintain these machines.
19
20
    HOWARD CROWELL:
                      That would be in the area?
21
    AARON HOGAN:
                   Yup.
                                                           SDEIS-0015-76
22
    LISA BRAIN: Lisa Brain. Just a small question.
23
        Will this affect -- a lot of people have wells.
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SDEIS-0015-76

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Will that affect their wells at any cost,
                                                         Continued
1
       drilling, like you know, the water mains and
 3
        stuff?
 4
    AARON HOGAN:
                  No.
                       Our deepest excavation for
5
        foundation is usually only between like eight and
6
       twelve feet, depending on what the conditions
7
       are, if we have to excavate a little deeper.
8
    LISA BRAIN:
                 Now, is that like the -- there's lines
9
       underground though connecting to --
10
   AARON HOGAN:
                  Yeah, between four to six feet deep.
11
   DANIEL SPITZER:
                     Well let's make sure we're
12
       completely answered. During the construction if
13
       they disturb any of the drainage tile or anything
14
       like that, the ag and markets law requires them
15
       to fix that. If they are working on anything in
16
       the town and they disturb anything on people's
17
       property, like your well is over here and you
18
       have a line to your house, they have to fix that.
        I don't think it's public water in the community,
19
20
       but if they come across that or public gas
```

21

22

23

collection lines are what you mostly run into

with these projects, you have to be careful with

the anti-corrosion and other facts. Again, it's

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on them to repair and anything that they disturb.
1
 2
             Who else would like to speak?
                 How many yards of concrete to hold one SDEIS-001 5-77
 3
    CHUCK LUCE:
 4
                     I know I put towers out in Tucson,
        of them up?
5
        Arizona, and we put like a hundred twenty-five
6
        yards just for small --
7
    AARON HOGAN:
                 Until we get the final turbine --
                                                           SDEIS-001
                                                           Continued
8
    CHUCK LUCE: How deep do they go down?
    AARON HOGAN: Well, depending on the -- what the soil
9
        looks like under it.
                                                           SDEIS-0015-77
10
                                                           Continued
11
    CHUCK LUCE:
                 We were more than forty-five feet deep.
    AARON HOGAN: You're probably do a P and H
12
13
        foundation, so --
14
    CHUCK LUCE: Depends on the soil, I know.
15
    AARON HOGAN: As far as I know, a spread foot
16
        foundation, so the foundation would be around
17
        probably sixty feet across and between eight and
        twelve feet deep, depending on soil.
18
19
    CHUCK LUCE:
                  That's all?
20
    AARON HOGAN: Probably between four and five hundred
                                                           SDEIS-0015-78
21
        yards of concrete.
22
    CHUCK LUCE: All right. What does that tower weigh
23
        without the concrete?
```

```
1
    DAN BOYD: There's some specifications in the
        document, and then the final will be included in
        the final.
 3
                                                         SDEIS-0015-79
 4
    CHUCK LUCE: It doesn't seem very deep to hold up
5
        five-hundred-foot tower.
6
    MARK SWEENEY: Well --
7
    AARON HOGAN: We put quite a bit of dirt on top of
8
        it.
    MARK SWEENEY: One thing, all of this is subject to
9
10
                 It's like a building permit that has to
       review.
11
       be issued.
                    There's standards that have to be met
       and all of that, you know, review -- it's
12
13
       prepared by the company's engineers, submitted to
14
       the town, reviewed by the town's experts for
15
       verification, and then a permit is issued, so
        it's not -- you know, it will be very well
16
17
        vetted.
18
    DANIEL SPITZER: I'm not aware anywhere in the world
19
        of a tower coming down because of a foundation
20
        failure. The engineering is pretty good on how
                                                         SDEIS-0015-80
21
        to support these things.
22
    CHUCK LUCE: You're going to do road pushes, running
23
        underground cable, or is it all overhead?
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MARK SWEENEY: The town requires underground on
1
 2
        private plans.
                                                           SDFIS-0015-80
                                                           Continued
 3
                  Your transmission line is going to be
    CHUCK LUCE:
 4
        above?
5
    MARK SWEENEY:
                                                           SDEIS-0015-81
                    Yes.
6
    CHUCK LUCE: You're going to have some big
7
        transmission lines going across Villenova there.
8
    DAN BOYD:
               The transmission line is in the Town of
9
        Hanover. It runs north up to the transmission
        lines that cross.
                                                           SDEIS-0015-81
10
                                                           Continued
11
    CHUCK LUCE:
                  You're going to run everything
        underground through that?
12
    DAN BOYD: Through the wind farm. The collection
13
14
        system is underground.
15
    CHUCK LUCE:
                  Okay.
16
    DANIEL SPITZER: If you ever go out to Eagle Park I
17
        think the one is where the collection system is
        above ground. You won't see that in Villenova.
18
19
    CHUCK LUCE:
                 Hanover is going to get the big towers
20
        then.
    DANIEL SPITZER: I don't know if it's a tower, but
21
22
        where the substation is.
23
    DAN BOYD: Correct, the substation, transmission line
```

```
and the switch yard. You can see it on the map
1
        over here.
 3
    DANIEL SPITZER: Who else would like to speak? Don't
 4
        be shy.
5
    BECKY LABERI: Becky Laberi, 886 Market Hill Road,
        South Dayton.
6
                                                          SDEIS-0015-82
7
             You mentioned RES has its own turbines up in
8
        Canada and the radio stations that I listened the
9
        they were taking them down because of the noise'.
10
                     Taking them down?
                                                          SDEIS-0015-82
    DANIEL SPITZER:
                                                          Continued
11
    BECKY LABERI:
                   Because of the noise, the health
        issues related to the noise.
12
    MARK LYONS: Sounds like they should do some
13
14
        research.
15
    DANIEL SPITZER: We'll have to do some research.
16
    MARK SWEENEY: I haven't heard anything.
17
    DANIEL SPITZER: They are not familiar with it. I'll
18
        have to research and give you an answer.
19
    BECKY LABERI:
                  Okay.
20
                     Miss Phillips, you had another
    DANIEL SPITZER:
21
        question?
                                                          SDEIS-0015-83
    JUDY PHILLIPS: Yes. I didn't know if I was correct
22
23
        in what I had written. Can it take as many as
```

SDEIS-0015-83 seven trailers to transport the components of of eminued 1 2 turbine and as many as sixty trailers to 3 transport the large capacity crane? 4 DAN BOYD: Sixty, did you say? 5 AARON HOGAN: It's about six hundred and sixty ton 6 crane is about forty-five trucks to transport 7 that, depending on -- just depends on the tower 8 you're putting up, how many sections of boom you 9 have to put in, how many counterweights it is, it's going to vary depending on the final 10 11 turbines how many trucks it's going to take. SDEIS-0015-83 Continued 12 More than forty just to transport the JUDY PHILLIPS: 13 crane, correct? 14 AARON HOGAN: Yes. 15 DANIEL SPITZER: Who else would like to speak? 16 I'm seeing no other comments. I would recommend that the town board make a motion to 17 close the public hearing. 18 19 ANGELO GRAZIANO: I'll make that motion. 20 KEITH BUTCHER: I'll second. 21 DANIEL SPITZER: So just to make sure everybody is 22 clear about the process forward, as you've heard, 23 you'll have ten days to make comments on the

SDEIS and the documents. There is going to be other public hearings held. This is an ongoing process. You have your town board members.

Those are the folks to seek out here in Hanover and don't be shy about getting involved.

I thank you very much for everything. It was very professional tonight. I know the town board members appreciate that.

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T-3 Public Participation, 2016 Amended Applications to the Towns of Villenova and Hanover

## **Town of Villenova**

Notice of Public Hearing on October 13, 2016 – Letter mailed to property owners within 500 feet of proposed Wind Overlay District

September 30, 2016

«Company\_Name»
«First\_Name»«Last\_Name»
«Address\_1» «Address\_2» «Address\_3»
«PO\_Box»
«City», «State» «Zip»

Re: Ball Hill Wind Energy Project Notice of Public Hearing

Dear «First Name» «Last Name» «Sir or Madam»:

On behalf of Ball Hill Wind, LLC, we are writing to inform you that the Town of Villenova has scheduled a public hearing on October 13, 2016, with respect to the Ball Hill Wind Energy Project in the town. Pursuant to the Villenova Wind Law, enclosed is a copy of the notice of the public hearing as well as the County Agricultural Data Statement because portions of the proposed project would lie within a New York State Department of Agriculture and Markets designated Agricultural District.

The public hearing will be held on Thursday, October 13, 2016, at 7:00 pm at:

Hamlet United Methodist Church 1119 Route 83 South Dayton, NY 14138.

Jegan M. Kondak

In the meantime, project information is available for public review at the Villenova Town Offices located at 1094 Butcher Road, South Dayton, NY 14138, and on the Internet at www.ballhillwind.com.

If you have any additional questions or concerns please feel free to contact me.

Respectfully submitted,

Tegan Kondak Project Manager

TKondak@ene.com

(716) 684-8060

## NOTICE OF PUBLIC HEARING ON OCTOBER 13, 2106 FOR THE TOWN BOARD OF THE TOWN OF VILLENOVA BALL HILL WIND ENERGY PROJECT

PLEASE TAKE NOTICE that the Town Board of the Town of Villenova will hold a Public Hearing on October 13, 2016 at **7:00 pm at the Hamlet United Methodist Church located at 1119 Route 83, South Dayton, New York 14138** to hear all public comments regarding the Ball Hill Wind Energy Project including but not limited to the Amended Application for a Special Use Permit, a local law (introduction No. 6 of 2016) to amend the Maximum Height restriction for Wind Energy Conversion Systems, and a local law (introduction No. 7 of 2016) to create a Wind Overlay Zone as set forth in the Town's Wind Energy Facilities Law (Local Law No. 1 of 2007).

The Amended Application, proposed local laws and other project information is available for public review at the Villenova Town Offices located at 1094 Butcher Road, South Dayton, New York 14138. The Amended Application and the local laws, and documents related to the environmental review of the project are also available on the internet at <a href="https://www.ballhillwind.com">www.ballhillwind.com</a>.

TOWN VILLAGE CITY OF Villenova	Application #
Agricultural Data Statement	Date

	cation for a special use permit, site plan approval, use g municipal review that would occur on property within 50 Pept. of Ag & Markets certified Agricultural District.
Applicant	Owner if Different from Applicant
Name: Ball Hill Wind Energy, LLC, Mark Lyons, Senior Manager Address: 1101 W. 120th Ave., Suite 400 Broomfield, CO 80021	Name:Address:
1. Type of Application: Special Use Permit; Site (circle one or more) Subdivision Approval	
	known as the "Ball Hill Wind Energy Project" in portions of turbines with associated access roads and electrical collection sent to all parcels 500 feet of the Proposed Wind Overlay Distric
4. Is this parcel within an Agricultural District? NO 5. If YES, Agricultural District Number CHAT005; CHAT 6. Is this parcel actively farmed? NO 7. List all farm operations within 500 feet of your parc	you do not know)  ✓YES
Name: See attached list of parcels within 500 feet Address: of the Proposed Wind Overlay District.	Name:Address:
Is this parcel actively farmed? NO YES	Is this parcel actively farmed?    NO YES
Name:Address:	Name:Address:
Is this parcel actively farmed? NO YES	Is this parcel actively farmed? NO YES
hole A 28	

Signature of Municipal Official

NOTE TO REFERRAL AGENCY: County Planning Board review is required. A copy of the Agricultural Data Statement must be submitted along with the referral to the County Planning Department.

Signature of Owner (if other than applicant)

Signature of Applicant

Reviewed by:

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
135.00-2-45.3; 135.00-2-46		Aguglia	Joseph	9942	Dye	Rd	Forestville	NY	14062
134.00-1-48.2		Aldinger	Matthew	PO Box 354			Forestville	NY	14062
134.00-1-41		Andrews	Andrew	PO Box 282			Dunkirk	NY	14048
153.00-1-66		Arent	Mark	135	Vern	Ln	Cheektowaga	NY	14227
135.00-1-1	Ball Hill Camp Corp			68	Main	St	Angola	NY	14006
135.00-1-22	Ball Hill Cemetery				Prospect	Rd	Forestville	NY	14062
151.00-1-25	,	Barmore	Althea	1795	Route 83		Forestville	NY	14062
151.00-1-26; 151.00-1-36; 150.00-2-18		Barmore	Russell	1795	Route 83		Forestville	NY	14062
168.00-1-39		Barnes	David	8225	Milestrip Rd		South Dayton	NY	14138
151.00-2-7.1; 151.00-2-7.2		Barnes	Robert	9225	Pope Hill	Rd	Forestville	NY	14062
151.00-2-5.2		Barnes	Susan	9225	Pope Hill	Rd	Forestville	NY	14062
151.00-1-48		Bell	Corey	9378	Zahm	Rd	Forestville	NY	14062
135.00-1-12		Benchley	Robert	11437	Bennett State	Rd	Forestville	NY	14062
169.00-2-1		Benes	Randolph	3955	Yale		Hamburg	NY	
150.00-2-5		Benton	Allen	292	Water	St	Fredonia	NY	14063
152.00-2-3		Blasdell	James	9314	Ball Hill	Rd	Forestville	NY	14062
152.00-1-8		Blasdell	Stephen	9293	North Hill	Rd	South Dayton	NY	14138
134.00-2-23.3		Bly	Kristy	2152	Chapin Rd.		Silver Creek	NY	14136
151.00-1-37		Booth	Kevin	9190	Zahm	Rd	Forestville	NY	14062
168.00-1-33		Bottita	Benny	1258	Route 83		South Dayton	NY	14138
168.00-1-32		Bottita	Sharon	1258	Route 83		South Dayton	NY	14138
150.00-2-13		Brainard	Steven	12697	Cowens Corner	Rd	Conewango Valley	NY	14726
151.00-2-11		Brain-Bauer	Richard	8995	North Hill	Rd	South Dayton	NY	14138
152.00-1-6		Bromley	Laverne	9315	North Hill	Rd	South Dayton	NY	14138
135.00-2-7		Brunea	Chris	609	Harris Hill	Rd	Lancaster	NY	14086

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
135.00-1-26		Buelar	Danisue	916	Bartlett Hill	Rd	South Dayton	NY	14138
135.00-1-31;		Buelow	Wayne	916	Bartlett Hill	Rd	South Dayton	NY	14138
135.00-1-32;									
135.00-1-33									
135.00-1-3;		Bunker	Douglas	775	Hurlbert	Rd	Forestville	NY	14062
135.00-2-1									
152.00-1-16;		Burek	Peter		PO Box 214		South Dayton	NY	14138
152.00-1-19									
151.00-2-18		Butcher	John	46	Peterson	St	Jamestown	NY	14701
169.00-1-18		Butcher	Kandice	505	Rt 83		South Dayton	NY	14138
169.00-1-17		Butcher	Keith	8664	North Hill	Rd	South Dayton	NY	14138
168.20-1-4;		Butcher	Lynn	970	Butcher	Rd	South Dayton	NY	14138
169.00-1-21									
152.00-1-38.1;		Caparco	Antimo	6016	Rt 62		Conewango	NY	14726
152.00-1-38.2							Valley		
135.00-2-6;	Chagrin Land			30799	Pinetree	Rd	Pepper Pike	ОН	44124
135.00-2-8;	Limited								
169.00-1-3	Partnership								
152.00-1-34		Chase	Dollie	Rt 322	Box 307		South Dayton	NY	14138
151.00-2-17		Clarke	James	8984	Round Top	Rd	Forestville	NY	14062
152.00-2-5		Clugston	Troy	9240	Prospect	Rd	Forestville	NY	14062
134.00-2-26		Colvenback	Brian	9735	Prospect	Rd	Forestville	NY	14062
151.00-1-40;		Colvenback	Roger	3748	Bard	Rd	Cassadaga	NY	14718
151.00-1-41;									
151.00-1-45									
168.00-1-44		Congdon	James	1287	Villenova	Rd	South Dayton	NY	14138
151.00-1-50		Covert	Darren	9400	Zahm	Rd	Forestville	NY	14062
135.00-1-2;		Cronkhite	Kevin	911	Hurlburt	RD	Forestville	NY	14062
135.00-1-5									
135.00-2-23		Crowell	Alyce	1542	Hamlet Cassadaga	Rd	Forestville	NY	14062
135.00-2-20;		Crowell	Howard	1542	Hamlet	Rd	Forestville	NY	14062
152.00-2-9;					Cassadaga				
152.00-2-10									

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
135.00-1-34		Crowell	Marilyn	858	Bartlett Hill	Rd	South Dayton	NY	14138-9625
135.00-2-14		Crowell	Nelson	9684	Dye	Rd	Forestville	NY	14062
151.00-2-19;		Crowell	Robert	1394	Route 83		South Dayton	NY	14138
169.00-1-45;									
169.00-1-47 135.00-2-13		Crowell	Ctanhan	1389	Moland	Rd	Alfred	NY	14803
135.00-2-13		Crowell	Stephen	1309	INOIANG	Ru	Airred	INT	14603
151.00-2-15;	Crowell Family			1394	Route 83		South Dayton	NY	14138
168.20-1-63	Holdings, LLC								
134.00-1-46		Curtis	John	9400	Round Top	Rd	Forestville	NY	14062
134.00-1-42;		Curtis	Stephania	9400	Round Top	Rd	Dunkirk	NY	14048
151.00-2-1									
168.20-1-51;		Dahn	Arlene	8520	School	St	South Dayton	NY	14138
168.20-1-64									
168.20-1-19		Dayton	David	1073	Butcher	Rd	South Dayton	NY	14138
134.00-1-34		Durski	Frank	9581	Granger	Ave	Angola	NY	14006
135.00-2-48		Dye	Margaret	7	Allegany	Rd	South Dayton	NY	14138
135.00-2-4.2;		Dye	Quentin	250	Seneca	St	Gowanda	NY	14070
135.07-1-1;									
135.07-1-3;									
135.07-1-4									
135.00-2-25		Eaton	Brenda	8133	Maple Hill	Rd	Cattaraugus	NY	14719
168.00-1-41.2;		Eaton	William	43	Waverly	St	Cattaraugus	NY	14719
168.00-1-42									
152.00-1-43		Ecker	Merle	9153	North Hill	Rd	Forestville	NY	14062
152.00-2-17.2		Egan	Daniel	783	Hurlburt	Rd	Forestville	NY	14062
152.00-2-19.2;		Egan	Susan	9017	Dye	Rd	South Dayton	NY	14138
152.00-2-19.3									
152.00-1-37		Egbert	Henry	1129	Smith	Rd	Forestville	NY	14062
168.20-1-1;		Emke-Walker	Michael	8577	North Hill	Rd	South Dayton	NY	14138
168.20-1-2;									
168.20-1-5									
151.00-2-24		Ermer	Diana	9200	Round Top	Rd	Forestville	NY	14062

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
136.00-1-	Estate of Nick			476	Christy	Rd	Irving	NY	14081
37;136.00-1-44	A Restivo								
135.00-2-3		Everts	David	10247	Empire	Rd	Forestville	NY	14062
150.00-2-12	Fairdawn			9265	Putnam	Rd	Forestville	NY	14062
	Farms Inc.								
151.00-1-33		Fisk	Allan	9006	Zahm	Rd	Forestville	NY	14062
134.00-2-12		Gajewski	Callie May	2385	New Jerusalem		Eden	NY	14058
134.00-2-17.1;		Gajewski	Michael	9658	Prospect	Rd	Forestville	NY	14062
134.00-2-24;									
135.00-1-9.1									
168.20-1-50		Gard	Christine	1151	Rt 83		South Dayton	NY	14138
135.00-2-11		Garrett	Michael	9717	Dye	Rd	Forestville	NY	14062
152.00-2-1.000		Gibbs	John	8483	Rt 353		Gowanda	NY	14070
151.00-1-8;		Gould	Denise	9020	Zahm	Rd	Forestville	NY	14062
151.00-1-35;									
151.00-2-23;									
151.00-1-9;									
151.00-1-34									
135.00-1-23;		Graziano	Shari	10280	Rider	Rd	Forestville	NY	14062
169.00-2-2									
135.00-1-8		Greene	Kathleen	9716	Prospect	Rd	Forestville	NY	14062
134.00-2-16		Greene	Mark	9716	Prospect	Rd	Forestville	NY	14062
169.00-1-9.2		Gregory	Heather	804	Smith	Rd	Forestville	NY	14062
134.00-2-7		Greiner	Kurt	3475	Heatherwood	Dr	Hamburg	NY	14075
151.00-2-3.2		Gutkowski	Anthony	1870	Highway 59		Westminster	SC	29693
152.00-1-2		Hagmier	Bruce	10056	Prospect	Rd	Forestville	NY	14062
152.00-1-1;		Hagmier	Jared	9437	Prospect	Rd	Forestville	NY	14062
152.00-1-9					'				
135.00-2-12		Halstrom	Tammy	9701	Dye	Rd	Forestville	NY	14062
168.00-1-30	Hamlet Cemetery								
152.00-2-14; 152.00-2-15		Harvey	John	9235	Dye	Rd	South Dayton	NY	14138

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
151.00-2-8		Hatfield	David	E Building	PO Box 102		Cassadaga	NY	14718
134.00-2-21.3		Hayes	Rodney	9373	Pope Hill	Rd	Forestville	NY	14062
134.00-1-47		Hebner	Elenor	9575	Pope Hill	Rd	Forestville	NY	14062
135.00-1-14		Holland	Myung	9554	Prospect	Rd	Forestville	NY	14062
135.00-1-27		Homan	Richard	4469	Allegany	Rd	Little Valley	NY	14755
169.00-2-9.1		Hooker	Evelyn	422	Hooker	Rd	South Dayton	NY	14138
135.00-2-30		Howard	Kenneth	9658	Dye	Rd	Forestville	NY	14062
152.00-1-21; 152.00-1-41		Howard	Shawn	PO Box 193			South Dayton	NY	14138
151.00-1-21.1; 151.00-1-29; 151.00-1-32		Hubbard	Robert	5072	W. Shorewood	Dr	Dunkirk	NY	14048
134.00-1-33		Huber	Martin	9619	Round Top	Rd	Forestville	NY	14062
150.00-2-16		Hughes	Richard	1818	Rte 83		Forestville	NY	14062
169.00-1-9.1; 169.00-1-10; 169.00-1-23		Ivett	Howard	752	Smith	Rd	South Dayton	NY	14148
168.00-1- 47;168.00-1-49; 169.00-1- 13;169.00-1- 14;169.00-1- 15;169.00-1-16		Ivett	Kristopher	8778	North Hill	Rd	South Dayton	NY	14138
135.00-2-19		Ivory	Richard	10344	Chestnut	Rd	Dunkirk	NY	14048
152.00-1-17		Jackson	Denise	121	Oak	St	South Dayton	NY	14128
168.00-1-31		Jacobs	Norman	329	Huntington	Ave	Buffalo	NY	14214
151.00-1-1.1		Jock	Gary	9454	Zahm	Rd	Forestville	NY	14062
135.00-2-17	JTI Properties, LLC		-	127	Clinton	Ave	Fredonia	NY	14063
135.00-2-9; 135.00-2-10	King Timberlands, LLC			PO Box 3090			Falconer	NY	14733

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
134.00-2-33		Kraft	Robert	1360	Seneca Creek	Rd	West Seneca	NY	14224
168.00-1-48		Krill	James	8807	North Hill	Rd	South Dayton	NY	14138
153.00-1-18		Kwilos	David	9335	So. Dayton Silver Creek	Rd	Forestville	NY	14062
134.00-2-21.2		Kwilos	Jacob	9382	Pope Hill	Rd	Forestville	NY	14062
135.00-1-25		Kwilos	Joshua	9460	Prospect	Rd	Forestville	NY	14062
151.00-1-4.1		Langworthy	Richard	3429	Rt 20		Dunkirk	NY	14048
135.00-1-28		LeBarron	Becky	886	Bartlett Hill	Rd	South Dayton	NY	14138
151.00-1-44		Lettieri	Andre	9316	Zahm	Rd	Forestville	NY	14062
151.00-1-13;		Lindquist	Duanne	9057	Round Top	Rd	Forestville	NY	14062
151.00-1-21.2;									
151.00-1-12									
168.20-1-6		Lindquist	Stephen	8875	S. Center	Rd	Cassadaga	NY	14718
134.00-2-1		Logan	Angeline	9942	Bradigan/Round Top	Rd.	Forestville	NY	14062
134.00-2-11;		LoManto	Michael	9376	Prospect	Rd	Forestville	NY	14062
134.00-2-10;									
135.00-1-6									
152.00-1-42;		Luce	Charles	1072	Smith	Rd	Forestville	NY	14062
152.00-1-35;									
152.00-1-40									
152.00-1-39.1;		Luce	Helena	1072	Smith	Rd	Forestville	NY	14062
152.00-1-36		1 - 1 1 -:	1 1-	450	Dia dia Odia	10/	Dalla	0.4	00400
135.00-2-15		Lukowski	Joseph	150	Blacks Cabin	Way	Dallas	GA	30132
151.00-1-11		Mabel	Ott	10292	Forty	Ed	Gowanda	NY	14070
152.00-2-11		Maciuba	Donald	133	Orchard	PI	Lackawanna	NY	14218
152.00-1-13;		Malvestuto	Robert	2279	Niagara Falls	Blvd	Niagara Falls	NY	14304
152.00-2-20;									
152.00-1-14			<u> </u>	<u> </u>				1 D (	
151.00-1-5;		Manning	Francina	57	Ivanhoe	Rd	Cheektowaga	NY	14215
151.00-1-38		10.4	D: :::	0.40.4	D 17	D.	F . "	NN/	4.4000
134.00-1-36;		Marrano	Birgitta	9491	Round Top	Rd	Forestville	NY	14062
134.00-1-39.1		MaCarthy	Modine	17	Chaotaut	Ct	Forestrille	NIV	14062
134.00-1-40		McCarthy	Nadine	17	Chestnut	St	Forestville	NY	14062

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
135.00-2-18		McGraw	Michael	PO Box 928			Key West	FL	33041
135.00-2-16		McGraw	Robert	919	Merriweather Way	Way	Severn	MD	21144
151.00-2-14; 152.00-1-33		McNamara	Katherine	8965	North Hill	Rd	South Dayton	NY	14138
168.00-1-45; 169.00-1-2		McNamara	Ronald	8965	North Hill	Rd	South Dayton	NY	14138
134.00-1-49		Merrill	John	PO Box 277			Forestville	NY	14063
134.00-2-5		Metzger	David	3453	East Lake	Rd	Dunkirk	NY	14048
151.00-1-30		Metzger	Robert	1720	Route 83		Forestville	NY	14062
151.00-1-1.2	MidFirst Bank			999	NW Grand	Blvd	Oklahoma City	OK	73118
152.00-2-4		Miller	Diane	9274	Prospect	Rd	Forestville	NY	14062
152.00-2-6.000		Miller	Joseph	7816	Route 474		Panama	NY	14767
134.00-2-32		Mooney	Robert	9672	Pope Hill	Rd	Forestville	NY	14062
135.00-1-13; 135.00-1-24; 152.00-2-13		Nagel	Arthur	9139	Dye	Rd	South Dayton	NY	14138
152.00-2-18		Nagel	Elaine	9139	Dye	Rd	South Dayton	NY	14138
153.00-1-53		Nagel	Marlene	139	Main	St	South Dayton	NY	14138
152.00-2-19.4; 153.00-1-54		Nagel	Richard	139	Main	St	South Dayton	NY	14138
169.00-2-3	National Property Management Associates, Inc.			4221	N Buffalo	St	Orchard Park	NY	14127
135.00-2-28		Nerber	Roy	4339	Oak Orchard	Ramp	Clay	NY	13041
168.20-1-17; 168.2-1-18; 168.00-1-49	New York State DOT			1220	Washington Ave		Albany	NY	12232
153.00-1-55		Newcomb	Bruce	9047	So Dayton/Silver Creek	Rd	Forestville	NY	14062
151.00-2-6		Newton	Russell	9160	North Hill	Rd	Forestville	NY	14062

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
169.00-1-5		Nobles	Barry	1601	Attridge	Rd	Churchville	NY	14518
169.00-1-12		Nobles	Herbert	7690	Route 83		South Dayton	NY	14138
169.00-1-4		Nobles	Higley	7978	Route 83		South Dayton	NY	14138
151.00-1-27;		Nobles	Nelson	7690	Route 83		South Dayton	NY	14138
152.00-1-22;									
152.00-1-24;									
152.00-1-23									
134.00-2-14		O'Conner	David	9780	Prospect	Rd	Forestville	NY	14062
134.00-2-13		Oconnor	Florence	9355	Ball Hill	Rd	Forestville	NY	14062
134.00-2-15		O'Connor	Terri	9780	Prospect	Rd	Forestville	NY	14062
168.20-1-15		Odien	Richard	9505	Village Mille Lance		Clarence Center	NY	14032
152.00-1-5; 152.00-1- 10.000		Ortel	Donald	9334	Prospect	Rd	Forestville	NY	14062
152.00-1-3		Ortel	Tammy	9354	Prospect	Rd	Forestville	NY	14062
151.00-1-19		Ortendahl	Jon	5978	Twin	Rd	Mayville	NY	14757
151.00-2-16		Ortendahl	Julie	5978	Twin	Rd	Mayville	NY	14757
152.00-1-26; 152.00-1-27; 152.00-1-28; 152.00-1-30; 152-1-31; 152.00-1-32		Palmer	Nathan	1022	Smith	Rd	Forestville	NY	14062
151.00-2-3.1		Partyka	James	0474	PO Box 345	01	Forestville	NY	14062
152.00-1-12		Partyka	Pauline	9171	Prospect	St	Forestville	NY	14062
168.00-1-37		Pascarella	Frank		PO Box 29		Salamanca	NY	14779

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
151.00-1-3;		Pchelka	Lorri	9120	Round Top	Rd	Forestville	NY	14062
151.00-2-20								1	
151.00-2-21;		Pchelka	Richard	9120	Round Top	Rd	Forestville	NY	14062
151.00-2-22		<b>D</b> .	1.66	2252	N. 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.	0 11 5 1	ND /	4.4400
151.00-2-13		Peate	Jeffrey	8959	North Hill	Rd	South Dayton	NY	14138
168.00-1-46		Peterson	Christina	479	Hunt	Rd	Cherry Creek	NY	14723
152.00-2-8		Philbrick	Donald	9617	SE 77Th	Ave	Milwaukie	OR	97222
151.00-1-4.2		Piede	James	63	Burgess	St	Silver Creek	NY	14136
150.00-2-17		Pike, Jr	Randall	1797	Route 83		Forestville	NY	14062
134.00-2-17.2;		Press	Brian	9645	Prospect	Rd	Forestville	NY	14062
135.00-1-9.2;									
135.00-1-10;									
135.00-1-11;									
135.00-1-15.3		_							
135.00-1-7		Press	Frank	9355	Ball Hill	Rd	Forestville	NY	14062
152.00-1-4		Press	Jean	9355	Ball Hill	Rd	Forestville	NY	14062
152.00-2-16;		Priest	Kim	9201	Dye	Rd	South Dayton	NY	14138
152.00-2-17.1									
151.00-1-10		Quinn	Lester	9085	Round Top Hill	Rd	Forestville	NY	14062
135.00-1-18	R & K Holland Trust			7447	Silver Cup	Dr	Warrenton	VA	20186
151.00-1-31	R. Hubbard Properties, LLC			5072	West Shorewood		Dunkirk	NY	14048
134.00-2-4		Raag	Mihkel	9981	Prospect	Rd	Forestville	NY	14062
153.00-1-70		Richter	Anthony	8773	Ball Hill	Rd	Forestville	NY	14062
134.00-1-48.1		Richter	Eugene	10390	Creek	Rd	Forestville	NY	14062
152.00-1-39.2		Roberts	Donna	1044	Smith	Rd	Forestville	NY	14062
168.20-1-14		Rodiguez	Jose	1097	Butcher	Rd	South Dayton	NY	14138
152.00-1-18		Roland	Benjamin	8961	Ball Hill	Rd	Forestville	NY	14062
169.00-1-1		Rolls	Richard	479	Hunt	Rd	Cherry Creek	NY	14723
152.00-1-25		Rose	Judith	1040	Smith	Rd	Forestville	NY	14062

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
168.00-1-35		Rundell	James	9784	Creek	Rd	Forestville	NY	14062
134.00-2-28;		Ryder	William	173	Roland	Ave	Lackawanna	NY	14218
134.00-2-29									
134.00-2-20;		Sarver	Gloria	9	Congress	Rd	Forestville	NY	14062-0720
135.00-1-19									
135.00-1-29		Schneider	Jason	17	Cedar	St	Forestville	NY	14062
134.00-1-38		Schneiderma n	Roy	8160	Westphalinger	Rd	East Amherst	NY	14051
151.00-2-2	School District #16								
135.00-2-27;		Scofield	James	9596	Dye	Rd	Forestville	NY	14062
135.00-2-29									
134.00-2-18;		Scott	Harold	9633	Prospect	Rd	Forestville	NY	14062
134.00-2-19;									
134.00-2-22;									
135.00-1-15.2					_				
135.00-1-15.1		Scott	Linda	9633	Prospect	Rd	Forestville	NY	14062-7020
151.00-1-15		Sears	Kathleen	183	Somerville		Tonawanda	NY	14150
134.00-1-39.2		Smith	Michael	9491	Round Top	Rd	Forestville	NY	14062
135.00-2-5.1;		Smith	Peter	3177	Whitaker	Rd	Fredonia	NY	14062
150.00-2-6;									
133.00-2-26									
151.00-1-14		Smith	Theodore	183	Somerville		Tonawanda	NY	14150
151.00-1-39		Snyder	Mark	292	Wrexham Ct North		Tonawanda	NY	14150
168.00-1-41.1		Stearns	Mavis	8043	Route 83		South Dayton	NY	14138
151.00-2-10		Stearns	Roberta	PO Box 7543			Indian Lake Estates	FL	33855
135.00-1-17		Sterlace	Joshua	9601	Prospect	Rd	Forestville	NY	14062
134.00-2-27		Sterling	Bruce	9747	Prospect	Rd	Forestville	NY	14062
169.00-1-11		Storm	Jason	1039	Fawnwood	Dr	Webster	NY	14580
134.00-2-8	Subcarrier Communicatio ns, Inc.			139	White Oak	Ln	Old Bridge	NJ	088572511

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
134.00-2-6; 135.00-1-4		Swanson	Frieda	9974	Prospect	Rd	Forestville	NY	14062
134.00-1-4		Swanson	John	9974	Prospect	Rd	Forestville	NY	14062
152.00-1-15		Szymanski	Richard	8991	Ball Hill	Rd	Forestville	NY	14062
153.00-1-65		Tatchell	Douglas	9114	Silver Creek	Rd	Forestville	NY	14062
168.00-1-43		Tenerewicz	Daniel	7072	Sweetland	Rd	Derby	NY	14047
151.00-1-46;		Termer	William	82	Ponderosa	Dr	Williamsville	NY	14221
150.00-1-46,		renner	vviillaiti	02	Poliderosa	וטו	vviiilarrisviile	INT	14221
150.00-2-10; 150.00-2-11		Termer	William	3748	Bard	Rd	Cassadaga	NY	14718
152.00-1-7		Titus	Jonathan	15	Maple	Ave	Fredonia	NY	14063
151.00-1-6		Tourjie	John	9626	S. Protection	Rd	Holland	NY	14080
168.20-1-16	Town Of Villenova				Butcher	Rd	South Dayton	NY	14138
168.20-1-3	Town Tool House								
134.00-2-23.1		Troutman	Betty	9477	Pope Hill	Rd	Forestville	NY	14062
152.00-1-11;		Troutman	Paula	9249	North Hill	Rd	South Dayton	NY	14062
151.00-2-4.1									
152.00-2-2		Troutman	Rose	9320	Ball Hill	Rd	Forestville	NY	14062
134.00-2-23.2		Troutman	Steven	9569	Pope Hill	Rd	Forestville	NY	14062
134.00-1-45; 134.00-2-21.1; 134.00-1-44; 134.00-1-43		Tunstall	John	9400	Pope Hill	Rd	Forestville	NY	14062
134.00-1-37; 151.00-1-1.3; 151.00-1-2		Tweedie	Brock	25	Water	St	Forestville	NY	14062
135.00-2-45; 135.00-2-45.2		Vento	George	15	Lone Eagle	Way	Lownesville	SC	29659

Parcel ID	Company Name	Last Name	First Name	Address No	Address Street	Street Type	Address Mun	Address State	Address Zip
151.00-1-47		Vetter	Jeremy	3525	E. Main	St	Sheridan	NY	14135
152.00-2-12		Wade	Bradley	9271	Dye	Rd	South Dayton	NY	14138
134.00-2-25		Waligora	Timothy	1111	Balmer	Rd	Youngstown	NY	14174
151.00-2-9		Waterman	Daren	9077	North Hill	Rd	South Dayton	NY	14138
135.00-1-20; 135.00-1-21	Wesleyan Church			9495	Prospect	Rd	Forestville	NY	14062
135.00-1-16	Wesleyan Parsonage								
135.00-2-2		Westlund	Benjamin	9955	Dye	Rd	Forestville	NY	14062
135.00-2-47		Westlund	Heather	9955	Dye	Rd	Forestville	NY	14062
151.00-1-17;		William	Clarke	247	Farrell	Rd	West Henrietta	NY	14586
151.00-1-18									
134.00-2-3		Wojcik	Judith	9981	Prospect	Rd	Forestville	NY	14062
152.00-1-20;		Wolfe	Everett	7320	E. Shoreward	Loop	Tucson	AZ	85715
169.00-1-6;									
169.00-1-7;									
169.00-1-8									
152.00-1-29		Wolfe	Jeffrey	987	Smith	Rd	Forestville	NY	14062
151.00-2-5.1		Woodside	Stuart	1041	Kline	Rd	Williamsville	NY	14221
153.00-1-24.1		Woolley	Neva	9239	So. Dayton Silver Creek	Rd	Forestville	NY	14062
135.00-2-4.1		Wunderlich	Marge	3590	Roundbottom	Rd	Cincinnati	ОН	45244
151.00-1-7		Yaskow	Carl	38	Guernsey	St	Buffalo	NY	14207
151.00-2-4.2		Young	Robert	9298	Pope Hill	Rd	Forestville	NY	14062
151.00-1-42;		Zahm	Jeffrey	9299	Zahm	Rd	Forestville	NY	14062
151.00-1-43									
151.00-2-12		Ziemendorf	George	4313	Wilson-Burt	Rd	Wilson	NY	14172
134.00-1-50		Zimar	Richard	9644	Round Top	Rd	Forestville	NY	14064

## **Town of Villenova**

Notice of Public Hearing Published in the *Dunkirk Observer* 

LEGAL NOTICE NOTICE OF PUBLIC HEARING ON OCTOBER 13, 2106

FOR THE TOWN BOARD

FOR THE TOWN BOARD OF THE TOWN OF VILLENOVA BALL HILL WIND ENERGY PROJECT PLEASE TAKE NOTICE that the Town Board of the Town of Villenova will hold a Public Hearing on October 13, 2016 at 7:00 pm at the Hamlet United Methodist Church located at 1119 Route 83, South Dayton, New York 14138 to hear all public comments regarding the Ball Hill Wind Energy Project including but not limited to the Amended Application for a Special Use Permit, a local law (introduction No. 6 of 2016) to amend the Maximum Height restriction for Wind Energy Conversion Systems, and a local law (introduction No. 7 of 2016) to create a Wind Overlay Zone as set forth in the Town's Wind Energy Facilities Law (Local Law No. 1 of 2007). The Amended Application, proposed local laws and other project information is available for public review at the Villenova Town Offices located at 1094 Butcher Road, South Dayton, New York 14138. The Amended Application and the local laws, and documents related to the environmental review of the project are also available on the internet at

project are also available on the internet at www.ballhillwind.com. O-161093 October 1, 3,

2016-adv

DUNKIRK OBSERVER

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## AFFIDAVIT OF PUBLICATION

State of New York

County of Chautauqua

City of Dunkirk

Sheila McWillson, being duly sworn, deposes and says that she is the Principal Clerk, for Ogden Newspapers of New York Inc. the publisher of The OBSERVER, a daily newspaper published in the City of Dunkirk, Chautauqua County, State of New York, and that a notice of which the annexed is a printed copy, was inserted and published in said newspaper on the following dates

Oct. 1, 3, 2016

Signed before me this 9th day of November 2016

BARBARA J. MUSSO Notary Public, State of New York Qualified in Chautaugua County My Commission Expires

## **Town of Villenova**

Comments Recorded at the October 13, 2016, Public Hearing

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## BALL HILL PUBLIC HEARING

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Proceedings held at 1119
Route 83, South Dayton, New York, taken on October 13,
2016, commencing at 7:00 P.M., before ERIN L. COPPING,
Notary Public.

1 RICHARD ARDILLO: Good evening, everyone. It's seven o'clock and we're ready to start. I'm the town 3 supervisor, you know me. And I'd like to 4 introduce to you the town's attorney, Dan 5 Spitzer. I'll be handing the meeting over to 6 him, and we will be -- he will direct the 7 proceedings from here, so -- okay. 8 DANIEL SPITZER: Thank you, sir. Good evening, 9 everyone. I appreciate everybody coming out 10 tonight for the town. We are here for a public 11 hearing on the application, the amended application for the Ball Hill wind project. 12 13 Tonight you're going to hear from the applicant 14 and the applicant is here to answer questions for 15 you about the project. In addition, any 16 questions that you ask tonight -- there's a 17 stenographer who is taking down everything. ask therefore that you clearly state your name 18 and address when you come up so that she knows 19 20 who you are and we can record things correctly. 21 Any questions that are asked here tonight 22 are also part of the town's review process under 23 the State Environmental Quality Review Act. The

town is working with the applicant on that Where that stands and -- where it process. stands is that we've had -- for those of you who are not familiar, a couple of years ago a company flagged this area as having potential for a wind farm and the community has been working with the applicant for a number of years now. state law we do an environmental review that quides the process. That process went through what's known as a draft environmental impact statement and we had a public hearing on it. After that process, things changed a bit. technology, frankly, got better for wind farms, and as a result there is a project that is in front of you now which they will explain actually has the same size in terms of output but actually has less turbines in Hanover and Villenova and the -- the company then prepared at the town's request a supplemental draft environmental draft impact statement. And for those of you here in this building the last time there was a public hearing on that document, that document is now they're answering the questions that were asked

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that evening. They'll answer the questions that are asked this evening and as a result of those public hearings and that input they will produce a document and submit to the town a proposed final environmental impact statement that sort of summarizes all the impacts that affects the town in that report. It's led by the engineering firm of Haley Aldrich. Jim Pippin who has been with the project since the beginning is the chief reviewer making sure that the report properly identifies all potential impacts, socio, economic and environmental, of the proposal. And then once that meets his recommendations for approval it's submitted to the town board. The town board goes through it with the applicant and with its expert and if the town finds that FEIS is acceptable, then it can move on to issuing the FEIS and no earlier than ten days after that it can make a decision on whether to grant the approval in part or in whole that has been asked for the wind farm and for the change in the law. There's also a duplicative process that goes

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process is run through. The Town of Villenova is the lead agency, but Hanover has its own application process and that application process is following along at the same pace. Like Villenova, Hanover cannot make a decision until the environmental review is done. Hanover is proposing to have their public hearing in early November. They haven't set the schedule formally yet, but has the amended application in front of them.

In addition, the documents are all submitted to the county planning board which hopefully will be reviewing them the first week of November for both communities. And the public is welcome, regardless of where you live, at both of those meetings. I don't think the county planning board is technically a public hearing, but my experience is that that planning board has always taken questions from the public and comments from the public, and Hanover is a public hearing.

But I'll also mention if you think of something after tonight, you don't necessarily have to go to the Hanover public hearing. The

Town of Villenova will accept written comments sent to the town clerk for ten days after tonight's meeting.

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So the way we're going to work this tonight is I'm going to turn it over to Mark Lyons on behalf of the applicant. Mark and his team are going to make a presentation. When he's done we can open it up to the questions. We'll ask folks come up one at a time, identify themselves. do ask that if you have a comment, like you just want to say to the board here is why I think this is a great idea, here is why I think it is a bad idea, this is the time to make those comments. We ask that everybody try to keep it within three to five minutes and if we have time at the end we'll go back so we'll make sure everybody who gets finished gets finished. We want to make sure everybody has a chance to ask questions, but this is also the time to give your opinion on the project. Any -- we do our best to try -- unlike the public hearings, we'll do our best to try to answer questions tonight, but if we can't answer them they'll be answered in the environmental

1 review process.

So with that in mind, with that explanation in mind, I'll turn it over to Mark Lyons on behalf of the applicant.

TINA GRAZIANO: Can I make a request that we do the Pledge of Allegiance?

7 DANIEL SPITZER: Absolutely.

8 (Whereupon, the Pledge of Allegiance was 9 said.)

MARK LYONS: Thank you, Dan. Tonight -- I mean, good evening, everybody. It's nice to see you all here. My name is Mark Lyons and I'm the project manager for the Ball Hill wind project and we have a number of our team members with us here as well that I'd like to introduce just briefly.

Dan Boyd, our senior director for project development in the northeast region, and in no particular order, Mark Sweeney our legal counsel. Tegan Kondak, ecology and environmental. Tegan was responsible for assembling this very large application. And somewhere in the room is Kristin McCarthy, which I think you all know probably personally. And we have, you know,

another -- several other key team members who couldn't be here tonight, but they all contributed a lot of time and hard work to -- to developing a proposal that we think is the best possible wind project proposal for the Town of Villenova.

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You know, it's not our purpose right now to walk through the entire application, but we thought it would be helpful to summarize some things that we think would be of key interests to you all in terms of the impacts of the project on the community and the benefits for the community, highlighting the improvements we've made in the project since January of this year when we had a hearing in this very room on a very snowy winter night. At that time, a number of people expressed some concerns about the notice that was given of the meeting and for the -- for that seeker public hearing. The only legally required notice was a notice in the newspaper, which we did, but we also did what we could in addition to that, which was to send out over two hundred notices to people that we were -- that live

within the project area and apparently we missed a few, but we did our best. We had a good turnout nonetheless. This time we had more specific notice requirements, particularly under the Villenova town law that governs these wind projects. And specifically, we again put public notice in the newspaper twice, in the Dunkirk Observer, and we also sent out to the addresses that we got from the county assessors, addresses of record of everybody who lives within the proposed project site and everybody within five hundred feet on the borders, so it was about two hundred and seventy-two notices that we sent out. And I can assume that you all got them and I think this is a good turn out. I appreciate your being here.

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Another kind of administrative thing, within that notice was a legally required agricultural statement that we included. It's required under the law to say are we proposing a equipment within agricultural land and there was a blank there for property owner. You are not required to do anything with that. That was simply

provided to you informationally under the law. You don't have to fill anything out or send it back in. I know there was some questions about that. Can everybody hear me in the back? I don't think this is -- I don't think this is doing me any good. Can you still hear me? Great. I'm not used to using a microphone.

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So you know, I just want to say that in the last week a woman called me. She's one of your neighbors and she asked me some questions about the project and the application and we had a good chat and I answered her questions, but she had some very basic questions about the project, and it occurred to me there are a number of sort of basic issues that you may have questions about. You know, what does it mean when a company comes to your community and proposes to do a wind project in your community? And I think we sometimes take that for granted, you know. This project was initially proposed in 2008. been talked about on some level for about eight years, but we have never had the chance to talk to you about this. And I don't want to go into

any great length, but you know, in the course of the conversation, you know, it basically said look, we have some choices in life, so when -- we all use electricity, and when we use electricity somebody at some level, society, has made a choice about where is that electricity going to come from. And up until recently, that electricity has come from some power plant that burns fossil fuel somewhere and every power generating station has some impacts and some benefits associated with it, and so if we're getting our power from a coal plant in Ohio or an oil and gas plant somewhere in Upstate New York, somebody is getting some very significant impacts Right? from that. That's a choice that we're making, because we're not going to make the choice to stop using electricity. That's not a choice. A choice is what source are we going to So there are some very significant impacts use? with coal and oil and nuclear and even gas and there are impacts associated with wind as well.

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And there are benefits associated with them, mostly those are fuel fired generators. And the

benefits, the money flows to the people who sell fuel, whether it be in Louisiana or Ohio or Pennsylvania or wherever, but it's not here. when somebody comes to the Town of Villenova and says we've done some research and we think this would be a good place for a wind project, you know, what does that mean to you in general Well, it means that the impacts and the benefits will all be local. So the fuel dollars, if you will, from a wind project are the land payments, payments that we pay to the landowners under the lease to rent space on their property to harvest the wind and we pay the land payments every year based on using that local energy. And there are some impacts as well, but I would suggest that this is -- it's not every town that gets a chance to even consider this choice, and so you know, the choice before you is to choose wind energy, which is much cleaner than these other sources, and to host the project in your town.

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So we've done the best job we can to minimize the impacts of this project which are --

which are detailed in great detail in the application in the -- in the -- in the environmental impact statement, and there are significant benefits for the towns of Villenova and Hanover because you have the opportunity to host this project, so that's the choice that's in front of you. We have signed up about -- what? Ninety landowners, so there's a broad participation in this project in your community.

And so with that kind of a background I just want to talk a little bit about the benefits of the project. I -- I put them in three buckets, environmental benefits, energy benefits and economic benefits. The benefits from this environmentally, the greenhouse gases that will be avoided by this project is the equivalent of four hundred and four million car miles a year or three hundred and ninety thousand barrels of oil burned a year, or eight hundred and ninety-eight rail cars of coal burned a year, so very significant reduction in greenhouse gases environmentally. Energy-wise we would reasonably be expected to generate enough energy for

twenty-two thousand homes. Okay? So that energy is going to go into the New York power pool.

It's not going to be consumed locally. That's not the way it works. In New York there's a power pool, but it's your power pool. So they will go into your power pool and you'll get your energy out of the power pool and it will make the energy mix in your power pool cheaper than it would be.

The economic benefits from this project to the Town of Villenova are significant. About a million dollars a year in public and private money would be generated to this town every year from this project. That's about three hundred and sixty thousand dollars in PILOT payments and host community payments that would go to the Town of Villenova and to the private landowners, about six hundred and fifty thousand dollars a year will flow into this community from this project.

As we -- as we have mentioned, since January we had a public hearing here. We took a lot of comments and in response to those comments, as well as the other factors that we need to deal

with in designing a wind project, designing this wind project we have made some substantial improvements since January, and I just want to review those briefly. We have instead of utilizing a two point two megawatt wind turbine a three point four five megawatt turbine has become available to use and it would be no higher total height than the other one, but we generate more electricity and it allows us to reduce the number of turbines from thirty-six to twenty-nine. That's a significant decrease in the number of turbines which we think, you know, is really the most significant impact, if you will, how many turbines we see in your community, so it's gone from thirty-six to twenty-nine. The number -the numbers of miles of access roads and electric collection system has also been reduced because we've reduced the number of turbines, so we've reduced access roads by about a mile and a half and a number of lines in buried cable by about -by about five or six miles. And keep in mind that when you reduce that, you're reducing all of the impacts of construction of that, reducing

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trucks, reduce construction impacts and that kind of thing, so this project is really strong.

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We put these posters up here. I don't expect you to see them -- you to see them from the seat. And I was assured that it would not be disrespectful to put them on the altar here, and I hope you all agree. But I do invite you to come up and look at them afterward or at your leisure. But this one summarizes what I'm telling you right now. Basically what this shows is how we have shrunk the footprint of the project from the January design to the design And these are the reductions in the today. impacts from the January design to our current design. The number of acres of clearing has been reduced by about fifty acres, which is about a fifteen percent reduction in the amount of clearing we would need to do to construct the project. The noise levels at the receptors -and I'll get into the noise issue a little bit more deeply here in a minute, has been reduced by about seventeen percent in terms of the number of receptors which is your houses where the noise

level would be above forty-five decibels. Very importantly, under the town law of Villenova we are required to indicate how many homes would be within twelve hundred feet of a wind turbine. 2008 that number was twenty-five homes within twelve hundred feet of a turbine. In 2011 that With this design there are no went to seventeen. homes within twelve hundred feet of the turbine. So we consider this to be a significant Okay? improvement. So reduction in impacts, no reduction in the economic benefits to the project, that the project will provide to your community.

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We -- we knew that visual impacts would be a concern of yours. It always is. I mean, when you strip it all down, if you do your homework and do a good job, which I say with all humility our team has done a great job of designing this project to be as least impactful as possible, but when you strip it all down you're going to see wind turbines. You can't hide them. Some people like the way they look and other people don't.

But it speaks for itself, right? So I'm not

going to tell you how you think it should look.

What we have done is in January we had -- we pulled these visual simulations out of our environmental impact statement, and what this shows is what your countryside looks like now and this shows what it would look like with the wind turbines, so we've redone the three simulations that we did in January. There are fewer turbines. I'm not going to tell you there's a massively different visibility of wind turbines. It's twenty-nine versus thirty-six. But there it is. That's what it's going to look like.

And there's a more sort of technical tool as you go through the application. This is the viewshed back. Those are by color code where at each one of these viewpoints which are the black squares how many turbines you would be able to see from that viewpoint. If I were you, and I know how I would think the same way, you want to know what it's going to look like from your house, how many turbines can I see from my house. This is the tool that you would use to determine that. You know where your house is, you -- there

are -- on here you can't see it from there, but if you come up you can see that there are viewpoints that show where these photo simulations were taken from, so you can get a very good idea about what it would look like from your house, and I assure you that most of you will be able to see a turbine or two or more from most places in town. That's what it is. So that's -- that's the primary impact. The other primary impact is noise, of course.

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Oh, let me talk about shadow flicker for a second, because I know that comes up a lot. Shadow flicker has become kind of a mysterious thing out there in terms of where it is and what it does. This is where it is. This map shows where it is. So again, it's color coded. this will show by color. And again, you just point to where your house is on here, and based on the color it says how many hours of shadow flicker you would experience. Right? This assumes that everybody has got a house of glass. We don't know where your windows are. assuming that you've got windows all over your

house. That's -- that's how many hours a year you would have shadow flicker.

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So what is shadow flicker? It means the blade turns in front of the sun. On the one hand, people have said -- some people have said -- people who have invented this thing called wind turbine syndrome -- which, frankly, does not exist. It's not me saying that, it's the State of Massachusetts did a study, the Department of Environmental Protection, and the -- and the public Health Department in Massachusetts did a study in 2012 and they took apart this wind turbine syndrome thing, shadow flicker, low frequency noise, vibrations, and they basically said there are no health effects from these commercial wind projects, including shadow flicker. Apparently in order to have health effects like epileptic impacts, shadow flicker would have to be much faster than the blades turn on this. So you can read that study for yourself, but I can tell you that study was done by impartial experts. So will shadow flicker hurt you? The State of Massachusetts

says no. But if you do experience a very high level of shadow flicker, you know, we are committed to help mitigate that for you. If that's your favorite chair in front of your favorite window and there's shadow flicker there, we'll do blinds or whatever that is to mitigate that for you so it's not going to hurt you health-wise. It may be an annoyance, but that's our commitment and I'm sure the town will hold us to it to mitigate excessive shadow flicker.

So noise. First of all, noise, there are -noise is a very interesting science and I'm far
from an expert on it. One -- one of the key
criterion on noises, sort of broad spectrum
noise, you know, the decibel level, how loud is
it, and the Town of Villenova has a requirement
that the noise generated by this project not
exceed fifty decibels at any residence. Okay?
So we -- that's one of the things that we've
taken into consideration when we sighted this
project. And we have -- this map shows noise
levels in all the houses. The green houses are
the houses there are in the project, the red

houses are the houses that aren't. It doesn't We don't exceed fifty decibels. matter. fact, we don't come close in any residence in the project. And so I invite you to look at this So in terms of how loud it's gonna be, yourself. the ambient noise -- I mean, you all, including local experts, will tell me they have done their own ambient noise measurements and I can't say you're wrong. Certainly I know what our report says, is that the ambient average between the high thirties decibels and mid forties at various wind speed levels when these projects would be operating. The average sound level from a -- on the project at all of the noise receptors in your town, we looked at seven hundred ninety-six noise receptors. It does not exceed forty-eight decibels, which is slightly higher than ambient in some places. I don't think it's perceptibly or annoyingly higher, but it's not loud.

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The other issue that comes up with noise constantly in this is about low frequencies. You know, that's part of the wind turbine syndrome, this mysterious sound you can't hear that is

going to hurt your health. Well, in fact, you can measure it. You can measure low frequencies of noise and we have done so in the noise report and it shows that low frequencies are what contribute to vibrations too. In terms of low frequencies and vibrations, the low frequencies from the project are going to be well below the noise criteria for residential and community standards, which is NC thirty, and again, compliant with the all applicable town and state guidelines for noise, environmental.

I just want to quickly cover the -- it's all environmental, you know. This is wildlife and wetlands. To summarize that, in terms of birds and bats, this is if not the most studied project in the state, it's close, because bird surveys have been taken for this project since 2008. So it's well studied. Our experts have followed all the applicable protocols for data gathering, surveys for eagles and bats and breeding birds and well documented and we are engaged with the -- the Department of Environmental Conservation and U.S. Fish and Wildlife Service to -- about --

about birds and bats. We have made commitments for post construction monitoring. If we build the project, it is actually having an impact on these species. We can only cut trees during certain seasons to minimize impacts on bird habitats. There is a Northern long-eared bat, endangered bat species in that area throughout Upstate New York. It has been demonstrated scientifically that the best way to avoid impacting these bats is it not generate electricity when the wind is blowing at low levels because that's when the bats fly around. They fly around at night when the wind is below about five meters per second, so we have -- we have committed to the DEC that we would not generate electricity during the late summer and the fall below five meters per second. that's a cost to the project, but it's been scientifically shown to reduce bat mortalities by over ninety-five percent, so we think we're doing the right thing in terms of bats and birds. again, we're fully engaged with the DEC and the Fish and Wildlife.

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In terms of wetlands and habitat, I think this is a major step forward for this project from January to now. In January the permanent wetland impact from the project were about four point six acres, which is significant. But through a lot of very artful design on the part of our team we had reduced that to less than one, so that's a huge reduction in wetland impacts. We're very proud of that. And what else can I say? There will be environmental monitoring plans during construction by an independent third party. That's what we're doing in the environmental department, a summary of that.

And finally, construction. If I'm you, I'm concerned about the construction. It would be our hope to start construction by mid next year and to complete construction by mid 2018, so it's not a very long construction period. It would be a lot of trucks. And to that end, we will enter into a road use agreement with the town that will commit us to make any upgrades required to handle our construction traffic and to repair any damage to the road to at least the condition that it was

in before after construction is over. And that will be part of our host community impact and that will be part of what we need to maintain our permits.

So I'm going to stop talking. I think I've talked long enough. And we'll be happy to take questions. And again, we're happy to answer as many questions as we can here tonight and if there is something that requires input from the team member that is not here or more information or research, please forgive us, but we will answer that question in writing afterward. We want to be accurate in our answers. Thank you.

DANIEL SPITZER: So whoever is ready, who would like to start?

16 TINA GRAZIANO: I have a thing that I would like to read.

DANIEL SPITZER: If you like you can hand it to the stenographer so she can get it word by word, but you also can come up and read it.

TINA GRAZIANO: First of all, I would like to thank everyone for attending tonight. The two notices in the PennySaver, Observer's Community Notebook,

and the posters were not from RES. On the contrary, they were responsible for very little communication.

As a Villenova resident I'm tired of hearing people speak for us not knowing the whole story here. At a Chautauqua IDA meeting on September 16th Mark Lyons for RES stated this project has full support from both towns. How can that be correct? Let me explain the other side.

Wednesday, September 14th, at a regular
Villenova board meeting Mark Lyons and two other
partners were in attendance for the public
speaking portion of this meeting. He brought the
new map updates on a larger turbine which are now
the same height but the blades are much larger -larger. And upcoming dates, he heavily pressed
upon the importance of finishing up by November
22nd to beat the deadline for tax credits. The
date for the next public hearing was set for
tonight, October 13th. Letters were to be mailed
only to residents inside the project area and a
mere five hundred feet outside of that.

Councilman Angelo Graziano requested for a second

time that he wanted letters sent to everyone in this township. Councilman Wesley Tessey agreed. Mark Lyons agreed and said he would be glad to do this, he just needed the additional addresses which, Mr. Lyons, can be found on Villenova's website. Well, that didn't happen, did it? This request was also made for the first public hearing. I know this because I was there. attended the board meetings. Now we're here at the second public hearing, and once again two councilmen's requests are ignored. They are elected officials and should be treated as such.

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I'm puzzled why the request wasn't met. Was it a sudden memory lapse, short of cash? The lacking of help and time? Or you just felt it wasn't important? Does this theory apply to the other agreements that have been made? We live outside the project area and will view over twenty turbines as our neighbors will also. They also do not receive any notifications. I'm still running into residents in Villenova who still do not know about this project, and when I do hear some talk, they seem to be very lacking in the

facts of these turbines. So wrong to exclude anyone. All residents deserve to be treated equally. We all certainly get our tax bills without a problem, we're all included in that.

And speaking of taxes, for years our previous town supervisor has told us when the windmills go up we would no longer have to pay our town taxes. Have you heard that lately? I know I haven't. Many things are left unsaid about the money. The rest of us will be awarded with a view that will never be the same and I have yet to hear a thing about money for the remainder of the residents.

Getting back to the lack of communication here, it seems only landowners with lease agreements and their neighbors are entitled to letters for important meetings. The majority of the residents here do not subscribe to the paper and are unable to attend regular board meetings. These people are being denied their rights to attend these hearings, to voice their opinions and ask questions. When you pick and choose who gets the privilege of a notification and two

councilmen's requests are ignored, this project seems sneaky and exclusive. I hope you're not worried about confrontations if and when this project is finished. You guys are out of here, why would you care how the unsigned and uncompensated public feels? Do this right and include the entire township. Such a simple request of mailing notices to all to prevent a division of this community should have been granted.

I propose this public hearing needs to be postponed, a do-over, possibly a mulligan, until the entire township has been notified by letter delivered by the United States Postal Service.

Everyone receives the mail. These mammoth turbines are just short of five hundred feet.

They will force an impact on everyone and everything here. I'm asking again to include everybody, do this fairly, do this justly, do this right.

In closing, I could spend hours talking to you about the endless information we have acquired by reading, investigating, researching

and actually talking to people living in a wind farm. I'm asking you to research for yourself. This you must do for yourself and generations following. A sales pitch will only give you a biased side. The Internet has vast amounts of information for and against. It's as easy as Google. Keep reading. You will be amazed and possibly frightened what amount of information is out there for you. Thank you.

DANIEL SPITZER: Who would like to go next? Don't be shy.

MICHAEL EMKE WALKER: Michael Emke Walker. I came to the last meeting. I just wanted to say to everybody, how many people here feed birds?

Everybody? Anybody? A study has been done that -- you're domesticating cats that are not native to North America. They kill more birds than anything put together. Just to let you know, they have studies. If you're worried about the birds start sending Felix back overseas where he belongs.

I've got something else to say. These windmills sign contracts with the landowners.

Who are we to say what the landowners can't do with their property? Do we tell you you can't build a shed or build a house where you want? You own the property. You do what you want with I mean, I could see people's houses. it. see people's garages. Might not like the way they look, but oh, well. That's the way I look at it. And these windmills are clean. I want to go in the future, maybe your kids or grandkids -looks more like grandkids in here. I like to think that your grandkids, maybe my grandkids, I'd like to say hey, I tried to make a difference. I tried to make a better future for you. If it doesn't work out, well, at least we tried. That's all I've got to say. DANIEL SPITZER: Who would like to go next? back. JUDY WOJCIK: Judy Wojcik, W-O-J-C-I-K. And so I -you know, what I am bothered by about this whole windmill project is exactly what Tracy -- or, Tina Graziano is talking about. Everyone should get to vote in the whole township, not secret meetings, not this -- this opaque where it's a

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secret lease agreement, and then only people who are involved get to do everything. And including the fact that the Sarah LoManto was on the town board and she only recused herself from this whole process on the 28th of September. She's someone who -- that's a conflict of interest. I was there at the meeting.

DANIEL SPITZER: But she actually recused -- with due respect, ma'am, she's recused herself from day one. She has never participated in any aspect of the project.

12 JUDY WOJCIK: But she's on a lease agreement, is the point.

DANIEL SPITZER: Which is why she hasn't participated.

JUDY WOJCIK: That's the thing. Who brought this wind project back when it was already killed?

You know, I heard stories about the Java windmills where Noble went out of business, and then the people couldn't even sell their own farms because there was a lien on the windmill.

And like horror stories like that, I'd like to know more. I'd like to do more research, and I

think more people should get a say in what goes on, not these secret meetings. That's like so We all pay taxes. We all vote. hundred thousand dollars is not a lot for the value of our property being diminished by these eyesores and oversized monoliths, you know, and then all the noise and traffic. And you say you're going to fix the roads back to what they were, but they should be fixed -- like who's paying for this project? I heard a hundred twenty-seven million of taxpayers' money from New York State, whatever. Why not just fix the roads, you know? It's just -- I just -- I'm just tired of this secrecy stuff.

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DANIEL SPITZER: Just so everybody understands the process -- and this is a good example in the speakers that we've heard so far. There's a number of issues that are raised. It's the applicant's job to answer all of those questions. So if, for example, in the last speaker there was questions about how the road reconstruction is handled and how the town is going to be paid, questions about the economics. All of those

questions have to be answered.

One thing I do want to point out too, there was a concern with due respect, Mr. Lyons -- to the extent that Mr. Lyons -- if that's what he said, that the towns both support this project, neither town has ever voted for or against this project. In fact, neither town has ever been asked to vote, so I don't know what decisions people are talking about or what secrets people say they have.

JUDY WOJCIK: Well, you have secret meetings.

DANIEL SPITZER: There's been no secret meetings,

ma'am. There's never been a meeting without

being made public. Ma'am, there's never been a

public meeting in the now eight years I've been

working on this project, never been a non-public

meeting done. The town attorney is here, who can

confirm that as well.

So with due respect, that's something that they will answer specifically, particularly the property tax issue and the impairment of the property. They will go through all of that.

Just so everybody understands, neither town is

legally allowed to vote yea or nay until the application and the environmental review process is done, so no one has a -- has ever said we want this project. When private parties come forward with a project, the U.S. Constitution and the first amendment not only says you have the right of free speech, it also says you have the right to petition the government. So when private parties wish to build things in communities that regulate projects, they have a right to move their project forward and the town has a process for doing that, which it has been following. And if you have questions about that process or the ways it can be better, by all means, this is the time to bring those things forward.

Who would like to go next?

MICHAEL GARRETT: I'm Michael Garrett and I live in Forestville, G-A-R-R-E-T-T. They -- are they pretty much exempt from paying local taxes?

DANIEL SPITZER: The company has asked the IDA to grant a property tax exemption for fifteen years.

22 MARK LYONS: Twenty.

DANIEL SPITZER: Twenty years. During that time

frame they would not pay real property taxes, except for special district taxes. So for example, a town water district or town sewer district or something like that, they pay no What they pay instead is a payment in taxes. lieu of taxes set by the Chautauqua County IDA and host community payment which goes only to the respective towns based on the number of turbines. I believe that the IDA has established its own policy based on the dollar amounts that -- this is pretty much statewide. The numbers are pretty That dollar amount that's much the same. collected by the county IDA is then distributed to each school district, each town, and the county based on the number of turbines within each community. MICHAEL GARRETT: That's talking like a lawyer. Sorry. Well, I was a CPA before a lawyer. DANIEL SPITZER: I can turn it into numbers.

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MICHAEL GARRETT:

community. I've only been here about a year and

a half. My wife took a job as the superintendent

I'm new to the

I'm Michael.

in schools in Forestville and we moved down here.

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A little bit back my background, I am a tree I admit it, I am probably left of Bernie Sanders when it comes to green issues. being said, I worked for almost forty years in a college and I was lucky enough to be a faculty advisor to what we called the Earth Environmental Group, and I helped a lot of young people go on to careers in environmentalism as state rangers, botanists to whatever, and so and I was also -- I shouldn't say fortunately. I moved probably five times in the last ten years, so I've lived in Genesee County, Wyoming County, Livingston County, Wayne County and now Chautauqua County. And when I came down here I couldn't believe how beautiful this place was. I am an artist. just retired this year and, you know, I'm going to be a photographer full-time now and I couldn't believe, you know, how wonderful this place is and how friendly the people are. But one of my favorite artists is Norman Rockwell, pretty much an expert on him, and one of paintings he did was The Four Freedoms. The first one he did was

freedom of speech and if somebody -- you know, they are kind of iconic. It shows a gentleman standing up like this, the wooden benches.

Basically what led to a school board meeting and this gentleman stood up and spoke out against basically the majority of the people that were trying to pass a bond to get a new school and he stood up and Rockwell says that's what freedom of speech means, even if people who stand up and disagree with the majority, that is the great thing about the United States. You know, any claps about that or no?

So if I disagreed with some of your things tonight and you don't like the way, you can easily just go outside and say Mike, I don't like what you said but -- Mike, I don't like what you said, but I recognize your right to say those things. Like that lady up here said that buying that -- I am really a huge big environmentalist, you know. I believe in alternative energy. You would think this guy is -- like supports Bernie Sanders, he supports alternative energy, he would be whole hearted for the wind projects. Well,

guess what, folks? I saw what it did down in Varysburg. It tore the town apart, you know. Has anybody stood under a windmill? And so can you tell me it's not noisy? And the gentleman here talked about birds. I mean, I did some research the past two days, and in the plateau where the things are they did a five-month study. It killed over two hundred birds and over four hundred bats in that time frame, so please don't tell me it doesn't have an effect on the environment.

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What is happening to the wind companies, most of them are owned by foreign governments, you know, foreign owned. This one I think is out of England. They may have people that are based in America. They are getting incredible tax breaks that you and I are paying. There is actually three things, federal tax breaks, state tax breaks that Cuomo gave because obviously he wants, you know, more things, but he also gave it to all his buddies that are in the energy business. And basically, you know, the company -- well, the company is run by Wall

Street, things like Goldman Sachs. Do your research. You know, people like Warren Buffett, all these people are pouring money into it.

Well, because they want to save the environment, they want to help out, right? No, they want to make money. They get all these tax incentives and tax breaks.

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And even like I said about the local taxes, what they do, folks, is they come out and they look at areas, you know, in New York State. And it's a whole -- you know, you can go on the net. All of New York State is fighting. Some are, you know, literally like I said, tearing communities apart. Randolph right over here decided they weren't going to do it. They said no, we're not going to do it. The entire County of Livingston put a moratorium, no windmills, we're not going to mess with it and the whole county. That is why they kind of moved over to Wyoming County and Varysburg.

From an environmental thing, these things are not efficient. They don't make that much electricity. So again, you say we -- if they are

not making money off selling electricity, what are they making money off of? Well, it's the taxes, is what they are making money off of. can ask this gentleman how many millions of dollars a year is this wind farm going to generate for his company, and probably an average, probably about seventy-two million dollars a year, so what they do is they target the poor communities in New York State. don't see these like in Williamsville or Clarence or down in Chautauqua Lake. You're not going to. Those people are smart enough to say we're not going to have them here, you know, take them someplace else. So what do they do? They go to different communities and they say oh, these people are really dire needs, which we are. We got a time limit here? AUDIENCE MEMBER: TINA GRAZIANO: He's got a right. AUDIENCE MEMBER: Are we going to have one guy talk all meeting? DANIEL SPITZER: Okay. Okay. Let's -- let's -- let's have respect for each other. The answer to your question, sir, is yes, we did ask people

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to keep the time to three to five minutes. 1 2 Really -- I really do want to give everybody a 3 chance to speak. 4 JUDY WOJCIK: He has good points. I would let him 5 finish. 6 DANIEL SPITZER: Are you near wrapping up? 7 MICHAEL GARRETT: I'll ask that we have everyone do 8 some research, go on the net. This one gentleman 9 here, a pretty nice man, the superintendent, he 10 said that the property values wouldn't go down. 11 I challenge him. I would take you out to dinner 12 at South Dayton Hotel and buy you a fish fry on Friday night, one of my favorite places, if you 13 14 can give me five examples on the Internet of five 15 things that you can see where the property values 16 don't go down. I can give you almost fifty 17 different sites where property values go down. That is -- you know, I'll be totally selfish. 18 Ι have a really nice house I bought. Someday if I 19 20 want to sell that house, guess what, folks, I 21 ain't gonna be able to. And you can go on the 22 net, you can do all your studies you want. 23 DANIEL SPITZER: Okay. Again, if anybody doesn't

have a chance to finish, when they have -- think of something else they want to add, let's get everybody a chance, and then we'll start again at the end. Did you want to respond to some things? MARK LYONS: If I could briefly respond, there were a number of issues that the gentleman brought up, and certainly I appreciate your --The Massachusetts MICHAEL GARRETT: I have one more. study, that was funded by the state and that's the only study in the United States that's been There's plenty of studies being worked on right now, but the -- to say it doesn't exist, there's not a study --DANIEL SPITZER: With due respect, and I don't speak for the company, Mark and I were both present that meeting where wind turbine syndrome was Nina Pierpont, she spoke about it at a invented. meeting in the Malone area. She was opposed to a project in Clinton County. Nina is an individual who is an ornithologist going back to John Hopkins to become a child pediatrician and she and her husband were opposed to a project going

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on that did not go forward. Actually, I got

the -- with respect to the Town of Malone and her 1 2 study which has never been peer-reviewed of this 3 disease, she has no background in vibro disease. 4 There are in fact twenty studies that say wind 5 turbine syndrome is not -- Ontario has said it, 6 Australia has said it --7 All overseas stuff. Who funded MICHAEL GARRETT: those studies? 8 9 DANIEL SPITZER: With due respect, sir, there's never been a peer-reviewed study that those -- these 10 11 turbines cause some kind of vibroacoustic disease that Miss Pierpont alleges. That's what is --12 what he is referring to. 13 14 MICHAEL GARRETT: For years people were getting sick 15 in a certain part of Connecticut and they 16 couldn't say why are the people getting fatigue 17 and rashes and all this. It took them years to 18 find out it was this little bitty tick that came off a deer so they named the thing after the --19 20 Lyme and now it's called Lyme disease. I think that's a little far. 21 DANIEL SPITZER: 22 MICHAEL GARRETT: For years they said it didn't 23 exist. They told people oh, you've got the

1 placebo.

DANIEL SPITZER: Having a number of friends on Long
Island, with due respect, sir, that's plain
nonsense. So can we move on?

MARK LYONS: In general -- I want to respond generally to this, because first of all, you're certainly entitled to your opinion, but I think it's only fair to everyone who is entitled to their opinion as well, and the majority of the town gets to decide what happens in the town.

To clarify that, there's nothing hidden or secret or mysterious about this, and I think the people who oppose wind energy for the very reason that you said up top is that you don't like to look at them, and I respect that.

MICHAEL GARRETT: But --

MARK LYONS: I think it would be disingenuous to imply we're making tons of money on tax credits. You only earn tax credits when you actually generate electricity. You only generate any revenue from these projects when you generate electricity, so it's a falsehood to imply that all we do is stand them up and make tons of

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money. If they don't generate energy they don't
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       get it.
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   MICHAEL GARRETT:
                     If they took away tax credits would
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       your company still do it?
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   MARK LYONS:
                      The tax credits are important
                 No.
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       because the primary revenue source is the energy
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       prices and energy prices in New York State.
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    MICHAEL GARRETT:
                     That's why a lot of people --
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   DANIEL SPITZER: This is not a debate.
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   MARK LYONS:
                 There's nothing nefarious, sir.
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       simply a question of you get -- you will see
       windmills. Some people don't like them.
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       going to tell you if you like them or not.
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       the town will get a chance in a lifetime of
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       economic benefits. There was milk, there was
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              This is a great opportunity for this town.
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       I believe -- I think we've done a very
       responsible job of mitigating the impacts of this
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       project and we're offering you the best wind
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       project design for the Town of Villenova with
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       life changing revenue opportunity. And yes, you
       will see windmills, and that's all there is.
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    DANIEL SPITZER:
                     And, Mark, the first speaker was
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correct, the town has never said it's in favor of 1 2 this project, so nobody has made any decisions 3 yet and the town --4 TINA GRAZIANO: I have the notes from the meeting. 5 DANIEL SPITZER: I just want to make sure you know 6 and the community knows neither town has ever 7 said we want this. 8 JUDY WOJCIK: So when will we get the chance to say 9 anything about it? DANIEL SPITZER: 10 Who else wants to speak who hasn't 11 spoken yet? I'm going to go one, two, three, four, and then one, two, three, four. Come on 12 13 up, sir. 14 DAVID IVETT: David I-V-E-T-T. I'm a third 15 generation that lives in this town. I happen to 16 love this town. My daughter and son-in-law moved 17 back here four and a half years ago and built a 18 very nice house for which they are paying taxes 19 on. 20 The last meeting Mike Walker got up here and said we don't even have a pot to shit in. 21 22 bothers me. I got to looking around at what we 23 got in town. All we got is the funeral home and

I realized we're a very poor town. I think there's a serious problem with the future of Villenova. I went up and met with the tax collector or assessor on Tuesday. Do you folks realize that we have ninety-five gas wells in this town? Gas wells pay taxes. They pay taxes based on revenue. The revenue, because of the price of gas, is going down. We're losing ninety percent of that revenue in those gas wells. That means people left are going to be paying a lot more taxes.

We need windmills in the Town of Villenova.

We need development. I don't care what it is,
but we need something going on. You folks need
to go home, call your kids and call your
grandkids and talk them into coming back to

Villenova, because we need the assessment. We
need it for our future. I'm in favor of
windmills. We need something in Villenova or we
won't exist as we are today. If we don't get
something here our taxes are going to go out of
sight. If you got your school taxes, they were
up. And they were up because our equalization

rate has changed and we're paying a bigger piece.

Earlier we were told that this is going to give a

million dollars to local citizens. We need it.

4 We are a very poor town.

DANIEL SPITZER: Sir? You stand up. And then after him, you go, sir.

STEVEN CROWELL: My name is Dr. Steven C-R-O-W-E-L-L.

We're four generations on the same property on

Dye Road.

So I don't live currently here because I'm a pastor over in Alfred. Let me tell you what I saw as I was driving on the interstate. Miles and miles and miles of lines, of electrical lines where they clear-cut lines. We see massive tall structures. We have become accustomed to these so we no longer complain about what is out there. Just walk down your own road. You have telephone poles. You go to the rich communities you don't have that because they put them underground. We need something, as my friend was just saying, to come here.

I hope to retire back into this community in eight years, but I'm still a landowner here and

my children have lived here until just recently.

I believe that this -- and I've done my research on the Internet. I've done my research in other locations. Doing my doctoral program I was always taught by instructors, beware of what you find on the Internet because you'll find everything, pro and con. So you do have to do your research, and you do have to do your studies. I did sign the land contract. I signed it because I did my research and I continue to support this project.

12 DANIEL SPITZER: Sir?

ANGELO P. GRAZIANO: Angelo P. Graziano. Were you saying something about voting yea and nay? Could you repeat that?

DANIEL SPITZER: So during the first speaker's commentary, she said that Mr. Lyons had told the IDA that both communities were fully behind the project, and I wanted to make sure the communities understand that neither town board and neither community has ever voted yes or no on this project. They moved the project through the process, particularly Villenova, but no community

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has asked and no community has said it is --
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       wants or does not want the wind farm.
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       what I meant.
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    ANGELO P. GRAZIANO: I did ask. I did ask for a
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              I asked Don here, and --
       vote.
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   DANIEL SPITZER:
                     As Don can explain to you as your
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       main attorney, you can't say yes to anything like
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       this until the environmental review is done.
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       It's just not allowed under state law.
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   ANGELO P. GRAZIANO: With that being said, after the
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       environmental review is all done and everything,
       is the town able to have a vote at that time?
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    DANIEL SPITZER: Absolutely. Generally what the rule
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       is is you have to wait ten days after the FEIS is
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       issued.
                Ten days after that you and the Town of
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       Hanover can vote.
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    ANGELO P. GRAZIANO: And they could have that vote
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       any time or have to be a certain time after that
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       meeting?
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    DANIEL SPITZER:
                     Well, I don't think that.
                                                 There's a
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       requirement. You're supposed to act on
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       applications within a certain period of time,
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       generally sixty-two days after a public hearing
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is closed, but when you have a process like this, 1 2 you -- the seeker interrupts that. For a general 3 rule, most communities try to act -- you can act 4 less than ten but they try to act within thirty, so most communities have it at first or second 5 6 board meeting, but that's also when the 7 decision -- quite often you'll have a meeting 8 first with the attorneys and you'll say here's 9 what we're thinking, so the attorneys and the engineers can draft a statement of finding that 10 11 supports the decision, and then issue the decision, so this -- it's a process that the 12 13 board can work through. 14 ANGELO P. GRAZIANO: Great. Thank you very much. 15 DANIEL SPITZER: This gentleman next, and then over 16 there. Sir, in the hat in the back? 17 Can I come to the front, please? HOWARD CROWELL: 18 DANIEL SPITZER: If you'd like to, absolutely. 19 HOWARD CROWELL: Howard C-R-O-W-E-L-L. I live just 20 up the road a mile in Forestville. That's what one looks like, environmental 21 22 impact statement. There's a lot to it. Believe

it or not, I read most of it. And if I step on

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your toes, let me know. There's a lot of stuff in there, a lot of stuff you haven't thought of, and it's pretty thorough. I mean, there's stuff in there you wouldn't even find on the Internet. You talk about acoustical effects on bats. They look at the -- I'm sorry. Earthquakes, that kind of stuff and if there's a -- I'm sorry. relevant then they look at immediate -mitigation, and they try to figure out what it's going to take to get this thing fixed, but that -- what hasn't been talked about in this impact statement that he talked about, the community. He looks at community before and after compared with the wind farms downstate, looks at the population growth, median income, value of homes, your taxes before and after. one thing that I found out in there, that if you live in a town with windmills and your taxes -the local taxes take a substantial cut so it affects your taxes. Your property taxes seem -or, your property values seem to go up because there's people wanting to live in a town where there's low taxes. And that's -- I ain't gonna

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go much more into that, but you have some other stuff here on the -- from the impact statement.

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Those of you who don't know, I'm Howard Crowell. I grew up in Villenova. I went to school here, owned land here, raised a family here. I pay taxes here. I'm not getting a windmill. My father, he grew up here too. was the town supervisor for twenty-four years. He was a councilman before that, did all the book And his father, my grandfather, was the work. highway supervisor for most of his adult life. grew up in a house where conversation about town business was normal. There was always something going on, bills to pay, payroll to make out, people stopping in, asking for advice, looking for answers.

I remember one gentleman in particular came in one night. His wife -- his mother had died and he had a grave opened in the hamlet cemetery. The equipment was too big to get in there. He didn't have too much money to get in, didn't know what to do or where to turn. My father said don't worry about it. As soon as he left, we

were out the door with a couple shovels and a pick axe. Before I graduated high school, I had Community service before there was dug two more. a name for it. We didn't do it because we wanted We did it because it had to be done. t.o. didn't have -- we didn't have to do it. We had a lot of other things to do. We had a farm to run. There was a lot of farms around back then, dozens of them. Look around now. How many do you see? Has anybody counted them? It doesn't take much. You can raise one hand counting the number of farms still shipping milk in this town right now. That's what I come up with, unless I counted wrong.

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We need to do something. My son Phil, he bought thirty acres and built a house in this town, wanted to raise a family. He's not here anymore. He found out after a few years you can't make a mortgage payment and feed a family on a local job. He moved to Buffalo. His two sons that -- two sons used to get together at my house every night from the school bus, they now go to Frontier School.

A little over a year ago my wife and I, we took a trip down to Orangeville, looked at the windmills down there, got out of the car, walked over, stood underneath one after getting -- taking pictures, stood underneath it. Yeah, you can hear it, but the conversation didn't get interrupted. You could hear the cars. They were making more noise than the windmill was. We stopped at the local farmer, talked to him. He said without those windmills he wouldn't be farming still.

Back in 2008 I was on town board when we had a visitor from Town of Castile. He came up. They just got windmills the year before. He talked about how it reduced the taxes to nearly nothing. They finally got enough money to update their farm -- or, the town equipment and got some road built. He was all in favor of it. Wouldn't it be nice to do that here?

I sit in this church where I went to Sunday school and here's the man across the room talking about him moving into town for his retirement home. He's moved here because of the people and

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our great views and he tells us we can't do this,
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       and I say to him, welcome to Villenova.
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       your stay here, but don't tell us what we can't
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       do.
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   DANIEL SPITZER: You'll get a chance at the end.
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       promise. Yes, please?
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   DIANA ERMER:
                My name is Diana Ermer and I live up on
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       Round Top Road.
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            I had a question about the state and
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       government financing. What percentage of the
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       project is being financed by federal and state
       funds?
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   MARK LYONS: By federal and state funds?
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   DIANA ERMER: What percentage of your actual like
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       construction and the whole project is being
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       financed? I understand that --
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    MARK LYONS: Well, if you say financing funds, there
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       are tax credits. There are payments for
       renewable certificates, but there is no federal
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       or state funds per se financing the project.
                  That's not my understanding, I thought,
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   DIANA ERMER:
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       but I don't understand how the project --
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   MARK LYONS:
                 We don't get any money from the federal
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government or the state government to build this project.

3 DIANA ERMER: None?

4 MARK LYONS: Zero.

DIANA ERMER: The last -- when -- Duke Power, when I asked them they said they were getting -- they were getting government money.

DANIEL SPITZER: What they were talking about was the federal tax credit. If you have a company like GE Capital or hedge funds, they are what's called the tax equity investor and they will give you as the developer of a project funds in return for receiving those tax benefits later on, and so what you're doing is in effect selling the tax credits in advance. However, the federal government doesn't write a check and the state government doesn't write a check for anything other than what Mark said, energy when it's produced.

DAN BOYD: 2008 was a very different time -- Dan Boyd from Renewable Energy. As we all know, 2008 was a very different time. At the time there was the ARRA, the American Recovery Act, whatever it was,

and at that time in order to spur growth there was no -- no one making any money, no corporations. None of us were. Taxes were done so there was no way to monetize tax credits at that time, so in order to spur growth when they were throwing money into our roads and into our infrastructure -- which is great for all the jobs. When they turned it into -- the tax credit into a cash grant for that one year in order to spur things moving again, so back then that was the case. That hasn't been the case for years. There's no direct funds coming.

DANIEL SPITZER: That's correct. And what happened was they -- if you took that cash grant and you didn't get the federal credit per kilowatt, but to the extent you're saying on federal government financing it, they are advance selling the tax credits that they would earn from the federal government to a tax equity investigator, usually or maybe --

DAN BOYD: Could. Could.

DANIEL SPITZER: You have to understand, as was
pointed out by I think it was this lady, this is

one of the largest corporations in the world and they -- some of these large corporations do finance these wind farms off their balance sheets. So they may not have any financing, they may just run the things going forward. It's -- it's a -- definitely the finance is complicated, there's no question about it. The comment that the gentleman and some other folks made that the finances is an important part of it, but at the end of the day it's a project to sell energy and it only makes money if it sells energy, and that's true of every wind farm.

I can also confirm, having represented the developer in the Varysburg situation which is Orangeville, both Sheldon and Orangeville have pretty much eliminated their local town tax and the property values overall have gone up. So that's the kind of thing you can also look up on the Internet.

Who else would like to go who hasn't had a chance to speak yet? Yes, sir.

SCOTT CAMPBELL: Scott Campbell. I live on Fluker
Hill. I grew up in Gowanda. I moved to

Connecticut, spent a lot of my life in

Connecticut, came here without Lyme tick disease and decided I would buy some land, which I did, built a home. And I'm going to look at this Ball Hill wind project and I don't mind that. I stood under windmills down in Pennsylvania and listened and had a conversation with my wife. And just as Mr. Crowell said a minute ago, nothing got in the way of it.

I'm concerned because this town has nothing for a tax base. We have no high-speed Internet. We sure as heck are not going to attract businesses without that. And as Dave Ivett said a moment ago, we've only got a funeral home. We need something and this project is going to bring money into this town and it's going to reduce our taxes. If we don't get it they will go someplace else.

I have solar energy. I got solar energy with -- I have solar panels on my barn. I got tax credits. I also paid for those tax credits through my taxes, so this company which is privately owned is doing the same thing on a

larger basis. There's no argument there. The money is there. They're taking advantage of it. People who are putting up solar panels and wind towers are going to take advantage of it. don't, it's your -- your money gone. So I'm going to look at those windmills from Fluker Hill and I'm going to see a lot of them. And as has been said before, beauty is in the eye of the beholder. I happen to like them. I happen to like how they look. I had six cars stop on my road today where I live and look out at the beautiful foliage. It is drop dead gorgeous. my opinion, those windmills are not going to detract from it, but they are going to reduce my taxes and for that I'm grateful. I support this.

DANIEL SPITZER: Yes, sir?

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DR. CHARLES TENEYCK: Doctor Charles T-E-N-E-Y-C-K.

Like many of you, my family property goes back to the -- they bought it from the Holland Land Company. My family -- family has been here forever. I live on a very small piece of that property that's left. Pieces got sold off when one generation went out of farming and people

died and they left -- actually, I'm told that at one time we owned all of Round Top Hill. I'm also told that one of my forbearers owned -- in fact, I've seen a photocopy of the deed that he once owned what is now Wall Street. If that was still in the family I wouldn't be worried about windmills.

In either case, I have not made any money on this stuff, but I'm still there. I moved down here after retiring recently, a few years ago. It was always my dream to come back to this area where my forbearers lived and plowed the dirt and milked the cows, you know, all the rest of that, so I have that kind of an emotional investment in this situation.

About eight years ago about the time -well, seems like a long, long time ago in a far
away galaxy, but my wife at the time wanted to
put in a new carpet, wall to wall. To her credit
she asked for my input. Due to my stupidity I
didn't give her any. Not long after that I came
home one day in the evening and I had this
reaction that I -- I thought I was going to

upchuck. It was the most hideous ugly carpet I had every seen in my life. I -- you know when you're so upset you don't even know what to say? You can't even yell, you can't even swear, you can't do anything. That's how I felt. About eight years ago I got a picture of the map of turbines from at that time Duke Energy and I had the same damn reaction. I'm sorry, Lord. I had the same reaction. It was a gut reaction that almost made me sick, because I realized I was going to be and still gonna be if this goes through right almost dead center in this. the first thing that occurred to me is, my back porch, really my peace of piece and rest with a beautiful view and trees and all that, there's going to be one big turbine right in front of me. And that's all I could think of for weeks.

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I knew that this upset I had my in my gut needed to be tamed. We had a saying in the Marine Corps. They'd say you always have to keep your head and your gut wired together. If you go with one without the other or the other without the one, you're going to make bad decisions, bad

judgments. So I knew I couldn't just go with my gut, my revulsion to what I imagined this thing was going to look like. I knew I had to get down there and get into that -- that thing, for starters, but also research among various institutions and research around the country to -- some of it's been mentioned, by the way. Some of you probably know that just because something is on the Internet doesn't make it true.

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In fact, that reminds me of Mark Twain, something he said. He said once it's not what you know that gets you in trouble, it's what you know that just isn't true that gets you in trouble. So I knew I had to calm my gut down and when it got calmed down enough over this shock I began to do the research. And like many of the rest of you, I spent weeks and weeks -yeah, I know, I need to get a life. But I read that whole damn thing. I was very impressed by And I wasn't just impressed by the job that these people did, as Mr. Crowell said -- Crowell. Mr. Crowell said, they have studied stuff in this town that would never in a million years occur to

That's how in depth this thing is. But I you. was impressed by the depth in which they studied this, but I'm not a fool. I've worked for a long time in corporations and I know that they don't have your best interests necessarily in mind. It's not because they're crooked, it's not because they're evil, it's not because of any of those things, it's because their job is to make money for their constituents that they represent, their fiduciary responsibilities, required to do that. That doesn't mean that they are concerned about the things we're concerned about, but it should make you skeptical enough that you want to question them and that's why they're here, so you can question them.

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But within that study other people have been questioning them that represent you and I, such as the Army Corps of Engineers, the Environmental Protection Agency, our own conservation, New York State Conservation Department, the DEC, the county IDA. I mean, they are all listed in there. If you take the time to look at it, there are a lot of people plus your town attorney who

represented our interests who have really put
these people -- I don't know. I'm surprised
you're still alive, to tell you the truth. I
can't imagine you're going to -- well, you'll
survive it because you've done it before, but
it's unbelievable. But I take great solace in
the fact that they had to not only be accountable
to our wishes and our interests and our concerns,
they had to be accountable to all these other
agencies, the U.S. Agricultural Department -there's a whole -- all kinds of agencies that
represent the interests that we have that they
had to be accountable to, so I take solace in
that.

I have no problems with any of the concerns that other people have raised about this. I'm --well, I wouldn't in the new -- the new project that RES has proposed we're not going to have nearly as many turbines. That's good news to me. But I'm still going to have that one off my front porch, so -- story of my life. But as I was doing the research and my gut calmed down and I got to a point in where my head and my gut got

wired together, I said there's two other concerns. I have -- I'm okay with the project. I have no concerns about birds or bats. And it's not that I'm not a nature lover, I mean, or I wouldn't be living where I live. It's just that I -- I'm satisfied with the research and the DEC and all the rest of it that this stuff is okay.

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But I have two other concerns. The first one was, you know, this is pretty selfish of me at my age to just be thinking about how I feel about this, so I decided I better talk to my four adult children. And it was very clear to me what they want. Now, when I step out of this adventure we call life, what am I going to leave them? So I surveyed my four children. They're adamant they want it. Why? Because we want to do what's right for the planet. Those are my They are the ones who are going to children. have to live with all this stuff, not me. So I thought I'm being selfish, I need to see what they want. They want it. And then that brought me to a place where I said, you know, for me -and I'm only speaking for myself, but there's a

moral argument in support of this wind farm and it has to do not only with the future of -- economic future of our area, but just as importantly, because I think the economic future of our area depends on the other, which is our environment and our planet. So for me when I'm long gone and my kids are sitting up here on the hill and they are reminiscing about old dad, I want them to be able to say, you know, dad voted for the future, and so that's what I'm going to do. Vote for the future.

Finally, about the rug, I got calmed down after that but I noticed something else, which I think someone who has already mentioned it or alluded to it, that after about six months I come home, I never noticed the rug. I -- it kind of disappeared from my -- and we know from neurobiological studies of the brain that the brain is elastic. We adapt. Human beings survive and advance because we're able to adapt. And I'm sure you don't pay any attention to the telephone poles as you mentioned out on your highway when you're driving along. You're not

going pay any attention to these windmills.

Except I guess personally, I've visited several wind farms here in New York State and out west and I've come to see them as a kind of beauty.

They are beautiful. And I know some people will say I'm crazy, but if you've seen them and been around them for any length of time they are beautiful.

What I learned is, all of this comes to what I'm celebrating today finally, which is -- some of you may know this, my man, my main man Bob Dylan won the Nobel Prize in literature. And one of his songs, some of you remember, one of his great songs was The Times They Are A-Changin' and the song is that if you don't get on board you're going to be left behind. I'm on board with this project. Thank you.

DANIEL SPITZER: This gentleman, and then the gentleman in the back, and then over there. SKIP TAYLOR: How do you follow that? Almost

impossible. This doesn't involve me -- excuse
me. I needed to stand up. My legs are tired.

23 Skip Taylor.

I talked to some of the neighbors and one of them has a problem, it's called a manure spreader and when he goes out there with that manure spreader for like ten minutes, after a while you don't -- you don't really notice it. You get used to it. So they say an undertaker takes about ten minutes before they go into the corpse and it's really stinky, you don't smell it no This isn't about me. more. I'm going to be looking at these windmills. I -- you know, I'm not going to go too far in because I think everybody has already said what needs to be said. Villenova needs money. It's not about me. neighbor with the manure spreader needs cows. isn't about me. And I can -- I can look at me, myself, you know, or I can say what does this I haven't been here that long but village need. I pay taxes here. I talk to people here. Is the highway superintendent here? MICHAEL EMKE WALKER: I'm the deputy. SKIP TAYLOR: How big is your fuel tank, big ones? MICHAEL EMKE WALKER: Yeah.

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SKIP TAYLOR:

I've got a thousand gallon. One day I

can spend three thousand dollars getting my tank filled. I've got machines that each tire costs two thousand dollars. One day after I got the fuel tank I had two lines I had to replace on a piece of machinery and it was fifteen hundred dollars. Do the figures. That money has to come from someplace. The manure spreader -- the money has to come from someplace. In Villenova, the money has to come from someplace. Well, like the -- we like the roads. As someone said, we like to have them plowed in the wintertime, we like this, we like that, but the money has got to come from someplace. It's not about me, what I like or don't like. Let's think about Villenova for a while. What can we do to support and help Villenova where we can have good snowplowing, we can -- jeez, I went down there it's too bad the highwayman isn't here. The grass was that high in front of the city town hall and, you know, he said you were almost going to get the baler. need people and we need equipment to keep this village running properly. And just think about it, you know. I'm not telling you to go --

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everyone think about Villenova. What can we do
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       for the village, not what the village can do for
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             That almost sounds familiar like something.
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       Thank you.
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   DANIEL SPITZER: Yes, sir?
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    JARRATT TUNSTALL: J-A-R -- Jarratt Tunstall,
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       J-A-R-R-A-T-T, T-U-N-S-T-A-L-L. I just have a
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       real quick question.
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            If we're not included in the payment for the
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       turbines we're not included in the project,
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       what's the percentage of our taxes that should go
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       down?
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   DANIEL SPITZER: Well, it's a good question, because
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       people are tax -- about tax increases and
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       there's --
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    JARRATT TUNSTALL: Let's assume a certain amount of
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       money comes into the town, what happens to that
       money? Is that a guaranteed amount?
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   DANIEL SPITZER: Well, yes. The amounts that are
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       proposed in the application are a guaranteed
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       amount by contract.
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    JARRATT TUNSTALL: So you should have those numbers?
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   DANIEL SPITZER: Let me finish what I have to say,
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sir. 1 JARRATT TUNSTALL: Okay. 3 DANIEL SPITZER: The amounts that come into town, 4 each town board has to decide what to do with 5 that money. In the communities that were 6 mentioned, those town boards used the money to 7 reduce the taxes. In some cases to zero, but no 8 one can promise you what a future town board 9 would do with taxes. To answer your question, what's the total general highway fund budgeted to 10 11 the town? 12 MARK LYONS: Five -- the general fund is five hundred 13 ninety-nine thousand. 14 DANIEL SPITZER: So the general find is about six 15 hundred thousand. The payment to the town that 16 is in the contracts? 17 MARK LYONS: Three sixty. DANIEL SPITZER: If the town board did what other 18 19 town boards have done, I would expect the voters 20 in the town are going to elect people to do, then your taxes would go down by about sixty percent. 21 22 JARRATT TUNSTALL: I mean, does that take into 23 consideration the tax base of everybody that pays

for tax in Villenova? 1 2 DANIEL SPITZER: Yes. 3 JARRATT TUNSTALL: My personal taxes would go down 4 sixty percent? DANIEL SPITZER: All other things being equal -- if 5 6 you put on a much nicer addition than your 7 neighbor does your share of the taxes obviously 8 goes up because your assessment goes up. 9 other things being equal based on the current tax base, if you have the expenditures at the same 10 11 level and you receive a certain amount of money 12 in, then it reduces the money that has to be 13 raised by a levy and the amount from what I'm 14 hearing is of a six hundred thousand dollar 15 budget, three hundred sixty dollar payment to the 16 town, that's about sixty percent. 17 JARRATT TUNSTALL: Per household? DANIEL SPITZER: No. The -- well, yes, across the 18 19 board. So yes, per household. 20 JARRATT TUNSTALL: My taxes should go down sixty 21 percent? 22 DANIEL SPITZER: All other things being equal, that's 23 what the numbers relate to.

1 JARRATT TUNSTALL: Okay. Only the town tax, not the school tax? 3 DANIEL SPITZER: The way the school taxes work as a 4 general rule, though, when a school by law 5 receives any money from a municipality they have 6 to reduce the money they need from a tax levy. 7 The schools are allowed to set out a certain 8 amount of money as controlled by the tax cap, and 9 if they receive revenues they actually figure out 10 all the revenues other than taxes first, and then what's left is the tax levy. So if they have 11 revenues other than the taxes, that should reduce 12 13 the taxes. Now, what it is across the particular 14 school districts, I have no idea. 15 MARK LYONS: I just wanted to clarify that. 16 addition to the three hundred sixty thousand, 17 plus minus, that would go to the town, and that's 18 what we're talking to this gentleman about. Ιt would also be PILOT payments made to Pine Valley 19 20 and Forestville School District and the County of 21 Chautauqua. 22 DANIEL SPITZER: Right. So over and above.

Is that a prorated amount?

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JARRATT TUNSTALL:

1 DANIEL SPITZER: It's --2 It's actually fixed by the taxable MARK LYONS: 3 locations that are part of the --4 So the first year the project goes DANIEL SPITZER: 5 on the books you look at the taxes, what 6 percentage of school, what percentage county, 7 what percentage town, and that percent gets 8 locked in. And the reason for that is because 9 towns reduce their taxes. So if you did it every year the town would get less money under the 10 11 PILOT in the future, so what the IDA does is locks in the amount prior to the allocation. 12 so yes, it will be fixed at a date in the future 13 14 based on the tax at the time the project goes 15 online. JARRATT TUNSTALL: So it's not prorated, just a flat 16 17 fee? 18 DANIEL SPITZER: The total amount of the money, the 19 share of the PILOT between the town, the county, 20 and the school is a prorated amount based on the tax rates of the year the project begins. 21 22 SCOTT CAMPBELL: Okay. Clarification. That money, 23 three hundred sixty thousand dollars, is that a

1 requirement that it reduce the taxes or can that

2 -- is that determined by the town board?

DANIEL SPITZER: The town board. Yes?

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RICHARD CRABBE: I'm Richard Crabbe. I own some property up on Hopewell Road. I'm out of West Seneca, New York.

I got a couple questions, one of them with the taxes. Would that be at the start of their project or after the twenty years.

DANIEL SPITZER: So the way the host agreement generally work and the way pilots generally work is once the project starts then they become liable for the payments and usually the next tax year that you see the benefits. So with the PILOT amount, it's every March 1st is when you look at the value of the agreement, and so that's when it goes into effect, but the tax roll that's set on March 1 is your next year's town taxes, so there's a lag depending on when the project Generally if the project was built in starts. October 2017, you would get the first payment in 2000 -- October 2018, is generally what is proposed.

1 MARK LYONS: But it would be every year. DANIEL SPITZER: That's a good point. It's every 3 year then and not -- for twenty years. 4 is for twenty years. The host agreement to the 5 town is for the life of the project. 6 RICHARD CRABBE: Then after twenty years it could 7 conceivably go up based on the assessment of the windmills? 8 9 DANIEL SPITZER: Yes -- or, no. The way it works if 10 the assessment -- they start paying town taxes you don't get a double benefit. 11 The host agreement goes down by the amount of the taxes. 12 The host agreement has inflation built into it, 13 14 so after five years it starts to go up that amount with inflation every year. But I want to 15 16 -- by the way, the town has not yet approved the 17 host agreement. This is what is proposed by the applicant. But that level then, at least for the 18 town, is really locked in for the life of the 19 20 project whether there's a PILOT or not. RICHARD CRABBE: My other question is, is based on 21 22 how they have transported pieces of the windmills 23 to other projects and the sizes of the roads up

in, say, the Buffalo area where they have taken -- come down, say, the thruway, Route 400, gotten off from one of the local roads and then taken the items over to a staging area, I take a look at the roads down here and I can't believe that you can bring -- I'll call it a propeller without doing some massive road improvements.

DANIEL SPITZER: Want to describe how that process works? And you're right, by the way. They have to pay for all of it.

RICHARD CRABBE: Yeah, because I know one intersection it took them like three hours and it was like basically a four-lane in each direction intersect trying to make a ninety-degree bend, and like up around Pope Hill and Round Top if you were coming somehow up through that direction, that turn, there's no way you could, you know, make the turn.

MARK LYONS: Right. I'm sure it's impossible in some places, but this isn't one of those places. So we have -- we have commissioned -- actually the turbine supplier commissions an expert transport study, which is in our application, and it is

entirely possible to do. You know, it's not for sissies, but it's, you know, not going to -- but the roads are sufficient. There will be a couple of places where, say, a stop sign needs to be moved for turning radius, you know, may need to be cut a little differently temporarily, but this has been well studied by the certificates and it's entirely feasible to do the transport. And it's in the application.

10 DANIEL SPITZER: Did you have any other questions,

sir, before I move on?

RICHARD CRABBE: That's it.

ELIOT JIMERSON: E-L-I-O-T, J-I-M-E-R-S-O-N. And I'm glad I came tonight to see how many people showed up.

I am a member of the Seneca Nation and I live in Versailles on Cattaraugus County. And I don't know if anybody knows the history of the Senecas, but we don't always get to have public meetings to have a say in what they're going to do when it comes to us. If anybody knows the history of Kinzua Dam, I believe there have been people who have benefitted from that energy that

was reduced, but we haven't. We have struggled and struggled and got sick and tired of being poor, living in trailers, outside toilets and so on, and some people probably still have that. And so where I'm going with this is that we have had to come to a choice in our lives to make a decision on things. We had family needs and we needed jobs. We needed jobs to produce money to better our lives. And so not only us, we knew that people in the area needed jobs. So when my family got together and voted and we talked about those casinos being built and there's pros and cons to all that too, but it produced jobs. up to the individuals what they're going to do with it. You have to be what you're going to do for yourself. And all of this -- even though if it's a casino you can choose not to go, you can save your money, you can do what you want, I do what I want with mine. And so now the Seneca Nation has a lot of jobs. It employs a lot of people. They are a big player in the game in construction and we have only one windmill going up and everybody wished it was more because we

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had people outside of our territory telling us what we could do and what we can't do. It's a constant fight. I wish these people were here knock on my door ready to put a windmill in my yard rather than someone telling me no, you can't. Because they don't want us to get rich? Maybe, I don't even know. Some of us still are. I'm not.

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I'm happy with doing what I do. I am a business representative for Local 17 operating engineers, and so when I get the phone calls -which this year wasn't a good year. There was a -- a lot of people out of work I would get the phone calls how they need work, how they needed work and we hear about these windmills. We hear about these windmills that could produce jobs and it's being dragged along, dragged along, and I could retire and live well but I -- the passion for me is to help other people to do better for themselves from my parents -- my parents and their parents, and that we don't like -- we shouldn't have to live poor. We should be able to -- just think, if we do these windmills we

could be in here deciding what we're going to do with the money. It's not up to the politicians, we vote them in to do what we want. So then when we got to get more involved. And trust me, I am more involved because now we decide what we're going to do with the money and we have grown. have nice fire hall, top of the line. going to buy brand-new equipment, it was just passed in the budget. They signed money over to New York State so that -- you know, we're supposed to be allowed to do certain things, then they break it and we got to fight with them over everything, and yet we still trudge along and do the best for our people and everybody else near When I look out for It's not just for us. us. people it's not just for us, it's people who need jobs.

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And so that -- I had came here kind of wondering if -- who's going to build them, but I guess it's a little early, because once you decide to I hope I'm going to be involved and I want people in this town if they have the opportunity to build them so they can buy a new

tractor, pay for their tractor tires, people in the neighboring areas, not people from Michigan, Massachusetts, Pennsylvania, people from New York, this area. And hopefully it will be with the local trades.

So if this is going to bring money into the area so people cannot be so poor and be able to provide -- not only that, I like the idea that it's clean energy. When you talk about the environment with this, but -- you know, with all the other energy we've been having, the planet, my kids, my grandkids. I have nine grandkids and, you know, what's it going to be for them when they get to my age? And that's what we talk about when we talk about spending our money, how we're going to have money for them and so, they can decide what they want to do, if they build a house, they can't come outside one day if we keep burning oil and coal. So just think about everybody, not just ourselves.

ROBERT CROWELL: Robert Crowell, South Dayton right here.

I know I paid more taxes than anybody else

And

I think if you add up half the people's taxes in this room I probably pay the same amount. fifteen hundred acres and most of it is right here a mile, mile and a half radius, very -don't get very far away from home. The guy that talked about his neighbor was a manure spreader, he better have the manure spreader help clean up the road a little bit. Tina said nothing and she lives right there. I go right by her farm, but it's her road. But it's over two hundred of acres of land we haul manure on and she'll say there's not much manure in that road. TINA GRAZIANO: It's pretty good. No. ROBERT CROWELL: It is, that's what I hear. been approached in the last two months here. They're talking about -- you're talking about one town here, but I know there's three towns involved in windmills, one Charlotte, Cherry Creek that's up above us here, Arkwright to your

in this county. In fact, in this township.

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My brother had land in Villenova and

involved in windmills. But the Charlotte/Cherry

Chautauqua, Arkwright, that's going to be

Creek people approached me with a map and want to put in a turn corner out here just the other side of the corner from land we bought here in the last year, year and a half, and will go up one road from the other so they can get their big windmill things around. We talked about the corner here a while ago. We would not have them take the road back out, because this is a really terrible corner for tractors or anything. you're coming out of South Hill you got to be in the middle of the road before you can see by this church and the house next to it, so we will be using that road and not even coming into the corner for all the land we own, which is two hundred and fifty acres up the hill this way. And so that whole traffic, all truck traffic, tractors will not be going up that, coming to the corner going up that way once this gets in.

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I'm also a representative for most everybody in this room in the Town of Villenova, Town of Hanover. I've worked on the Farm Services

Committee, a federal government committee out of Jamestown, and we represent three of us members,

a three-year term, three terms, and do all the governing work for the -- the farm service That's even beekeepers, if you got landowners. some bees and they develop disease, we probably can find you some money to get you some more bees. Crops, vegetables, apples, corn and soy beans, all dairy, beef cattle, we -- I've been on the committee for -- this is my seventh year and so we -- I go from Hanover to Frewsberg. I go as far west as -- a little bit further than Charlotte, and then there's one fellow that works the country from Ripley to Silvercreek and a representative who has the agricultural of the dairy farms and the bee farms over in the western part of the county. It's been real interesting for me and I try to -- when we get problems we try to help the farmers work out if there's anything they could sign up for and go to committee and the federal government grants money for or state grants money for. We try to help the farmers get their money for it. So I've got windmills. I think the first

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thing to do is get the roads fixed, which we've

done a lot better year this year than we have sometimes, but we probably have got more to do, and then probably we can work the particular taxes down and so we can have a better living in Most can remember, there's -- the our town. right across the corner there was a grocery store on this corner just the other side of this house here, so we did have businesses years ago that we're talking about didn't, but there's things that -- things grow in bigger communities, then we go further away to get all those things, but it's not that we don't. A better place of living if we can have our windmills and use that money to help to pay the taxes and bring more -anything you want to the community. So thank you. DANIEL SPITZER: Would who like to speak next? Yes, sir? EVERETT WOLFE: Everett Wolfe, W-O-L-F-E, E-V-E-R-E-T-T. And I'm speaking right after Bob here, because my dad and him go back years doing tax assessing together here. And as of right now I

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rent my farmland that I have, that I got from my dad to Bob and his son. And I'll say nothing against you, Bob, but with a -- yeah, I could hardly pay my taxes just on the property. just about breaks even. And I left Villenova township to go get a better job working in computers for the last forty years, but this is where I want to come back to retire. This is home and this is beautiful. And like everybody, you know, a lot of us are recognizing we need an industry to come in here to rejuvenate this community. Everything is dying and everybody is having to move away. This will actually bring some technology in to this community and our talented young people won't necessarily have to go clear across the country, you know, to get the job that they want. They can stay, you know, pretty much in the community. We can bring other businesses here and revitalize this community just by the reduction of taxes, you know. say okay, to reduce your tax -- the town tax by sixty percent. Well, right now my school tax and town tax are right about the same so that says

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we're probably going to get a reduction overall of at least thirty percent of our taxes, you know, depending on how the supervisors vote on how they want to use the money and say oh, well, now we can maybe use a little more of the money we got coming in, leave the taxes a little bit higher and spend more money on the roads and stuff like that, you know. You're probably not going to get your full thirty percent or whatever off all your taxes, but you're definitely going to benefit from it because that money is going to come into this community and it will help keep our kids, you know, that are moving away in this community and it wouldn't be just us that would learn to love the community if I had to move away and have to wait until we're old enough to retire to come back.

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So you know, I'm all in favor for these.

Just something interesting, I've been following wind turbines for a lot of years and I've gone driving through Texas. Oh, I could get right up to that one so I've actually gone and taken videos right underneath it, listened to them and

the sound of the wind blowing by drowns out in most cases any sound made by the turbine. And on Ball Hill you know the wind is going to drown out when the wind is blowing. Either -- it's going to drown out most any other sound, so we've all been there and heard it. And so I don't think the sound is an issue.

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And just another aside, years ago when I went on vacation to Tehachapi, California, I saw in the paper saying oh, free tours in the wind -in the wind park if you're looking for something to do, and so I called up the number and they said sure, just, you know, when is convenient for you, when can you come down. They showed me a tour of their facilities, monitoring, their maintenance facility with the computers that monitored all, everything. Single tower, how much it was producing, showed whether it was on or off, you know, and then the engineer took me out to a tower and says okay, you know, I'll unlock it, we can go in and look at the equipment, you know, on the ground. And in researching RES back a year or so ago, it's like

oh, they're the developer of the wind park in Tehachapi. And I thought well, that's an interesting connection and so -- I mean, I'd rather live in a community that has this white tower sticking up above than living in a community that -- like Los Angeles that has this low gray smog hanging over because of all the pollution. You know, I like what we have here, but, you know -- but on those hot days one request I have is turn those fans on, cool them off a little bit.

And one other request I want to present is with the reduction of the number of towers it's kind of -- the distribution of money to the landowners that are directly affected kind of goes -- now all the revenue percentage of the production goes to fewer landowners and I would think the wind company ought of -- ought to look at the distribution of resources of like oil and gas companies where the distribution of funds is based on the radius around a particular tower and its impact, not just the little fifty-foot perimeter thing that the tower happens to sit on.

So I would like them to take -- you know, to consider that the distribution of funds other than -- we're all going to benefit from the taxes, but the property owners, you know, by moving things around it's like -- you know, just --

MARK LYONS: Thank you for your suggestion, but I just want to point out in a sense we do that, because the town law requires certain setbacks from non-participating properties. Right? If and a non-participating property is a property that's not getting any payments, so it in fact if the turbine is within a certain radius of another property, they will be compensated. They would be included within the project, so we actually do have that sort of a concept.

EVERETT WOLFE: But it's basically a flat fee as opposed to oh, well, this radius of this turbine is using this energy just like a gas well and saying okay, this draws from -- this draws from this area, therefore the proportion of the distribution of funds should be relative to the proportion of the land that it's using the wind

energy from. 1 2 MARK LYONS: Right. 3 EVERETT WOLFE: Not --4 MARK LYONS: Interesting idea. Thank you. 5 EVERETT WOLFE: It's just the gas companies and 6 things like that seem to be further ahead on it. 7 MARK LYONS: Okay. 8 DANIEL SPITZER: Gas companies are set by law. 9 gas itself is actually under the land but the 10 owner that has the equipment on it gets more 11 money than the people in the field, so the gas industry by law actually works the same way, at 12 least in New York. 13 14 You had a comment? 15 JOHN HARVEY: John Harvey. I live on Dye Road. I'm in favor of the windmills. I worked on 16 the town board with Mr. Crowell's father. 17 18 Several years ago I worked as a councilman at two different terms. I can see the government up 19 20 there struggling more so than what it ever has in 21 the past to make ends meet. We really need this 22 project in this community. And like Everett 23 said, don't -- don't shut the door on

opportunity. Take a look at it and see what it's going to do for you. Not only for you, but for everybody here. I think everybody is going to benefit from this and I -- certainly the only thing that I haven't seen from the wind farm people yet is the mechanical areas -- like Eilot said, I'd like to have our Local 17 be involved with that and our local people being apart of this wind farm construction. We have a lot of talent in this area that could be utilized and bring money to this community other than what's going to be impacted with these windmills. want a fair opportunity and I wish the town board would put this into their structure to make this happen as much as they possibly can. Not only do we need these things for our tax revenue, to make our township a lot better, but we need to have people employed by this -- by these wind farms also.

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Another thing, I'm hoping that when these turbines go in behind me it slows the air down a little bit. I'm getting tired of getting blown off the hill and having all the snow that comes

from the top of the lake because the highest of that lake is right off the back of my house and every year I get buried down there. hoping these things stop some of that wind from coming over the top of the hill. But I'm in great favor of it and I think if we don't do this that our government -- I know our neighbors are having a really hard time right now in Forestville. They're right on the edge of dissolving their government, in fact, as we speak because of tax revenues and things that went wrong and bad decisions by their town board. It's easy for somebody to sit and criticize something -- than it is to stand than it is to stand up and take part of it and call it theirs.

That's all I have. Thank you.

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MARK LYONS: I just wanted to respond to the gentleman by saying that there are a lot of jobs for a short period of time building the wind farms and we always hire local to the extent we can and we will do so on this project.

22 JOHN HARVEY: I can appreciate that. Thank you.

BARBARA WISE: I'd like to make an announcement. If

- you didn't sign the sign-in book when you came in 1 2 please sign it when you go out. 3 DANIEL SPITZER: Everybody hear that? I wouldn't 4 mess with her. 5 Who else would like to speak? Yes, ma'am? 6 Well, I'm going to try to get everybody who 7 hasn't spoken yet, if you don't mind. 8 DIANA ERMER: I had a quick question. I was just 9 wondering when it comes to voting is it going to 10 be just the town board or is it going to be the 11 residents voting? 12 DANIEL SPITZER: It's not legal in New York for anybody to have a referendum of the residents on 13 14 zoning. It's flat-out illegal. It's the town 15 board.
- DIANA ERMER: And what will happen? Because Sarah

  LoManto will have to recuse herself from that.
- 18 DANIEL SPITZER: That's correct.
- DIANA ERMER: So then we wouldn't have -- wouldn't that make it lopsided?
- DANIEL SPITZER: It doesn't change the rules. The
  rules are you have to have three affirmative
  votes to pass anything. If someone recuses

themselves it's basically the equivalent of a no so they need three of the other votes for the project to be applied.

DIANA ERMER: Okay.

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DANIEL SPITZER: Anyone who hasn't yet spoken who would like to go?

CHRIS IVETT: Speaking of that -- Chris I-V-E-T-T. have a concern about the representation. exactly what I've been thinking for an hour now. I am a proud supporter of this project. fourth generation dairy farmer. I am one of the five remaining farms that Howard referred to. We need it bad. Where representation need this. is concerned, me being a supporter, can somebody please tell me what the difference is between a person taking the -- their position off of the board of representatives because they're a signed supporter versus somebody that stands off and says they have nothing to gain, they have no status or position in the thing? I think they should have a vote, because she represents me. Ι need that.

DANIEL SPITZER: So here is the answer, because it's

basically set by state law. An individual who has an interest in a contract with an applicant is prohibited under the General Municipal Law from voting or participating in the contract. If you don't like that rule, think it should be amended, you can take it up with Albany.

CHRIS IVETT: That's funny.

DANIEL SPITZER: So in terms of the fact that the councilmember did -- the councilmember from day one has followed the rules, followed the law and done exactly what she's required to do.

CHRIS IVETT: Which is very respectful.

DANIEL SPITZER: And admirable. In terms of the other representation, I think having worked on more wind farms than any other lawyer in New York State, I have never met a town councilperson in favor or against a wind farm who was not acting in their opinion or her opinion in the interests of their community. These are big projects, as the applicant said tonight and every other night, this project will change your community for at least a generation and every elected official that I've dealt with has always recognized that

they represent the whole community, not just those who would benefit, not just those who don't want to look at them but the whole community and has to make that same determination. It's kind of good we're in a church when we talk about that, because a lot of that comes in the heart in understanding what's best for your community as we make determination, and I think what -- from working for a lot of those folks, for and opposed to the project throughout the state, they take it very seriously. And I can tell you having worked with this town board for now nine years, and -since '05. I'm older than I think. That every town councilmember I've worked with in this community takes their obligation dead seriously, whether they were in favor or against or not. They have all paid very close attention to what is going on, and understand their obligation is I have no hesitation at least to say to you. that you are well represented. That being said, I hope councilmembers CHRIS IVETT: understand that. Keep in mind when you vote,

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   DANIEL SPITZER: Any other people who haven't -- any
       other people who haven't spoken?
                                          Yes, sir?
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    DAN BENNETT:
                 Dan Bennett, Forestville.
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            I just have a question, that's all.
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       three hundred sixty thousand dollars in the PILOT
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       agreement, how much is going to the Town of
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       Villenova, how much is going to the Town of
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       Hanover? I do realize there are twenty-three
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       turbines in Villenova and only six in Hanover.
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       And my other part of my question was, how many
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       property owners is the six hundred and fifty
       thousand being divided up amongst?
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   DANIEL SPITZER: So in terms of any money that comes
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       to the town, the county, the school taxes, the
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       property owners in terms of the three sixty is
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       that the rent payments or host agreement
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       payments?
                 Well, no.
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   MARK LYONS:
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                  The three sixty is the PILOT agreement.
   DAN BENNETT:
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   DANIEL SPITZER:
                     The PILOT and the host agreement?
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   MARK LYONS:
                 Yes, sir.
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   DANIEL SPITZER: It's the town's share of the PILOT
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and the host agreement.

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DAN BENNETT: So that's the total of both towns
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       combined?
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   MARK LYONS:
                 No.
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   DANIEL SPITZER:
                     That is Villenova's share, isn't it?
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       Tonight I've only spoken about Villenova's share.
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   DAN BENNETT:
                  I heard the same thing in Hanover the
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       other day so I'm saying is that three hundred
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       sixty dollars divided up between two communities
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       or only Villenova's share, and then what is
       Hanover's?
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   MARK LYONS: Of the public money?
   DAN BENNETT: Of the three sixty.
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   MARK LYONS:
                 The public money is the PILOT payment
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       and the host combined payments, the money that is
       paid to the town, and that is three hundred sixty
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       thousand, roughly, in Villenova, and about
       eighty-six thousand additional in Hanover.
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   DAN BENNETT:
                 Okay. And that's every year?
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   MARK LYONS:
                 Yeah.
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   DAN BENNETT: For the life of the property?
                 It's smaller because there's six
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   MARK LYONS:
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       turbines and twenty-three here, and then --
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   DAN BENNETT:
                  That number does not include any -- is
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that just the PILOT or is that also what's going to the IDA and the county and stuff like that? MARK LYONS: Okay. Let me explain that. payment in lieu of taxes, is a contractual legally binding contract that we signed with the IDA and they distribute that money among five taxing jurisdiction, Town of Villenova, Town of Hanover, Pine Valley School District, Forestville and the county. And as Mr. Spitzer pointed out before, those allocations are based on your tax rates at the time the agreement is signed, and so --DAN BENNETT: So the total is getting divided up? MARK LYONS: The total is divided up. Now, in addition to that share that Villenova gets and Hanover gets, we sign a host community agreement with each town. Under that host community agreement we make additional payments to each The county doesn't get any of that. town. Schools don't get any of that. That goes directly to the town. So when I talk about the public money -- money, I'm saying the PILOT payment share for each town, plus the host

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community payment for each town, that total is
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       about three hundred sixty thousand dollars a year
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       for Villenova and about eighty-six thousand
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       dollars a year for Hanover. In addition to that,
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       we're going to make about six hundred fifty
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       thousand dollars a year. All of these numbers
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       escalate over time. This is just the beginning.
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       About six hundred fifty thousand dollars total to
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       all the landowners in the project and most of
       those are in Villenova, but some of them are in
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       Hanover as well.
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   DAN BENNETT: Do you know the number of landowners
       that is being divided up by?
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   MARK LYONS: About ninety total. Do we know how many
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       in Hanover versus Villenova?
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   KRISTIN MCCARTHY: Maybe thirty-five to forty,
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       actually.
   MARK LYONS: So a good number in Hanover.
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                 So not just twenty-nine landowners.
   DAN BENNETT:
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       I'm sure some have multiple towers.
                                             There's a
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       larger amount.
   MARK LYONS: Let me clarify that. So the landowners
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       that get payments from this project are not only
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landowners that have turbines, okay, because the project is twenty-nine turbines and a bunch of wires underground and a bunch of gravel access roads, any property that any facility is on is a landowner that gets payments, so it's far more than the twenty-nine landowners. It's ninety landowners.

- 8 DAN BENNETT: Okay. Thank you.
- 9 MARK LYONS: You're welcome.
- 10 JUDY WOJCIK: Can we come up and look at the pictures
- 11 soon?

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- 12 DANIEL SPITZER: Come up now, and then if that will
- 13 help you ask questions -- I mean, don't kill
- 14 yourselves, but feel free. I mean, who else has
- 15 not yet had a chance to speak? And then we'll go
- back to folks who have already spoken.
- So I'm going to assume we can go back then
- 18 to folks who have raised their hand again.
- 19 | MICHAEL EMKE WALKER: I'm Mike Emke Walker. If I
- 20 didn't tell you I actually work for the highway
- 21 department. And I'm telling you, you know, you
- 22 all probably hate me. But two winters ago my
- 23 truck did not have heat and I plowed almost all

winter without heat in my truck scraping the 1 inside of the windshield so I could see out of 2 3 it, you know. I know that I stopped at stop 4 signs, you know. But that's how -- the equipment 5 is pretty rough in Villenova. Nate, you probably 6 can say that. He's done a lot of fixing lately. 7 And I mean, the money is just not there and it's 8 hard to do a nice job and keep the roads nice 9 when you don't have anything working. You know, 10 stuff has gone up. And I'd also like to say, 11 Howard Crowell, is it fair to say that you live right across the road from the --12 13 HOWARD CROWELL: Pretty close. 14 MICHAEL EMKE WALKER: Is it fair to say you probably 15 just -- just see as many wind towers as they 16 would? 17 HOWARD CROWELL: My houses face in that direction, 18 but yeah. 19 MICHAEL EMKE WALKER: So feeding off Mr. Campbell 20 saying beauty is in the eye of the beholder, you're going to have people that hate and have 21 22 people that like it. And then I also tried 23 farming. I tried. You go out Southgate Road,

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see a bunch of equipment from the 1970's, that's
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            My -- I have fifty-five acres.
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       grandmother has a hundred and thirty acres.
       rent thirty of it, and I have hay fields up there
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5
       and everything. And every time I do a bale of
6
       hay I go by one acre -- my grandfather to pay his
7
       taxes a guy has a double-wide on. Every time I
8
       go by it breaks my heart and I hope someday when
9
       I get the rest of the farm I don't have to do
       that.
10
11
   DANIEL SPITZER:
                     Sir?
12
    SKIP TAYLOR: Skip Taylor. This gentleman over here,
       I want to go in business with you and he's going
13
14
       to be the manager running the tour bus.
15
   DANIEL SPITZER: Ma'am, did you have any further
16
       questions? I know Mr. Garrett wanted to go.
                                                       Mr.
17
       Jimerson?
    ELIOT JIMERSON: I want to make a statement. I'm
18
       going to let everybody know what I'm going to do
19
       what I can to make sure the jobs stay here.
20
   DANIEL SPITZER: Did you have anything else you
21
       wanted to add? Other folks?
22
23
   DANIEL BENNETT:
                     Just following up on the gentleman
```

about the jobs and stuff, can you give us a percentage of the project of how many jobs might be local jobs, I mean, drawing from our local people?

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DANIEL SPITZER: I don't know how you do that before you hire the contractors. I can tell you that in the projects I've worked on across the state you don't bring people in from out of state. bring -- you have local -- if you have local Every project I've worked on is local people. trades. The main local jobs tend to get hired are truck folks and a lot of the -- you know, the local construction-type jobs, like truck drivers and handymen, things like that and work the lay out yards during the construction. But in terms of the trades, I don't know if you can answer that question before you know who the contractor is.

DAN BOYD: That's exactly right. You hit the nail on the head. We don't have hundreds and hundreds of workers that we bring with us from our headquarters in Colorado to place where we build projects where we -- it's a lot of labor,

operators, as you said there, that are specific It does not pay to bring, you know, to an area. trucks full of our yellow iron from one side of the country to the other side of the country. There's a lot of things. There's contractors in this room that I know have been in touch already with our construction team and our estimating team, and I'm more than happy to put anybody else who is interested on working on these things in touch with our team and we can definitely have a I'll give it to you and get you in touch with the right people. But this isn't something we're doing for the first time or doing for the tenth time. We've built ten thousand megawatts across the country. We've built probably about twelve percent of the operating windmills in this country today, so this isn't something we're just figuring out, so it's pretty standard. That being said, I'm not on the construction side so I'll get you in touch with the right people. DAVE IVETT: Dave I-V-E-T-T. How much money are you talking about? What's it costing to do this? You spent a lot of money already, obviously.

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   MARK LYONS: Well, yes, we have. The total cost is
       approximately a hundred and sixty million
3
       dollars.
4
   DAVE IVETT: A hundred and sixty million dollars.
5
   DANIEL SPITZER: Mr. Garrett, and then this young
6
       lady.
7
   MICHAEL GARRETT: Most of the negativity coming from
8
       the people that did put up local windmills is
9
       they found they hired very few local people.
                                                       Ιf
10
       some -- there's a great documentary out there
11
       called Windfall. Go to Wind Watch dot org.
                                                      And
       not all of it is anti windmill and I'm not
12
13
       telling you what to do, I'm just putting my
14
       opinion out there from an environmentalist view.
15
       Obviously the town is making money, New York
16
       State. We all need jobs, but that doesn't
17
       necessarily mean if you throw our caution to the
       wind and go do a project that may not be
18
       environmentally friendly. That's all I'm saying.
19
20
       So the local jobs from what I heard, most of
21
       these are manufacturing. Is that true?
22
   DANIEL SPITZER: I don't know if they have selected a
23
       turbine manufacturer yet. The turbines or
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1
       towers.
 2
    MICHAEL GARRETT: The towers.
3
   MARK LYONS:
                 I think it's important to distinguish.
 4
       A wind farm consists of twenty-nine windmills
5
       that arrive here in parts that are made
6
       elsewhere, yes, though --
7
   MICHAEL GARRETT: Are they American-made?
8
   DAN BOYD:
               Yes.
                     I mean, most of the components are.
9
       Vestas is one of the leading manufacturers that
       we're looking at here. Vestas opened I think
10
11
       four manufacturing facilities in Colorado --
12
   MARK LYONS:
                 Yes.
13
   DAN BOYD: -- back in the mid 2000's, and they build
14
       the majority of the equipment there. They also
15
       have other facilities worldwide, so I can't tell
16
       you where they ship from, but economically you
17
       would think it would be closest to the point.
   MARK LYONS:
18
                 But the construction jobs are about
19
       taking those components and installing them in
20
       the fields and putting in what we call the
       balance of the project, the roads, the wires and
21
22
       substations and stuff.
23
   MICHAEL GARRETT: You'd hire contractors for that?
```

MARK LYONS: Yes. As Dan pointed out, it makes 1 2 absolute sense to do that, hire local as much as 3 you can. Every project we worked on, that's 4 exactly what happens. We don't have an Army of 5 laborers in Colorado that are going to get on 6 planes and come out here and build that thing. 7 DANIEL SPITZER: Yes, sir. Where will your headquarters be? You'll 8 JERRY PARK: 9 have a -- have to have someplace where your 10 employees go to start their day and store parts 11 and stuff. Will that be, you know, in the 12 project area? 13 MARK LYONS: It will be in the project area, yes. 14 DANIEL SPITZER: There's a good question here about 15 the jobs. And I think you have to make your own 16 determination about benefits and cost. 17 most part there's some construction jobs. wind farms don't create a lot of long-term jobs, 18 19 they create very nice paying jobs about ten --20 I think we say six or eight. DAN BOYD: 21 DANIEL SPITZER: It's hardly like bringing a one 22 hundred sixty million dollar factory where you 23 have the benefits. It's important to understand

the company is not talking about you should do this for the long-term jobs. The construction jobs, on the other hand, I can tell you the projects I've been on they are outstanding jobs and what happens with the construction jobs is you say sales tax unfortunately don't have any --you don't have -- I certainly hope you're -- I certainly hope your one business gets new business out of this project. But you do see an influx into the community because cash comes into the community no matter where the work comes from, and that's in the study.

MARK LYONS: Just to expand on that point, when the construction is on, every local hotel room is filled, every local B and B. You don't have a B and B now. You might want to think about starting one. They will need places to eat and create what we call indirect and induced jobs in the community for the services in the community, but there's a -- there will not be a large nine hundred people going to work every day at this wind farm. But the flip side of that is that there will not be traffic. Okay? You wouldn't

see -- all you'll see is the blades going around quietly in the breeze. You won't see people coming to work.

And I think it's important to point out all these tax revenues, if you look at the alternatives for tax base a lot of places will bring in a lot of workers and will put a significant demand on local services. They will bring their children with them, they will build houses and now have even more roads to build and plow and have even more school expenses, so we're not going to put any pressure on local municipal services. This is net tax revenues for the town.

14 DANIEL SPITZER: Sir?

ANGELO GRAZIANO: Again, Mark Lyons, have you found any sources to buy the electric?

17 | MARK LYONS: I'm sorry?

18 DANIEL SPITZER: He asked any sources to buy the

19 electric.

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20 MARK LYONS: Not at this point. We're exploring
21 offtake agreements to buy the electricity, yeah,

but we haven't signed one as of yet.

23 DANIEL SPITZER: Let's explain that a little bit. As

Mark mentioned at the beginning, sell the electricity into the grid or do what was done in the Arkwright wind farm, an offtake agreement, a power purchase agreement to sell to a particular buyer for a particular price, and that's what the man is asking about.

ROBERT CROWELL: You want to do something else? On the Farm Service Committee -- they haven't mentioned wetlands. I'm sure they're going to have to go through wetlands with the electric cable lines or the project, and that is covered under the state conservation and through soil and -- my Farm Service Committee, we will oversee that part.

DANIEL SPITZER: So this project is going to have temporary impacts of less than twenty-six acres and permanent impacts of one acre on the wetlands.

MARK LYONS: Yes, less than one impact permanent wetland impact of less than one acre.

21 DANIEL SPITZER: Who else would like to ask anything? 22 I'm sorry. I forgot you. I'm sorry. Don't hit 23

I deserve it. me.

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JUDY PHILLIPS: Judy Phillips. I'm sixth generation.

I've been around in Villenova. And this is going to take some guts. I oppose this project. And I've done a lot of research. I've read everything but the amended one, because in Hanover they handed me the wrong binder.

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I can see all the reasons for it. money, I mean, how do you say no to seven million dollars in twenty years that the town is going to get for these roads, equipment, and how do you say no to landowners who get thirteen million dollars over twenty years? That's a lot of money. But all I ask is that you find out why other towns have said no to this, why have they said no? Why have they just handed down and said we're not doing this and there's reasons behind And then the other thing is maybe look at the towns like Madison. Ask them. They have been around a long time, that wind, and it's not This is a turbine project. a farm. I've been to Tug Hill, I've been to Madison, but you need to find out why people are saying no. If you want to go past the reasons, you know, think about

wind turbine syndrome or the bats and the birds and all the things that they mitigate in this, but look at why other towns have said absolutely There's reason for this. These are lovely not. pictures here. These pictures are photo simulations also, but this is not what they are showing you. Every single person in this room, if you do what Howard Crowell did, you should sit down and you should read it, and then you can make an informed decision so again, just -- but even after everything -- and I so understand, you know, why a landowner would want this and I so understand why there are people that want this, because of the money for the town, because we -we need jobs in this town. We need jobs. project will not provide jobs. It will help the gravel people for a year, it will help the truckers, it will help Super Duper, it will help anybody that serves lunch for a year. So just think about why other places are saying no. DANIEL SPITZER: Thank you. Who else would like to speak before we close things up? And let me remind everybody, this isn't the end of the

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public comment period. This is the Hanover 1 meeting. There is also ten days for a written 3 comments. 4 One last comment? 5 RICHARD CRABBE: Yes. Where there's money there's 6 jobs, is what I would like to say. 7 DANIEL SPITZER: Okay. I think we all agree with 8 that. Any other person before we close the meeting? I thank you all. This is a very good 9 10 meeting. 11 GREG SNOW: Greg Snow, S-N-O-W. If we come up with 12 questions that we would like an answer to? 13 DANIEL SPITZER: Send them to the town clerk. 14 GREG SNOW: And we will receive an answer? 15 DANIEL SPITZER: We'll get an answer. They have to answer them in the FEIS, so it's up to them. 16 17 They have to answer it. 18 19 20 21 22 23

1	STATE OF NEW YORK)
2	ss:
3	COUNTY OF ERIE)
4	
5	I, Erin L. McPartlan a Notary Public in and
6	for the State of New York, County of Erie, DO
7	HEREBY CERTIFY that the above proceedings were
8	taken down by me in a verbatim manner by means of
9	Machine Shorthand, on October 13, 2016. That the
10	transcript was then reduced into writing under my
11	direction.
12	I further CERTIFY that the above-described
13	transcript constitutes a true and accurate and
14	complete transcript of the proceedings.
15	
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20	 ERIN L. COPPING,
21	Notary Public.
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### **Town of Villenova**

Written Comments Pertaining to the 2016 Amended Application

Supervisor
Richard Ardillo
Attorney
Donald Michalak
Justice
Ronald G. Lucas
Code Enforcement Officer
David H. Crossley cell(716)640-3093

#### TOWN OF VILLENOVA

1094 Butcher Road
South Dayton, New York 14138
Ph: (716)988-3476 Fax: (716)988-3826
Town Clerk, Tax Collector, Court Clerk, Registrar
Julie Goodway

Councilmembers
Westley Tessey
Angelo Graziano
Sarah LoManto
Keith Butcher
Assessor
Roger K. Newell
Highway Superintendent
Charles O. Luce Sr.

November 02, 2016

Mr. Mark T. Sweeney/Partner Hodgson & Russ LLP 677 Broadway – Suite 301 Albany, NY 12207

RE: Comments/letters

Dear Mark;

Enclosed please find copies of all letter this office received after the Oct 13<sup>th</sup> meeting at the Hamlet Church.

Sincerely,

Mulie Goodway

Villenova Town Clerk

**ENCL:** 

Oct. 17,2016

To The Villemana Town I am Dollie a. Chase. I would like to unform The Villenous Town Board, that as a property owner en Villenova, O support The Ball Hill Wind Project, 100% !! Dollie a. Chase

To the Villenova Town Board:

Pros and cons of the wind farm project set aside, Villenova and it's residents cannot afford this economic opportunity to slip through it's fingers.

I fully agree with Michael Emke-Walker, Dare Ivett and Howard Crowell. We need something more than raising taxes to sustain Villenova. In the town of Villenova, it's residents are paying approx. \$31.00 per thousand of assessed value for school thousand of assessed value for school taxes. I can hardly wait and see what our town and county taxes will be like.

be like. We need to embrace ecomonic growth We need to embrace ecomonic growth in our area. We live in a low income in our area. We live in a low income area with an aging population and the area with an aging population and the stagnation of the area is a burden on stagnation of the area is a burden on it's residents. Please look to the it's residents. Please look to the future, if we welcome one, possibly more will follow.

DECEIVE D

Candy Weaver 752 Rt. 83, PO BOX 327 From: Warren Taylor

Subject: Letter to Villenova re Wind Farm Date: Fri, Oct 28, 2016 7:52 pm

9648 South Dayton Silver Creek Road Forestville, NY 14062

Villenova Town Hall 1094 Butcher Road South Dayton, NY 14l38

Town of Villenova:

I have been

to a few meetings and listened to all sides intently at these meetings. Some people apposed the Wind Mill Farm and others were in favor.

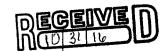
Villenova in my opinion has been very generous (as much as possible) in trying to keep the tax role as such that the people living here do not have to pay more than is possibly necessary. The taxes on the gas wells (90 some) is about to run out and things will get more hectic than they are now. Villenova has expenses with employees, equipment and just every day doing business. There are roads that are still dirt. They have to buy salt and run the equipment on a daily basis summer and winter. That is not cheap. The money has to come from someplace and if you have a little bit of a business mind you know that running a business takes a lot of money. Villenova is a business; suppying a service to the taxpayers. You go into a store you buy the goods that the store has already purchased for your taking but you have to pay for it. Go to a fast food establishment and you pay before you taste. Villenova has a lot of expenses that has to be paid for by the people living in the township for their benefit. The way I see it the Wind Farm is a God send for Villenova. Much needed money would come in to pay for these bills so our taxes would still stay reasonable. Now withougt this money more than likely our taxes will have to go up and then we will have a new complaint but it will be coming out of our pocket.

The Wind Farm will be helping out in keeping this township alive. It will give much needed money to update the equipment, keep the people happy and supply the service that alot of people are complaining of not having. The way I see it with the tax role the way it is if they are not raised the Township could get new equipment every couple of years, get the roads that are in dire need repaired and act like a normal township with the windfarm money. I will be looking dead into the windmills on the back of my property and like some of you people I will probably be sitting in a chair watching the windmills. I am in favor of them because the Town of Villenova need them, the people need them. Over one and a half million dollars will come into the township each year. To me that is a blessing. I have learned through my years that I have to look at the greater picture and take it off myself in order to see the good for everybody. I am in favor of the Windmill Farm because our township needs them here.

Thank you,

Skip

As far as the birds go, a bot can fly through a moving born fou and never but the blades. Birds I pick out of my grell I didnot but or kill, they rommitted sieciscle but I keep on during and so do you.



1360 Seneca Creek Rd. West Seneca, New York 14224 October 19, 2016

Town of Villanova 1094 Butcher Road South Dayton, New York 14138

Attn: Ms. Julie Goodway

Dear Ms. Goodway

I did not know who to address this to. I attended the windmill meeting last week and they said that there would be a 10 day comment period after the date of the meeting if I understood correctly.

I own property at 9618 Pope Hill Road.

I have some additional question with regards to this project.

Stranguly

- 1. Since I have owned the property for approximately the last 6-7 years, this project has gone through 2-3 lease holders and now this company. The last company notified me that they were dissolving the leases due to the project being uneconomically feasible. With less windmills, why does this company feel it is a feasible project?
- 2. In the spring from approximately March 1 to approximately May 31, there are load restrictions on the Town roads limiting the capacity of vehicles that they can carry. The limit is so low, that it is my understanding that a tandem axle dump truck fully loaded is over the load limit. With a very aggressive construction schedule that they will have I am sure they will not be tolerant of this restriction. Will the Town remove this restriction?
- 3. I am sure that the restriction is due to the excessive moisture in the ground and that the subbase of the roads when constructed was not installed as it would today if constructed. When a heavy load travels over the surface and the subbase starts to break apart, the road damage could take several years before it is discovered. Although the comment was that the windmill company is responsible for the reconstruction, how many years after the project will they be held responsible?

Thank you for your time.

Sincerely,

Richard Kraft

To the members of the Villenova Town Board I am totally against putting up 23 wind turbines in Villenova. It will ruin our beautiful land-escape, I fear it will drive away our wildlife both during and after installation. It will kell many Seeds. The thousands of truck loads of gravel and cement will ruin our roads and the heavy traffic will upset many people. I have read that many people are affected healthwise. as for jobs, if they use local help, it will only last for a few months and then be gone. It will not bring Business or industry to our area. Think of all the equipment that must be installed underground. What well that do to om water supply? I have livedin Villenova my entre life. I can't imagine seeing 23 495 foot wind turbines in this small area. They are 200 feet higher than the Statue of Liberty! and remember our taxes (through Tow. Cours) are the insentive for the project. Please vate no forthis project. Sincerely JoEllen Sherman

DECEIVE D

Villenova Town Board 1094 Butcher Road South Dayton, NY 14138

#### **Dear Board Members:**

I attended the October 13. 2016 public hearing regarding the Ball Hill Wind Project. I listened to Mr. Lyons sugar coat the placement of a wind turbine farm in the towns of Hanover and Villenova. I listened to town residents speaking up for and against the Project. I was able to ask a couple questions.

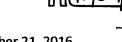
I believe this Wind Project has no place in our beautiful Town. It will forever change the wonderful pastoral scenery in the Town. One resident in favor of the project compared the turbines to electric and telephone poles and lines amid the landscape, just something you would get used to seeing and not even notice after a while. I totally disagree. Electric poles blend in with the tree lines. These nearly 500 feet tall turbines do not blend in with the landscape at all. They are about a hundred feet taller than the City Hall Building in Buffalo. The beautiful view was one of the main reasons we chose to buy our home on Round Top Road 17 years ago. When we came to look at the house, we sat on the front porch and fell in love with the peaceful setting and beautiful views. You can even see a small bit of Lake Erie. If this project is developed as planned, we will have four turbines within the front view of our house (one only 1500 feet away). There will be other turbines within view off to the side and back our house, although not as close. The landowners across the road who have signed on for turbines do not even live here. We live and work in this community. We eat at the Mustard Seed, the South Dayton Hotel, the Trillium. We shop at the local stores. We buy hay and produce from local farmers. These non-resident landowners are not supporting the local economy. They will not have to live with the flicker and negative effects which Mr. Lyons so easily dismissed. Mr. Lyons stated there was a study in Massachusetts which proved that there is no such thing as "Wind Turbine Syndrome". There are other studies which prove just the opposite and Mr. Lyons totally shut down resident Mike Garrett when he was trying to make a point about this. Mr. Lyons said they would offer window blinds or "something" for homeowners having to deal with flicker. Residents should not have to worry about possible negative health effects or flicker.

The wind turbine companies prey on struggling rural communities such as Villenova. They promise financial gain for the towns. They dismiss concerns as trivial or non-existent. These companies are not doing these projects for the benefit of the towns. They are doing so for their own financial gain which is largely funded through government tax credits.

I don't think The Ball Hill Wind Project is suitable for our town. It will create only minimal short term jobs and no long term local jobs. Wind turbines will not bring our children back to the community or keep them here. Only jobs will do that.

If this project is done, not RES, not Mr. Lyons, nor Mr. Spitzer, but rather the Town and its residents will be left to deal with its negative impact.

Diana Ermer 9200 Round Top Road Forestville, NY 14062



October 21, 2016

From: John D. Robinson 9200 Round Top Road, Forestville, N.Y. 14062

To: RES & Mr. Lyons & Town Board Members 1094 Butcher Road, South Dayton, N.Y. 14138

This letter and enclosed articles are in response to the previous wind turbine meeting.

Most amazing is the suggestion that there is no such thing as infra sound. We as a community need this project to be considered not on political or even money concerns, but based first and foremost on the health and well being of those living in the area. Many supporting this project are those not living in the general area or even close proximity to where the turbines are to be located. Greater weight should be given to those with permanent residences and in close proximity to the suggested turbine locations.

Another important concern is that of setbacks and property value. Setbacks need to be based on distance from property lines and not just residences. My home is 1000 ft back from the road, but if I wanted to sell frontage lots at a later date, who would want them. And, shadow flicker be an increased concern. In fact, would additional building lots even be allowed? This has serious inplications for the future value of our properties and how they are used or sold. Realtors say turbines devalue property.

World Health Organization is setting new wind turbine noise guidelines. Ref. article dated Oct 16, 2016. Those guidelines need to be studied and considered. One hundred and forty (140) international scientists, physicians, acousticians, nurses, advocates, and academics have signed an open letter concerning infra sound. Suffering and harm are no longer questioned! Effects are noted in completely similar fashion world wide. Dr. Bowen has taken the lead in giving support and authority to this concern. WHO guidelines give reference to Falmouth, Mass as "ground zero" for poorly placed wind turbines in the USA. So called "industry standards" are just that, standards provided by the companies wanting to make money and absorb our tax dollars to set up turbines. They are fifty percent funded by our taxes.

Let's make sure we are ALL happy and healthy with the results of this project. Increase set back and turbine sling distances, decrease flicker. Determine set backs from property lines not houses.

It is never acceptable to negatively impact anyone's health and well being not to mention devaluation of their property for the sake of financial gain. Nor should our 360 degree scenic view be discarded so easily and replaced by an industrial setting of turbines because other folks want/need more money.

As for Mr. Lyons comments in the OBSERVER, "noise pollution, wind turbine syndrome, shadow flicker, NOT REAL," either we are being lied to or someone is ill-informed. Turbines are neither cost effective nor a healthy choice for people living near them. My choice, is don't have them at all.

Sincerely, John D. Robinson

Johd. Robert

LATEST» Holiday Shopping Head Start: Gift Ideas for Everyone on Your List

(http://patch.com/massachusetts/falmouth/s/fx311/holiday-shopping-head-start-gift-ideas-for-everyone-on-your-list)

Bulletin Board (/massachusetts/falmouth/bulletinboard)

# World Health Organization Setting New Wind Turbine Noise Guidelines

140 international scientists, physicians, acousticians, nurses, advocates, and academics sign open letter concerning infra sound

By Frank Haggerty (Open Post) - (http://patch.com/users/frank-haggertye0dbc553242f63bb0b4c3acd2f8df71d82de8d597c3d2d03e2929a2b2178abbf) October 18, 2016 7:51 am ET (http://my.patch.com/article/26734798/edit)

co-representative to the United Nations for the International Society of Doctors for the Environment, eagerly requested "best policy outcomes and applications" for the WHO's new European Environmental Noise Guidelines, expected shortly.

Indicating her sincere support for the concerns that the international community has already expressed to WHO concerning noise and infrasound/low-frequency noise (ILFN) from industrial wind complexes, she attached the recent open letter (<a href="http://www.na-paw.org/WHO-noise-2015-Open-Letter.pdf">http://www.na-paw.org/WHO-noise-2015-Open-Letter.pdf</a>) signed now by more than 140 international scientists, physicians, acousticians, nurses, advocates, and academics addressed to Dr Héroux and panelists.

The endorsement of the open letter by Dr. Bowen is deeply significant. Given Dr. Bowen's credentials, authenticity, and humanity, her governing principles of environmental justice for all, the endorsement of the open letter shows again the importance that the WHO must now place on the application of higher standards for industrial wind noise (including vibration and ILFN). The suffering and harm are no longer questioned: It is a matter of density and complexity of harm and effects that persons in homes, schools, and institutions cannot easily escape. Effects are noted in completely similar fashion world wide.

We sincerely thank Dr. Bowen for lending her support and authority to the <u>open</u> <u>letter (http://www.na-paw.org/WIND/\*NWW/NWWsite/na-paw/WHO-noise-2015-Open-Letter.pdf)</u>.

See: <u>Revision of WHO Environmental Noise Guidelines for the European Region</u> (http://www.na-paw.org/WHO-noise-2015.php)

Source: North American Platform Against Wind Power

Get free real-time news alerts from the Falmouth Patch.

## Open Letter to the members of the panel developing the WHO Environmental Noise Guidelines for the European Region.

Marie-Eve Héroux Wolfgang Babisch. Goran Belojevic. Mark Brink. Sabine Janssen. Peter Lercher. Jos Verbeek. Marco Paviotti. Göran Pershagen Kerstin Persson Waye. Anna Preis. Stephen Stansfield. Martin van den Berg.

#### Ladies and Gentlemen,

We understand that you are currently in the process of developing the WHO Environmental Noise Guidelines for the European Region as a regional update to the WHO Community Noise Guidelines. We also understand that:

- The new Guidelines will be based upon a review of evidence on the health effects of environmental noise in the light of significant research carried out in the last few years.
- 2 The guidelines will review evidence on the health benefits of noise mitigation and interventions to decrease noiselevels.
- 3. The evidence will be systematically reviewed to assess likely effects such as: sleep disturbance, annoyance, cognitive impairment, mental health and wellbeing, cardiovascular diseases, hearing impairment and tinnitus and adverse birth outcomes.

One of the sources of noise you are investigating is that from wind turbines which was not addressed in previous guidelines.

We welcome your review because, despite mounting anecdotal and academic evidence, for too long mitigation against adverse health effects following the construction of wind turbines has been absent from planning guidelines and noise pollution regulations in many European countries, especially with respect to sound below 200 Hz.

There is a pressing need for new guidelines to encourage governments better to safeguard the health of their citizens.

You will be aware that these problems are not confined to Europe. Neither are they confined to human beings.

We are hopeful that your deliberations will result in tough new European guidelines which in turn will prompt a serious worldwide examination of all aspects of this problem, including the widely-reported effects on animals.

Yours sincerely,

The undersigned:

Mrs. V.C.K. Metcalfe	Scotland	07.07.2016
Community Councillor		
Mauri Johansson, MD, MHH Specialist in Community and Occupational Medicine, including Environmental Medicine (retired)	Denmark/EU	07.07.2016
Susan Crosthwaite Community Councillor. Author of 'Request for Action' to Scottish Government	Scotland.	07.07.2016
Sarah Laurie Bachelor Medicine, Bachelor Surgery and CEO, Waubra Foundation	Australia	07.07.2016
Dr. Rachel Connor Bachelor Medicine, Bachelor Surgery, and Fellow of the Royal College of Radiologists. Chair of Moscow and Waterside Community Council	United Kingdom	07.07.2016
Virpi Poikolainen Physical therapist, Bachelor of Health Care. Community & County Councillor	Finland	07.07.2016
Alun Evans MD Professor Emeritus.Centre for Public Health. The Queen's University of Belfast.Institute of Clinical Science B	Northern Ireland	08.07.2016
Vojko Bernard, metallurgist, President of Alpe Adria International	Slovenia	08.07.2016
Angela Armstrong, M.B., Ch.B. retired General Medical Practitioner and Occupational Physician	Scotland	08.07.2016
Tomaž Ogrin, BSc, MSc Chemistry, researcher, scientist	Slovenia	08.07.2016
Dr. Katarina Dea Žetko, BA, MSc, PhD historical and germanic linguistics, Lecturer	Slovenia	08.07.2016
William K.G. Palmer P. Eng.	Ontario, Canada	08.07.2016
Jerry L. Punch, Ph.D. Professor Emeritus, Department of Communicative Sciences and Disorders, Michigan State University, East Lansing, Michigan	USA	08.07.2016
Curt Devlin, B.A., MA Software Architect, Health Sciences	USA	08.07.2016
Alec N. Salt, PhD. Professor of Otolaryngology, Washington University School of Medicine, St Louis	USA	08.07.2016

F

Gary Goland, Cert App Sci, (Medical Lab), Royal Melbourne Institute of Technology, Medical	Australia	08.07.2016
researcher, Adelaide  Dominic Mette Friends Against Wind	France	08.07.2016
Sven Johannsen CEO & Erik Brunne, Cert. Acoustic Engineers & Infrasound Experts, GuSZ Gutachter u. Sachverständigen Zentrum für Umwelt-Messungen GmbH www.umweltmessung.com	Germany	08.07.2016
Johannes Mayer M.D. Family medicine, Osteopathic Medicine Clin. Ass. Prof. Osteopathic medicine Athens/Ohio/USA President Osteopathic physicians (BDOÄ)	Germany	08.07.2016
Greta Gallandy-Jakobsen author, retired teacher, editor of wind turbine victims' website vind-alarm-danmark.eu	Denmark	08.07.2016
Sherri Lange <a href="www.na-paw.org">www.na-paw.org</a> CEO North American Platform Against Wind Power.	USA & Canada.	08.07.2016
Wayne C. Spiggle, MD physician	USA	08.07.2016
John Harrison, PhD Expertise in wind turbine sound generation and propagation. Former member: Ontario Ministry of the Environment Focus Group on Wind Turbine Noise Regulation. Invited Speaker: 2008 World Wind Energy Conference	Canada	08.07.2016
Mark Duchamp President, Save the Eagles International www.SaveTheEaglesInternational.org Chairman, World Council for Nature, www.wcfn.org +34 693 643 736	Spain	08.07.2016
Maxwell Whisson, MB,BS FRCPath		
retired medical consultant and leader in Medical Research, primarily cancer & haematology	Australia	09.07. 2016
· · · · · · · · · · · · · · · · · · ·	Australia Australia	09.07.2016 09.07.2016
primarily cancer & haematology  George Papadopoulos		
primarily cancer & haematology  George Papadopoulos Pharmacist (B. Pharm), Yass, NSW  Mary Morris Community based noise and health researcher	Australia	09.07.2016

Angela Kearns	Australia	09.07.2016
Retired Registered Nurse and Midwife	USA	09.07.2016
Eric Rosenbloom President National Wind Watch, Inc. <a href="https://www.wind-watch.org/">https://www.wind-watch.org/</a>		
Mariana Alves-Pereira, PhD Researcher and Expert on the biological response to Infrasound and low-frequency noise exposure	Portugal	09.07.2016
Susan Smith Retired teacher. Founding member of Mothers Against Wind Turbines. Experiencing life within 900 metres of an industrial wind turbine	Canada	09.07.2016
George M Lindsay, B.Sc., PhD Engineer	United Kingdom	09.07.2016
Ove Björklund Engineer. Board member of the Association "Good Environment Hylte"	Sweden	09.07.2016
Madeleine Kura Co-founder of Cesme Sustainabilty Platform website <a href="http://www.cesmeplatformu.org/en/">http://www.cesmeplatformu.org/en/</a> Izmir	Turkey	09.07.2016
Sandy Reider, MD Lyndonville, Vermont	USA	09.07.2016
Per Fisker, MD retired Consulting Gynecologist and Obstetrician	Denmark	10.07.2016
Jutta Reichardt, Soz.Päd.(graduate degree) behavioral therapist Spokeswoman of sound victims on <a href="https://www.opfer.windwahn.de">www.opfer.windwahn.de</a> (Affected by infra, low frequency and structure born sound of technical facilities such as wind turbines, pumps etc.)	Germany	10.07.2016
Esen Fatma Kabaday Whiting Çeşme Municipality Councillor Biologist, Environmental Specialist (MS), Project Cycle Management Specialist	Turkey	10.07.2016
Bernd Stymer Oldest and largest resistance against wind madness in Sweden website <a href="http://www.helgaro-liv.se/">http://www.helgaro-liv.se/</a>	Sweden	10.07.2016
William G. Acker Consulting Engineer with Acker & Associates; Eight years of research work on Infrasound & Low Frequency Noise from Cooling Towers, Industrial Wind Turbines, Boilers and Automoblies. Green Bay, Wisconsin	USA	10.07.2016
James Vanden Boogart President, Brown County Citizens for Responsible Wind Energy. Brown County	USA	10.07.2016

	David Moriarty Falmouth, Mass	USA	10.07.2016
	Marshall Rosenthal MA Cultural Anthropology, Syracuse University, BS Biology, City College of NY, former Health Officer, Child Development Group of Missisippi	USA	10.07.2016
	Bruce Rapley, BSc, MPhil, PhD Consulting Scientist. Principal Consultant: Environmental Health, Acoustics and Human Cognition, Atkinson & Rapley Consulting Ltd. <a href="mailto:arg@paradise.net.nz">arg@paradise.net.nz</a>	New Zealand	11.07.2016
·	Steven Cooper Acoustical Engineer, The Acoustic Group	Australia	11.07.2016
	Janet Holtkamp practitioner of Chinese Medicine, Nieuw-Buinen	Netherlands	11.07.2016
	Ipar Buğra Dilli Head of Karaburun City Council	Turkey	11.07.2016
	Ghislaine Siguier Présidente, Victimes des Éoliennes (Victims of Wind Turbines), http://en.friends-against-wind.org/victims	France	11.07.2016
	Dr Mireille Oud medical physicst, founder of Dutch LinkedIn Expertise Group on Low Frequency Noise, author of 'Explanation for suffering from low-frequency sound'	Netherlands	11.07.2016
	Prof. Dr. Ümit Erdem EGE University, Agricultural Faculty, Dep. of Landscape Architecture, Izmir Emeritus Fellow Member of the European Ecological Federation <a href="http://www.europeanecology.org">http://www.europeanecology.org</a>	Turkey	11.07.2016
	Prof. Dr. Zuhal Okuyan (MD) Community Health specialist and Medical Ethics lecturer Dokuz Eylul University, Izmir	Turkey	11.07.2016
	Mustafa Tanısık Bodrum Peninsula Environmental Protection Platform	Turkey	11.07.2016
	Stephen E. Ambrose, ASA, INCE Brd.Cert. Acoustic Investigator	USA	11.07.2016
	Jean Pierre Riou Président de l'association "Le Mont Champot" (lemontchampot.blogspot.fr)	France	11.07.2016
	Robert W. Rand, ASA, INCE	USA	11.07.2016

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Christine Lavanchy Research laboratory technician. Member of Paysage Libre Vaud committee, 1096 Cully	Switzerland	11.07.2016
Paul Housiaux Solicitor (retd.)	United Kingdom	11.07.2016
Simon & Brooke Yates Mt Torrens, South Australia	Australia	11.07.2016
Barbara Lebiedowska Professor emeritus, independent researcher <a href="http://www.kdepot.http://lebiedowska.blog.onet.pl/">http://lebiedowska.blog.onet.pl/</a>	Poland eu/	11.07.2016
Marek Lebiedowski Professor emeritus, independent researcher <a href="http://www.kdeportor.org/">http://www.kdeportor.org/</a>	Poland t.eu/	11.07.2016
Marcin Przychodzki Lawyer and editor-in-chief of stopwiatrakom.eu website	Poland	11.07.2016
Paweł Kotwica Political scientist, translator and community advocate	Poland	11.07.2016
Marek Jasudowicz Mayor, Municipality of Giżycko, Masurian Lake District	Poland	11.07.2016
Hal Wilson B.Ed ((Chemistry and Mathematics) retired, Staffordshire	England	11.07.2016
Rick James, INCE E-Coustic Solutions, LLC, Okemos, MI 48805	USA	11.07.2016
Prof. Dr. Ali Osman Karababa Faculty of Medicine, Department of Public Health, Ege University	Turkey ersity,	11.07.2016
Annette Smith Executive Director, Vermonters for a Clean Environment	USA	11.07.2016
Dr Gary Hopkins Emergency physician	Australia	11.07.2016
Dr. Alan C Watts OAM; HDA; B.Sc; M.B., Ch.B; L.R.C.P; M.R.C.S. retired medical practitioner with an interest in the health effect wind turbines	Australia ets of	12.07.2016
Dr. Colleen J Watts OAM; B.Sc.Agr.(Hons); M.Phil; Ph.D. Environmental scientist	Australia	12.07.2016
Carl V Phillips, MPP PhD consumer health advocate; former professor of public health a evidence-based medicine	Australia and	12.07.2016
Annie Gardner	Australia	12.07.2016

		Australia	12.07.2016
,	Patina Schneider Australian Industrial Wind Turbine Awareness Network	Australia	.0.07.0016
	Jean-Louis Butré President	France	12.07.2016
	of EPAW.org. Also: President of the French Fédération Environnement Durable regrouping 1060 French local associations	Poland	12.07.2016
	Witold Jaszczuk, D.Eng. Vice President, Central Board, Liga Walki z Hałasem (Anti-Noise League), <a href="http://www.lwzh.org.pl/">http://www.lwzh.org.pl/</a> Zbigniew Sienkiewicz	Poland	12.07.2016
	Zbigniew Sienkiewicz Ecology, environment & human health, protection of citizens' rights  Keith Stelling, MA, MNIMH, Dip Phyt	Canada	12.07.2016
	Independent Researcher, Ontario	USA	12.07.2016
	Board Certified Internal Medicine ABIM Member Connecticut State Medical Society.  Member Litchfield County Medical Association, Executive Committee.  Assistant Clinical Professor, Department of Medicine, University	y	
	of Connecticut School of Medicine  Norma C. Schmidt, RN BScN Retired	Canada	12.07.2016
	Professor of Nursing	Australia	13.07.2016
	Peter R Mitchell, AM BchE Founding Chairman of the Waubra Foundation	Canada	13.07.2016
	Catherine Mitchell Director, Mothers Against Wind Turbines, Ontario	Canada	13.07.2016
	Linda Rogers, NP-PHC Nurse Practitioner Primary Health Care, Ontario	United Kingdom	13.07.2016
	John O'Sullivan CEO, Principia Scientific International, principia- scientific.org	Poland	13.07.2016
	Krzysztof Skotak Researcher, Environmental and Health expert, National Institu of Public Health	nte Germany	13.07.2016
	Dr. Matthias Kleespies Environmental scientist and climate researcher	Australia	13.07.2016
	Ross McLeod Environmental Health Officer(retired), Queensland	Canada	13.07.2016
	Dr Timothy Ball (Climatologist), Professor (retired), University of Winnipeg		

Andrew Duncan B.S.c Property Studies. County Councillor Westmeath County Council. Spokesperson Lakelands Windfarm Information Group. (LWIG).	Eire	14.07.2016.
Malcolm Roberts, BE, Engineering University of Queensland, MBA, Business, University of Chicago. Project manager for The Galileo Movement (Aus).	Australia	14.07.2016
Lon Briet,		
Environmental Platform. Bodrum.	Turkey	14.07.2016
Michael Jankowski. Electronics Engineer.	Canada	14.07.2016
Nicholas Kouwen, PhD., P.Eng., FASCE. Distinguished Professor Emeritus and Adjunct Professor Department of Civil and Environmental Engineering University of Waterloo. Waterloo, ON. NOC 1E0	Canada	14.07.2016
Shellie Correia, Mothers Against Turbines TM	Canada	15.07.2016
Ferdinand Deželak. Head of laboratory for physical measurements Institute of Occupational Safety. Ljubljana. Vice president of the Slovenian Acoustic Society.	Slovenia	15.07.2016
Miha JANC, Dr. Vet. Med., Dr. Sci., Emeritus Professor of Microbiology., University of Ljubljana, Slovenia.	Slovenia	15.07.2016
Mads F. Hovmand, Senior Scientist Terrestrial Ecology, Department of Biology University of Copenhagen. DK-1353 Copenhagen K, MFH@bi.ku.dk	Denmark	15.07.2016
<del></del>		
Gitte Nielsen Monnetvej 8	Denmark	15.07.2016
Jay J Tibbetts MD Vice Chair/Chair Brown County Board of Health Declared Shirley Wind IWTs a Human Health Hazard Oct, 2014 Green Bay, WI	USA	15.07.2016
Kalevi Nikula Legal and External Affairs Director (retired) M.Sc., Physiology/Biophysics/Biochemistry. Chairman, The Finnish Association of Citizens Against Industrial Wind Power Plants (TV-KY ry.) <a href="http://www.tvky.info">http://www.tvky.info</a>	Finland	16.07.2016

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## News

# World Health Organization Setting New Wind Turbine Noise Guidelines

by PAM on AUGUST 6, 2016 with NO COMMENTS

WHO guidelines assess several environmental noise sources including wind turbines. Falmouth ground zero for poorly placed turbines USA By Frank Haggerty (Open Post) – August 6, 2016 9:05 am ET



Falmouth
Massachusetts
is ground zero
for poorly
placed wind
turbines in the
United States

**Visit Falmouth** 

Letter to WHO, from a victim of wind

turbines..."Vibrations of my house, and of the whole valley"

Blandine Vue Impact on People Noise Europe

On July 22, 2016, Blandine Vue from France wrote to Marie-Eve Héroux, member of the panel developing the WHO Environmental Noise Guidelines for the European Region.

"The walls of my house vibrate as if a compressor would be against the walls. So there is a continuous buzz..."

read more: http://patch.com/massachusetts/falmouth/world-health-organisation-setting-new-wind-turbine-noise-guidelines

☐ Green Energy, News

Comments are closed.



## Noise & Health Effects of Large Wind Turbines

Several physicians from around the world -- e.g., Amanda Harry in England, Robert McMurtry in Ontario, Robyn Phipps in New Zealand -- have recorded a common set of ill health effects among people living near industrial-scale wind turbines. The symptoms began when local turbines began to turn, and they are relieved when the victims leave the area. Many families have had to abandon their homes as unlivable.

### The symptoms include:

- sleep disturbance
- headache
- ringing or buzzing in the ears (tinnitus)
- ear pressure
- dizziness, vertigo
- nausea
- visual blurring
- racing heartbeat (tachycardia)
- irritability
- problems with concentration and memory
- panic episodes with sensations of internal pulsation or quivering which arise while awake or asleep

Dr. Nina Pierpont of New York has called it "wind turbine syndrome" and determined that its primary cause is the effect of low-frequency wind turbine noise on the organs of the inner ear. Click here for her book and other information on the subject. Dr. Pierpont's work has led her to recommend that large wind turbines not be sited closer than 2 kilometers (1-1/4 miles) from a home -- click here for a petition for 2-km minimum setbacks.

Shadow flicker -- where the sun behind turbine blades creates a strobing effect on the ground -may also be intrusive and harmful. Many people are also concerned about stray voltage, or ground current, caused by the hundreds of thousands of feet of buried electric cable in a typical wind power facility.

Finally, an increase in noise is itself disruptive and can cause sleep loss and stress, especially in rural areas where there is an expectation of quiet. The World Health Organization notes that "Measurable effects of noise on sleep begin at LAeq levels of about 30 dB. ... When noise is continuous, the equivalent sound pressure level should not exceed 30 dB(A) indoors, if negative effects on sleep are to be avoided. For noise with a large proportion of low-frequency sound [dB(C)] a still lower guideline value is recommended."

Acousticians Rick James and George Kamperman have extensively studied wind turbine noise: click here to read their siting guidelines. In brief, they recommend a limit at the property line of 35 dBA or 5 dBA above the preconstruction ambient level, whichever is lower, and a limit of 50 dBC or 20 dBC above the preconstruction ambient dBA level, whichever is lower, for lowfrequency noise.

Conditions ratified by the U.K. High Court in May 2011 define pulsing "blade swish (or thump)"

e, or "amplitude modulation", such that the turbine noise (measured in 125-millisecond ervals 3.5-35 metres outside a dwelling) can not rise or fall by more than 3 dB within any 2-cond period more than five times in any 1-minute period with an average sound level of 28 dBA or more, six or more times in any hour.

In Ontario, the Society for Wind Vigilance provides information about adverse health effects and wind turbines, including annoyance, stress, sleep disturbance, and physiological effects: click here.

For all of the items about wind turbine noise in the National Wind Watch Resource Documents, click here.

© National Wind Watch, Inc. www.wind-watch.org

## Ontario Wind Resistance

### **Setbacks**

A setback is the minimum distance between an industrial wind turbine & a "dwelling". In Ontario, the minimum setback for new projects is 550 m from non-participants. There is no setback for participants. Older turbines are even closer than 550 m. Municipalities have no control over the setback in Ontario, unlike other jurisdictions. The setback is arbitrary, not "based on the most up-to-date science".



As of November 2011, the Ontario Ministry of the Environment is still claiming:

Our setback of 550 metres for wind projects is the most stringent in North America 1

Please contact Denise if you have updates/additional setback info.

**CANADA** 

2011/08/17

Halifax, Nova Scotia

1000m to habitable building

2011/07/13

Quebec Province

750m to residence

or 2km to towns

2011/07/13

Saskatchewan

700m setback

UNITED STATES

2011/08/17

Charlton, Massachusetts

2500ft base to dwelling or

Building=553.2m

(Health Board)

2011/08/15	Lenawee County, Michigan	2000ft+consent+ compensation for loss of value 609.6m
2011/08/11	Clayton Town Council, New York	1250ft from nonparticipating Property boundaries +property Value guarantees 318m
2011/07/23	Hillsdale County, Michigan	1mile buffer zone to homes= 1609m
2011/07/20	Douglas Twp., Illinois	2000ft setback to homes= 609.6m
2011/06/29	Libertyville, Illinois	35dBA night time max noise
2011/06/28	Umatilla County, Oregon	2miles to a rural home=3218m
2011/06/02	Wareham, Massachusetts	2800ft to closest residence=853m
2011/06/02	Clifton, Maine	4000ft from occupied structures
2007/08/28	Allegeny NY	2500 ft = 762m
May 2008	Lyme NY	4500 ft setback from rural villages 1371m
2009	Hartsville NY	Maximum 3dBA above background Sound and minimum 2460 ft from dwelling= 749,8m
2011/05/17	Perry NY	804.6m
2011/12/03	Iroquois County, Illinois	2000 ft from homes And other buildings
2011/04/27	Brewster, Cape Cod	10X blade diameter (100m blade= 1000m setback from residential zone
2011/04/24	Barnstable County,	10x rotor diameter to nearest
	Massachusettes	receptor (100m diam=1000m setback)
2011/04/18	Riverside California	3000ft from residential area =914.4m
2010/09/15	San Diego California	8 x total turbine height to residences= 8 x 500ft= 4000ft = 1.2km

## Without government subsidies to the wind industry, there is no wind industry.

ARTICLES

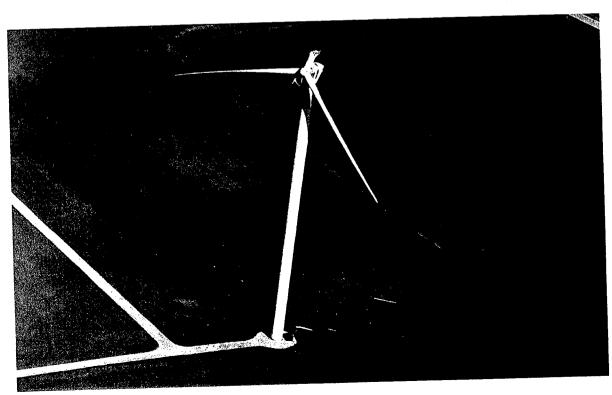
NORTH EAST WIND PROBLEMS WIND TURBINES

WIND ENERGY CONTACT

OCTORER 21 2016

## Calculating Wind Turbine Setbacks Wit **Science Instead of Politics**

AUGUST 5, 2013 BY PAUL CROWE



If there is one hot button issue in communities where wind turbines are being discussed, it's setbacks, ho must wind turbines be kept from property lines, roads and occupied buildings. Wind developers want a veshort distance so they can install the maximum number of turbines while residents and property owners we them kept as far away as possible, so the effects of the turbines are minimized. Wind developers come prepared with the usual rules of thumb or so called "industry standard" setbacks and seem shocked and amazed when anyone questions their numbers. The one thing they don't provide is any basis for those "industry standards." It's almost as though they made them up out of thin air. There has to be a better wa there is.

## Engineering analysis or a finger in the wind

Recently, we discovered an excellent research article written by three aerospace engineers: A method fo defining wind turbine setback standards, published in the journal Wind Energy. In the introduction they explained why they did the research:

These setback standards are intended to protect people and property from rotor blade fragments released from failed wind turbine blades. However, required setbacks are often based on rules of thumb involving some combination of turbine height and blade radius and typically have little or no rigorous physical foundation. There is currently a strong demand for re-evaluation of turbine setback distances in view of both increased turbine reliability and the desire to install more large turbines on small parcels of land. Specifically, it would be desirable to provide a technique that allows regulators and wind farm developers to determine setback requirements given a specific turbine model, the site parameters and an acceptable level of risk.

We couldn't have said it any better ourselves.

### Three turbines, surprising results

The engineers selected three different sized turbines for their study, a 660 KW, a 1.5 MW and a 3.0 MW. radius for each respectively was: 77 feet, 115 feet and 148 feet with hub heights of 164 feet, 262 feet and feet.

The wind turbines with lower power output have smaller rotors that rotate at higher speeds and that's important point because the engineers found higher velocity leads to longer blade fragment throws in the event of blade failure. The setback formulas used in local ordinances which are some

multiple of hub height and rotor diameter fail to take this into account and come up with setbacks far short of where blade fragments can fall.

As an example, the throw distances calculated for these three turbines were: 1440 feet for the 660 KV turbine, 1935 feet for the 1.5 MW turbine and 1726 feet for the 3.0 MW turbine. The shorter 1.5 MW turbine threw fragments even further than the larger 3.0 MW model, over 200 feet further!

The full research article explains exactly how to calculate throw distances based on the operational specifications of specific wind turbine models. In all cases in the article, even with the smallest 660 KW turbine throw distance was far greater than the 1000 foot 1.75 times turbine height setback from a property licalled for in the proposed wind ordinance for North East Township.

Though it may be reassuring to use a very simple and easily understood formula for setbacks, the township officials have done in the ordinance, this is one instance where what they have for is very simple and wrong.

# Public safety demands objective analysis, not political compromise

In the last public meeting in North East Township, one supervisor, when asked where the 1000 foot numb came from said it was a compromise. Unfortunately, compromising public safety is a very poor choice, especially when there is an objective method of determining setbacks, as illustrated in this article.

In light of this new information, and especially because the wind turbine manufacturers themselves call fo 500 meter (1640 foot) evacuation radius around a malfunctioning turbine, the township supervisors and t planning board are very strongly advised to rewrite the setback requirements in this ordinance to protect interests of all residents of North East Township. Public safety demands it.

It would be extremely unfortunate if township officials were to insist on using any other factors besides pu safety to influence their decisions and if they do so, the residents, taxpayers and voters will be asking for explanation of how their decision was made.

Share this:

195 Email | **G+1** 0

FILED UNDER: WIND TURBINE COMMUNITY INVOLVEMENT

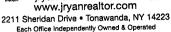
TAGGED WITH: COMPLEX TECHNICAL ISSUES, PUBLIC SAFETY, SETBACKS, WIND ORDINANCE



#### John K. Ryan

Cell: 716-316-6901 Office: 716-875-2211 Fax: 716-875-2222 jryanrealtor@aol.com







**NOVA NY** 

Dear Sir / Madam;

My name is John Ryan, my sister (Patricia) and I own the property located at 15 Hill Drive, Forestville NY; in the town of Villenova N.Y.; (more commonly known as East Mud Lake.)

We are writing in strong protest to the Ball Hill Wind Project currently being considered in the town of Villenova NY.

We have been proud owners of this beautiful piece of property for over 20 years.

In addition, I hold a seat on The Board of Directors for the East Lake Association.

I am a professional Licensed Real Estate Salesperson in the state of New York.

It is my professional, as well as our personal opinions that a Wind Mill Project will greatly damage the property values, as well as have a disastrous environmental effect on our community.

PLEASE DO NOT ALLOW THIS PROJECT TO GO THROUGH. WE ARE PLEADING WITH YOU TO GIVE THIS VERY STRONG CONSIDERATION.

Thank you,

Respectfully,

John K. Ryan

Licensed Real Estate Salesperson Metro Roberts Realty 2211 Sheridan Drive Tonawanda, NY 14223 716-875-2211 - Office Phone 716-875-2222 - Office Fax

716-316-6901 - DIRECT CELL

Owner of 15 Hill Top Drive Forestville, NY



#### **ENERGY MATTERS: Who wants wind turbines?**

By Marita Noon | Posted: Sunday, June 19, 2016 5:00 am

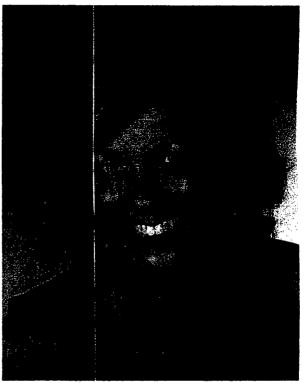
Last month's wind-turbine fire near Palm Springs, Calif., serves as a reminder of just one of the many reasons why people don't want to live near the towering steel structures.

Other reasons no one wants them nearby include the health impacts. Last month, Dave Langrud, of Alden, Minn., sent a six-page, detailed complaint to the Minnesota Public Regulatory Commission. In it, he states: "Wisconsin Power and Light constructed the Bent Tree Wind Farm surrounding my home. There are 19 turbines within one mile and 5 within 1/2 mile.

Both my wife and I have had difficulty sleeping in our home since the turbines started operating. If we leave the area, we don't have this problem. The turbines have also caused severe headaches for my wife. She didn't have this problem before the turbines, and this isn't a problem for her when we spend time away from our home and away from the turbines."

Langrud's letter addresses property values. He asks: "How do we get a fair price if we sell in order to save our health?" Recent studies prove that it isn't just those forced to live in the shadows of the turbines whose property values are diminished.

Waterfront properties that have offshore wind turbines in their viewshed would have a "big impact on coastal tourism," according to a study from North Carolina State University. The April 2016 report in Science Daily states: "if turbines are



#### MARITA NOON 2016

The author of Energy Freedom, Marita Noon serves as the executive director for Energy Makes America Great Inc. and the companion educational organization, the Citizens' Alliance for Responsible Energy (CARE). Together they work to educate the public and influence policy makers regarding energy, its role in freedom, and the American way of life. Combining energy, news, politics, and, the environment through public events, speaking engagements, and media, the organizations' combined efforts serve as America's voice for energy.

built close to shore, most people said they would choose a different vacation location where they wouldn't have to see turbines."

The economic impact to the coastal communities is estimated to be "\$31 million dollars over 20 years."

A similar study done in Henderson, N.Y., found the loss in property taxes, due to reduced values, would be made up by an increase in taxes on all non-affected homes — which would have a "devastating impact" on towns and school districts.

Then, there are the U.S. utility companies who are forced to buy the more expensive wind-generated electricity due to an abused 1978 law that was intended to help the U.S. renewable energy industry get on its feet. The Public Utility Regulatory Policies Act (PURPA) was designed to give smaller power players an entry into the market.

If wind-turbine projects meet the guidelines, utilities must buy the electricity generated at "often above-market" costs. Instead, in many cases, big projects, owned by one company, get divided up into different parcels with unique project names, but are still owned by the major developer. Led by Senator Lisa Murkowski (R-Alaska), Rep. Fred Upton (R-Mich.) and Rep. Ed Whitfield (R-Ky.) a move is underway in Congress to review the nearly 40-year-old legislation.

So, residents who live near wind turbines don't want wind turbines. Nor do residents and renters who have them in the viewshed, governments looking to cut costs, utility companies or ratepayers.

Who does want wind turbines?

Wind turbine manufacturers, the American Wind Energy Association, and the crony capitalists who benefit from the tax breaks and subsidies — which Robert Bryce, reports total more than \$176 billion "given to the biggest players in U.S. wind industry." He states that the growth in wind energy capacity has "not been fueled by consumer demand, but by billions of dollars' worth of taxpayer money."

If only the rent-seeking crony capitalists want wind turbines, why has the industry experienced such growth? Because the wind energy lobby is powerful. Unfortunately, in December 2015, Congress extended the wind energy tax credits through 2021. But tweaks, such as reforming PURPA, can take place — which would be good, because, it seems, no one really wants wind turbines.



#### **Town of Hanover**

Notice of Public Hearing on November 9, 2016 – Letter mailed to property owners within 1,500 feet of proposed Wind Overlay District

#### NOTICE OF PUBLIC HEARING ON NOVEMBER 9, 2016 FOR THE TOWN BOARD OF THE TOWN OF HANOVER BALL HILL WIND ENERGY PROJECT

PLEASE TAKE NOTICE that the Town Board of the Town of Hanover will hold a Public Hearing on November 9, 2016 at 7:30 pm at the Hanover Town Offices, 68 Hanover Street, Silver Creek, New York 14136 to hear all public comments regarding the Ball Hill Wind Energy Project including but not limited to the Amended Application for a Special Use Permit, a local law introduced on October 24, 2016 to increase the Maximum Height restriction for Wind Energy Conversion Systems from 420' to 495', and a local law introduced on October 24, 2016 to create a Wind Overlay Zoning District in accordance with Article XVI of the Town's Zoning Law entitled "Wind Energy Conversion Systems".

The Amended Application, proposed local laws and other project information are available for public review at the Hanover Town Offices located at 68 Hanover Street, Silver Creek, New York 14136. The Amended Application and the proposed local laws, and documents related to the environmental review of the project are also available for public review on the internet at www.ballhillwind.com.

#### **Town of Hanover**

Notice of Public Hearing Published in the *Dunkirk Observer* 

#### The Observer - Legals Print Ad Proof

ADNo: 161221 Customer Number: LHODGS

Customer Name: MARK SWEENEY Company: HODGSON RUSS LLP

Address: 677 BROADWAY SUITE 301 City/St/Zip: ALBANY ,NY 12207 Phone: (518) 433-2452 Solicitor: 012

Category: 140 Class: 151 Rate: L1-0 Start: 10-27-2016 Stop: 10-29-2016

Lines: 54 Inches: 5.28 Words: 203

\_\_\_\_\_\_

Credit Card: Expire:

Order Number:

Cost: 38.88 Extra Charges: .00 Adjustments: .00

Payments: .00 Discount: .00

Balance: 38.88

\_\_\_\_\_\_

NOTICE OF PUBLIC HEARING ON NOVEMBER 9, 2016
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#### AFFIDAVIT OF PUBLICATION

State of New York

County of Chautauqua

City of Dunkirk

Sheila McWillson, being duly swom, deposes and says that she is the Principal Clerk, for Ogdon Newspapers of New York Inc. the publisher of The OBSERVER, a daily newspaper published in the City of Dunkirk, Chautauqua County, State of New York, and that a notice of which the annexed is a printed copy, was inserted and published in said newspaper on the following dates

October 27, 29, 2016

Shella McWillson

Signed before me this 18th day of November 2016

BARBARA J. MUSSO Notary Public, State of New York Qualified in Chautar to County My Commission Expires

NOTICE OF PUBLIC
HEARING ON
NOVEMBER 9, 2016
FOR THE TOWN BOARD
OF THE TOWN OF
HANOVER
BALL HILL WIND
ENERGY PROJECT
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7163663671

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O-161221 Oct. 27, 29, 2016 -Adv.

#### **Town of Hanover**

Comments Recorded at the November 9, 2016, Public Hearing

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#### BALL HILL PUBLIC HEARING

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Proceedings held at Hanover Town Hall, 68 Hanover Street, Silver Creek, New York, taken on November 9, 2016, commencing at 7:30 P.M., before LINDSEY L. ELLIOTT, Notary Public.

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1
   TODD JOHNSON: Okay. We'll call the meeting to
       order. Stand for the pledge to the flag.
 2
 3
            (Whereupon, the Pledge of Allegiance was
 4
       then recited.)
5
   TODD JOHNSON: If everybody could at this time please
6
       remain standing. I would like to have a moment
7
       of silence in honor of our veterans for Veteran's
8
       Day on November 11, 2016. Thank you. Also at
       this time the Town of Hanover would like to
9
       recognize the veterans present here tonight who
10
11
       have served our country in one of our military
       branches. At this time if you have served in the
12
13
       military please stand and remain standing if your
14
       branch is announced. United States Army?
15
       Gentleman in the back row, please state your
16
       name.
17
    SKIP TAYLOR: Skip Taylor.
18
    TODD JOHNSON: And your rank?
19
    SKIP TAYLOR:
                  I was E-4.
20
   TODD JOHNSON:
                   Thank you for your service.
                     Jim Pleszewski, Specialist D-5.
21
   JIM PLESZEWSKI:
22
   TODD JOHNSON: Thank you for your service.
                                                Sir?
23
    WILLIAM EACKER:
                     William Eacker, United States Army,
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- 1 Chief Warrant Officer.
- 2 TODD JOHNSON: Thank you for your service. Mr.
- 3 Ashley?
- 4 WAYNE ASHLEY: Wayne Ashley, Sergeant E-5, U.S. Army.
- 5 TODD JOHNSON: Thank you for your service. United
- 6 States Navy? Sir?
- 7 MR. RUSSO: ET-3, Petty Officer Russo.
- 8 TODD JOHNSON: Thank you for your service. United
- 9 States Air Force? Mr. Rodney?
- 10 JOSEPH RODNEY: Joseph Rodney, Staff Sergeant United
- 11 States Air Force.
- 12 | TODD JOHNSON: Thank you for your service. Sir?
- 13 | MIKE JOHNSON: Mike Johnson, United States Air Force
- 14 Master Sergeant.
- 15 | TODD JOHNSON: Thank you, Mike, for your service.
- 16 | DOUGLAS BUNKER: Douglas Bunker, First Lieutenant
- 17 United States Air Force.
- 18 | TODD JOHNSON: Thank you for your service. United
- 19 States Marine Corps?
- 20 DAN BOYD: Dan Boyd, Air Force Second Lieutenant.
- 21 TODD JOHNSON: Dan, I'm sorry.
- 22 DAN BOYD: That's okay. I'm standing.
- 23 | TODD JOHNSON: Thank you for your service. United

1 States Marine Corps?

GREG GOLUMBESKI: Greg Golumbeski, Sergeant in the United States Marine Corp.

TODD JOHNSON: Thank you, Greg. Mr. Duck?

PAUL DUCK: Paul Duck, Marine Corps Sergeant E-5.

TODD JOHNSON: Thank you for your service. United

States Coast Guard? United States Merchant
Marines? I'd like to thank all of you gentlemen
for proudly serving our country in the time of
need. Truly appreciated. Something that some
can do, others cannot do, but thank you for
protecting our country and our freedoms today.

Okay. At this time we are going to call our public hearing to order in regards to the Ball Hill Wind Energy Project. At this time we will have questions and answers. We will have the privilege of the floor. Comments or questions shall be directed to the town board. At that time comments shall be given and received in a respectful manner. Individual comments shall be limited to one time with a maximum of three minutes. To comment, raise your hand to be recognized. Once recognized, stand and state

your name and address and also the town board reserves the right to amend or alter these quidelines at their discretion. Also, we have representatives here tonight from legal firms and also agents from the Ball Hill Wind Energy Project. So we will probably be diverting some of those questions to those folks that are here today in regards to the project. So at this time we will open up the public hearing. At this time I'll turn it over to the folks in regards to the Ball Hill Wind Energy Project to give a little presentation on what they have here tonight, if all of their posters don't fall down. Dan, would you like to start?

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DAN BOYD: Sure. Thank you. My name is Dan Boyd.

I'm with RES, Renewable Energy Systems. We are the developer of the wind farm. I've been with RES about two and a half years, but have been working on wind and renewable energy projects for over twelve years. Most of that twelve years is here in New York State where I'm originally from. RES is a renewable energy developer and constructer. We also have an operation team that

operates many projects. We developed -constructed about ten thousand megawatts of
renewable energy projects in the U.S. and Canada
and about an additional twenty-five hundred to
three thousand megawatts worldwide beyond that.
To put that in perspective, we are talking a
hundred megawatts of a project here where we have
done over ten thousand megawatts. So fairly
experienced in this. RES has been doing this in
the United States since about 1990 or so, 1994.
Most of those projects have been built within the
last ten to fifteen years. So pretty experienced
at this.

On top of the experience that RES brings to the table, we also have our experts. Our experts on the project with me here tonight is Mark Sweeney, our counsel on the project as well as Tegan Kondak from our environmental consultant, Ecology and Environment. Both of them have been working on the project and their companies since its inception when Noble first started in 2006. And also is Kristin McCarthy. Kristin has also been working on the project for a long time. I

think she knows many of you in the room. And I think we will be working a while together for quite a bit longer hopefully on a great project here.

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I guess to kind of open up and talk about the project from its inception moving forward, originally as many of you know, it started with a company called Noble Environmental Power back in 2006 as I mentioned. Originally it was a sixty-three turbine project about a hundred megawatts. That project went through much of the permitting. It continued with Duke Energy Project, which they revised due to newer technology in 2011. That layout was fifty-six turbines and then it continued -- we continued development today, have taken some advancements in technology into account, as well as many comments and studies that happened over the years and originally proposed a thirty-six turbine project that was heard in a public hearing and in a public forums. Many comments came in and were studied earlier this year. We then had taken a look at those comments as well as additional

technology that came out in the market in the recent year and kept the project at a hundred megawatts but actually reduced the footprint of the project. Therefore, reducing many of the impacts. We've reduced wetland impacts, noise, visual, by going through the lower number of turbines and the larger turbine capacity.

Over the years this project is probably the most studied project in New York, if not the country. As I mentioned since 2006 environmental studies have been going; wildlife, wetlands, birds, bats, noise, visual, socioeconomic, real estate, everything that's been in the books. I think we have some of them here, but many, many volumes of studies. So, you know, and then once those studies went out, many comments came in and that's how we've come to the project that we are presenting to the town and you here today.

Leaving, you know, what I think is an important part to the end, you know, we are actually here asking you to work with us to develop this project, to bring this project. It's also an opportunity for you and we

appreciate all the support that we've had, but it's a great opportunity for a number of different reasons.

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One is the jobs that this brings during construction. There's a large number of jobs. We've seen a lot of them go during the years with all of the different projects that have been built across the state. Two is the operational There's approximately six to eight jobs. long-term operational jobs. But really where the project benefits the local community is the additional payments that come in the form of taxes through a PILOT payment through the county that come back to the town, to the school districts, as well as host community agreement, road use agreement, that happens here with the So we make sure the roads are left after town. we are gone in the same or better condition than they were when we came to town and we continue to make those host community payments for the life of the project.

In addition to that, like any power plant, a wind farm has fuel, but ours is clean. It's the

wind. In order to get that fuel we pay lease payments to many of the people in this room and to many other landowners that aren't in this Those payments that come into this town and those surrounding area, they go around again. It's what we call the cyclical dollar. through the studies done for the project a very large economic benefit to the local area. just some of the numbers on that, just to the town of Hanover approximately eighty-six thousand dollars a year in additional tax payments are going to be made to the town directly. And about six hundred fifty thousand dollars a year are being paid out to all of the landowners for the project. Fairly, fairly, large benefit to the local area.

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I mean, at this point I think that's kind of my summary and most of all I want to thank you all for being here. We look forward to hearing your questions and comments. May not be able to get to answer everybody's questions tonight, but we will be taking all of the questions and comments down and answering them all in a formal

written response. 1 2 TODD JOHNSON: Thank you, Dan. 3 DAN BOYD: Thank you. 4 TODD JOHNSON: Any questions? 5 PAUL DUCK: Paul Duck, D-U-C-K. I live on Prospect 6 Road out in Forestville and my question -- first 7 of all, I'm in favor of the wind program. 8 not opposed to it. I guess I have a couple 9 questions. One is with relationship to the additional heights from four hundred twenty feet 10 11 to four hundred ninety-five feet. Is that going to increase the size of the blades or is it going 12 to just be a height difference? 13 14 DAN BOYD: It's actually an increase -- if you don't 15 mind? 16 TODD JOHNSON: Go ahead. 17 DAN BOYD: It's an increase for the rotor which allows us to capture more wind which allows us to 18 turn a larger gear box and a larger generator. 19 20 That's how we are able to go from thirty-six 21 turbines down to twenty-nine but still keep the 22 project the same size. The height of the hub is 23 relatively the same.

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1
    PAUL DUCK: Next question, the overlay zone that is
       described in the letter I received, how is that
 3
       going to impact my property -- or, I don't
 4
       have -- I'm not getting a windmill on my property
5
       that I know of and they talk about an overlay
6
        zone.
               How is that going to impact my property?
7
   DANIEL SPITZER:
                     With your permission, Mr.
8
       Supervisor?
9
    TODD JOHNSON: Go ahead.
                     Dan Spitzer, special counsel to the
10
   DANIEL SPITZER:
11
               It will not affect you at all.
                                                They are
       not allowed to build the infrastructure for the
12
       wind system without the overlay. It does not
13
14
       restrict any other property owner or the property
15
       owners who are part of this project from doing
16
       anything else that's allowed out of the town
17
       code.
18
    PAUL DUCK:
               Okay. And I guess my last question is,
        is this project expandable?
19
20
               At this point, I don't know.
   DAN BOYD:
                I mean, is there -- if it became feasible
21
    PAUL DUCK:
22
       at some point could it be expanded relatively
23
        simply?
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DANIEL SPITZER: Well, probably not relatively simply. We are in New York. So the answer is that if you were having substantial expansion you actually go through a different process known as the Article 10 Process. Article 10 was passed -that was passed five years ago and not a single application is complete yet. That's a state level process, so it certainly is to the extent it's technically feasible, but you still have to have an approval process. If it was part of this process it would still go to the town board. I wouldn't call it simple because it has to be a thorough review.

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PAUL DUCK: The reason I ask is from where I live
there's nothing between me and Detroit to stop
the wind so -- and from a line of sight I can
just about see Detroit. I can see all the way to
Long Point. When I look across the lake from
Crystal Beach all the way to Long Point,
specifically at night, all I see is red flashing
lights and every one of those flashing lights is
a windmill. So, you know, if they can do it over
there, we should be able to do it here.

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1
   TODD JOHNSON: Thank you, Paul. Yes, sir?
 2
    COLIN ERDLE: Colin Erdle. I don't see any -- are
3
       those pictures of what the transmission lines are
 4
       going to look like? Is that from Dennison or
5
       King?
6
    TEGAN KONDAK: I'm trying to think. It's from New
7
       York State 39 looking southwest to northwest.
8
   MARK SWEENEY: Can you identify yourself for the
9
       record?
   TEGAN KONDAK: I'm sorry. I'm Tegan Kondak. I can
10
11
       bring it up for you.
12
    COLIN ERDLE:
                Okay.
13
   TEGAN KONDAK: There's also other simulations in the
14
       application you can look at.
15
   COLIN ERDLE: How high are these transmission lines
16
       going to need to be?
17
   DAN BOYD: I can't remember the exact number --
18
       seventy.
19
    COLIN ERDLE: So they don't need to be six hundred
20
       and ninety-five?
   DAN BOYD: No, that's the wind turbines.
21
```

hundred ninety-five for the entire zone instead

COLIN ERDLE: Then why are you asking for four

22

23

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of just where the windmills are supposed to go?
1
 2
   MARK SWEENEY: Actually what we are asking for is an
 3
       increase in height for the maximum allowable
 4
       height of a wind energy working system, which is
       defined under the code as WINDR. So that's a
5
6
       wind energy facility because it's related to it
7
       but it's not what they call a WECS, Wind Energy
8
       Conversion System. So that height restriction
9
       would not -- that height expansion, that
10
       provision doesn't apply to that at all.
                 Okay. So the lines we are going to
11
    COLIN ERDLE:
12
       have to look at are only going to be seventy feet
       tall?
13
14
   MARK SWEENEY: Correct.
15
   DAN BOYD:
              Approximately. We haven't engineered them
16
       yet.
17
    COLIN ERDLE: So if you haven't engineered them yet,
18
       would it be possible to bury them?
19
   DAN BOYD: We did look at that and it's not feasible
20
       for the extent of it.
    COLIN ERDLE: Because of the wetlands or because of
21
22
       the economics?
23
   DAN BOYD:
              A lot of different reasons.
                                            Wetlands is
```

one of them. 1 2 MARK SWEENEY: Wetlands is one of the major reasons. 3 DAN BOYD: And a lot of the spans are specifically 4 spanned to span over wetlands areas, not to go 5 through them. 6 MARK SWEENEY: One of the things that agencies that 7 regulate the wetlands, the DEC and the Army 8 Corps, require for these is either to span the 9 wetland all together or you're only going to have 10 a pole in the wetland. And you try to avoid that as much as possible. 11 12 COLIN ERDLE: You can't bore a tunnel underneath? 13 MARK SWEENEY: You can go underneath them but through 14 them is a different story. And they have to be 15 maintained clear so that it can be accessed for 16 maintenance. 17 COLIN ERDLE: Okay. Thank you. 18 TODD JOHNSON: Thank you, sir. Yes, ma'am? 19 LUCILLE FACHEVSKI: Lucille Fachevski, Copper Road. 20 I'm also concerned about the transmission lines. 21 They are going to be within a view of a beautiful 22 sky that I look at. I would like to know just 23 how many are there going to be? How far are they

going to be apart or are there going to be numerous close together? I'm not getting any compensation for that, but how is that going to affect my property value?

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DAN BOYD: Ultimately we have some initial spans that we estimated that are in the application. lot of the focus for this was to minimize both the visual as well as the clearing in wetland So that's why you see a monopole structure. Many of the transmission lines you see around are the H-frame structures that are much larger, take up a wider area. And the other side of it is we've gone with the tower that actually, like it gets the patina on it, so the intent is to blend in more. So there's going to be a monopole instead of the H-frame. went as low as we can go. Some of the initial towers we were looking at were taller. modified that to come down to the seventy foot. We made a lot of adjustments on keeping it I don't remember the spans off the top of my head, but Kristin may.

KRISTIN MCCARTHY: Well, for the smaller towers the

spans are shorter. So four hundred to six hundred.

DAN BOYD: Yeah, so four hundred to six hundred feet between them. The idea is the less poles we put in, the cheaper it is for us to put in, the less you see. So it's a win-win.

7 LUCILLE FACHEVSKI: Maybe not necessarily a win-win.

DAN BOYD: We'll try to span them as much as we can.

LUCILLE FACHEVSKI: It does affect property value no

10 matter how you look at it.

DAN BOYD: That was part of the other question. So there is a very, very detailed property value analysis that's in our study. There's also been many other third-party studies that have been done in other states, other projects, other regions that are references. And ultimately what it comes down to is you have to look at the full project, the tax dollars coming in, the benefits coming into the area. When you look at that, the towns are able to then, you know, potentially increase services or increase things and in a lot of cases reduce taxes. I'm not quite certain that is going to happen here, being it's a small

portion of the project, but what you do see are
those benefits increasing property values. It's
not just our study, it's pretty much every study
that's been done that's peer reviewed on
renewable energy.

TODD JOHNSON: Lady in the back by the poster.

LINDA HALL: My name is Linda Hall and my family has a farm on Ball Hill, just off Ball Hill on Bartlett. I see there's a windmill there. What will that do to aircrafts making approaches, the height of it?

DAN BOYD: Sure. Anything above two hundred feet needs to file with the FAA, which we've done. We have done very extensive work with both first FAA consultants that ran all of the different flight paths, different radar and visual and instrumentation routes. We also did the permitting through the FAA. We received determinations of no hazard from the FAA. We also met with the local airport up in Dunkirk. Ultimately their request was to stay six nautical miles from the airport. Every one of these turbines is beyond six nautical miles of the

- 1 airport.
- 2 LINDA HALL: This is a small family air strip that's
- 3 been there since 1957. It's right on Bartlett
- 4 Road.
- 5 DAN BOYD: We can look into that. I don't recall
- 6 that being apart of anything. Is it a registered
- 7 air strip?
- 8 LINDA HALL: Probably not, but it's been there since
- 9 '57 and it's still being used.
- 10 DAN BOYD: Okay. We will have to look into that.
- 11 LINDA HALL: Okay. How do you go about doing that?
- Do you need names?
- 13 DAN BOYD: We will go into the registry because the
- air strip has to be something that's registered.
- 15 LINDA HALL: It's probably not registered, but it's
- 16 been in use since 1957.
- 17 DAN BOYD: Okay.
- 18 | MARK SWEENEY: If you can get us the property address
- 19 that will be a starting point for us to look at
- 20 it.
- 21 DAN BOYD: I can give you my card and you can get us
- 22 the information.
- 23 | LINDA HALL: I called the FAA today.

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1
   TODD JOHNSON: Gentleman in the back with the gray
       shirt.
3
    SKIP TAYLOR: Skip Taylor. Question for you, sir.
 4
   DAN BOYD:
             Yes, sir.
5
    SKIP TAYLOR: When you come out of Texas, cross 10,
6
       head north on 30 or 20 and I think it's in
7
       Arkansas, there's a wind farm down there.
8
       don't --
9
   DAN BOYD: I don't know that one.
                  I bet you travel a hundred miles and I
10
    SKIP TAYLOR:
11
       almost ran off the road six times trying to count
12
              There's more than you can think of.
13
       anyone else gone there? To me it's fascinating.
14
       It's like watching a campfire. I'm going to be
15
       looking at these and I wrote a little letter here
16
       to the Town of Villenova. Can I read it?
17
    TODD JOHNSON: Go ahead.
18
    SKIP TAYLOR: Okay. I have been to a few meetings
       and listened to all sides intently at these
19
20
                  Some people oppose the windmill and
       meetings.
21
       others are in favor. Villenova, in my option --
22
       in my opinion -- I can't even read my own
23
       writing -- has been very generous as possible in
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trying to keep the tax roll as such that the people living there don't have to pay more than possibly necessary. The taxes on the gas well is about ninety something -- here's a man those knows more than I do -- is about to run out and things are going to get more hectic than they are Villenova has expenses with employees, equipment and just about every day doing business. There are roads that are still dirt. They have to buy salt, run equipment on a daily basis in summer and winter. It's not cheap. money has to come from someplace and if you have a little bit of business mind, you know that running a business takes a lot of money. Villenova is business, supplying a service to the tax payers. You go into a store and you buy goods that the store already purchased for your taking, but you have to pay for it. Go to a fast food establishment and you pay before you taste. Villenova has a lot of expenses and has to be paid for by the people living in the township for their benefits. The way I see it, a wind farm is a God sent to Villenova, Hanover, Arkwright,

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everybody else. Much needed money will come and pay for the bills so our taxes will stay reasonable. Without this money more than likely our taxes will have to go up and then we will have a new complaint about what it will cost out of our pockets.

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The wind farm will help out in keeping this township alive. It will give much needed money to update the equipment, keep the people happy and supply a service that a lot of people are complaining about not having. The way I see it, the tax roll the way it is now, we are not raising the township -- without raising the tax roll with this added money the township could get new equipment every couple years. Get the roads that are in dire need repaired and act like normal townships with the windmill money. I will look dead into the windmills in the back of my property like some of you people and probably be sitting in the chair watching the windmills in the summer instead of the vehicles going up and down the road. You ever see the garage doors open with chairs and they watch the vehicles go

down? I think they're fascinating myself. You 1 2 go to Buffalo and what do you do? You almost get 3 in a car accident watching the windmills over the The Town of Villenova needs them. 4 lake. The 5 people need them. Over one and a half million, 6 am I correct? Over one and a half million 7 dollars will come into the township? 8 DAN BOYD: Every year the numbers that I was talking 9 about --Will come into the township. 10 SKIP TAYLOR: To me 11 this is a blessing. I have learned through the years that I have to look at the greater picture 12 and take it off of myself for the good of 13 everybody. I am in favor of the windmill farm 14 15 because our township needs it. There's been some 16 arguments, please forgive me, I don't want to 17 step on anybody's toes, but about birds and animals and this and that. I'm sure you all know 18 a bat will fly through a moving barn fan without 19 20 ever touching a blade. There's a man that knows. 21 When I go down a road and a bird hits the grill 22 on my car, I did not kill that bird. That bird 23 committed suicide. When I hit that bird at sixty miles an hour there's no chance for it. A
windmill, they can dance around a windmill blade
without getting hurt. If they want to hit the
windmill, God bless them. Thank you.

TODD JOHNSON: Thank you, Skip. Gentleman with the black hat?

JOHN HARVEY: I'm a Town of Villenova resident, John Harvey. I support the windmill farm. I'm a skeptic myself. I've done research, ungodly hours of internet, for the impacts, environmental and everything. And like the gentleman said, been on the project since 2006. Those guys have went far beyond what I ever expected. And at the last meeting I was at the gentleman brought in what the 2006 study was and it was far beyond what I even scoped.

I'm in favor of it now. Doing the research I did, economically our area is economically stressed right now. Anything we can do for this thing to set forth is going to impact our economic structure in this area. We are depressed. Our townships are struggling, our people are struggling, we have no jobs here.

Money goes where money is, our support is. These windmills are going to support a lot of economical impact as far as our structure is concerned. Not only the townships but their equipment, but it's going to go far beyond that. Once these windmills come in and we have energy that's renewable and green, industry will look at that. And it's a win-win situation.

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We are looking at an impact that we are going to get jobs from this. Not only from the construction of this, but it's going to be such an economical impact. I don't foresee our taxes going down at least two or three years. Like the guy said, it's going into our townships and stuff. I don't see that, but I don't mind paying the taxes but we are going to get almost that much money back into our tax thing and we're going to double whatever we have now. And you can see what we have now. Can you imagine doubling that? We have nothing so we are going to end up with something. We went from nothing to something. It's a win-win situation.

As far as environmental impact, like you

guys said the bats and stuff, I said at the last meeting that if you're worried about the birds and bats getting in trouble with these things, I did research on that. It's not going to happen. But you do have a resident within your house that's going to impact a whole lot more than what these windmills are and that's Felix, the cat. If he gets a bird in the house he's going to chase it.

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As far as environmental impact, if anybody is concerned other than aesthetics of the things, it can be a soothing practice to watch these things. It's been studied both ways. It's bogus what people have put on the internet. You have to be careful. Just because it's on the internet it's not necessarily true. I've seen pretty far fetch things. People have gotten brain damage from these things going around. Really? It's So I'm urging everybody here to please boqus. give it a chance. Look into it, research it. Don't make a rational decision. Rational decisions always come back to bite you. Please research it and I think once you do research it,

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you'll find the project is far within its means
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       of economical and as far as the DEC is concerned,
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       if they are happy with it then the rest of us
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       should be happy. So please support it.
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       you.
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    TODD JOHNSON:
                   Thank you, John. Lady in the front
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       row?
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   NANCY CINELLI: Nancy Cinelli, Forestville.
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       know, the posters are beautiful.
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    TODD JOHNSON:
                   Whereabouts in Forestville, ma'am?
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   NANCY CINELLI: Hurlburt Road.
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   TODD JOHNSON: Okay. Thank you.
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   NANCY CINELLI: Could someone explain them a little?
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       I'm trying to find out where the nearest windmill
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       is to my property. You know, the number of
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       parcel ID's, I can't see up there at all.
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       there are street names missing. So I want to
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       know how close these windmills are going to be to
       my property. I can't figure it out there.
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                                                    Could
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       you explain it in a little more detail.
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    DAN BOYD: I guess the one thing I could say is
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       obviously the towns a number of years ago, I
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       think with the help of Mr. Spitzer, developed a
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law that regulates wind energy facilities. That set appropriate setbacks based upon industry Those setbacks in the towns are a standards. thousand feet from residences. RES, we always that's not something we typically do. actually have a higher standard we set on ourselves. I can go through the posters as well, but one of the things you'll see here is in 2008 of the turbines, twenty-five of them were within twelve hundred feet of residences, which is still over the thousand feet that's the requirement And in 2011 the project went down from the town. to seventeen and in the current layout we are proposing not one turbine, zero turbines, are within twelve hundred feet of a residence. still doesn't answer your question but to try to put it in a little bit of context. Many of the projects in New York State and this country worldwide a thousand feet, some areas are closer to that, but in New York it's about a thousand So we've even gone another twenty percent further than that for the closest turbine in the entire project.

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What you see on these different posters, this one is really just kind of an overall map of what's happening in Hanover, what we propose in Hanover with the six turbines and the transmission lines. This one here is the viewshed. And basically -- hopefully we can help you. If you can't locate where your home is on the map, we will help you find your home on here. Maybe Kristin can help you. And you can see based on the color from your home how many windmills you will see from your home.

So as you can see, everywhere there's gray on here you won't be able to see windmills.

Going all the way up to some areas you'll be able to see pretty much the entire windmill array and those are the areas that are in the darker red.

The numbers that are on here; the eight, seven, and the white circles, those are the view points that were taken photos that are actually visual simulations that are in the application in the application in the Environmental Impact

Statement. They are just like that. We only brought some of them because if we brought all of

them we would all be underneath photos right now. There's a lot. The other one back there, that is the same map but also does the flicker analysis. So one of the concerns is that when the blades go around and in front of the sun that you get the blade going by and you get a shadow and then a shadow. So what that shows you if we didn't have any cloudy days, if the sun was shining perfectly all the time, how many minutes you would have shadow at the exterior of your home. It doesn't say there's a window there coming in or anything, but at the exterior of your home. So you do the same thing.

We'll help you find where your house is on there and you'll know how many minutes in a year. So it's over the entire year. We are talking the most on the map is less than three tenths of one percent a year. I think that answered most of your question. We'll be happy to help you find it.

TODD JOHNSON: Thank you, ma'am. Sir?

STEVE BOUMAN: My name is Steve Bouman. I have

property on Empire Road. I want to say I support

the wind project. What you don't get from the wind is the byproduct you get from coal. I want to point that out. The mercury and cadmium, that's why you're only supposed to eat fish out of Lake Erie once a week. My question is, is there any stored energy below the windmills and is there any interference with cell phones, TV's, satellites, any of that?

DAN BOYD: So there's no energy storage proposed on this project. RES also does energy storage.

Energy storage is a big push right now in energy, in renewable energy especially. There is no storage proposed for this project currently. I don't know if we ever will, but we do do that.

From a communication standpoint, that is also studied as one of the things I probably left off my list. It's a very, very long list. If I stacked up the list like the one gentlemen said, they will be about this high of all the studies done by many of our experts. TV, cellular, microwave, radar, radio, you name it, the studies are in there. Ultimately there -- I can't speak to the detail, but I don't think we saw any

impact to cellular. We didn't see any impacts to TV for the most part. If there are small areas where there is issues with TV, it is something we will be willing to work with someone with.

MARK SWEENEY: Under the town's laws we are required to have a complaint resolution procedure. Once the project is up and running if you experience a problem there will be a number available for you at the town hall both in Villenova and here, on the intersect, the website for the project as well, where you can contact RES, tell them about your issue and then it will be addressed. That's one of the requirements the town proposes on us to make sure as the project goes forward, there's an open line of communication between you and the company.

DAN BOYD: All these studies I mentioned as well as being at the Town Hall in both towns, they are also on the website, which is Ball Hill winds dot com. You can just Google that if you don't remember the exact address.

22 TODD JOHNSON: Thank you. Joe?

23 JOSEPH RODNEY: Hi, Joseph Rodney. Silver Creek or

Forestville. It depends on what side of the road 1 I'm standing on. My first question is, these new 3 windmills, where are they produced? 4 DAN BOYD: So they are manufactured by Vestas which 5 is a Danish company which has manufacturing 6 facilities in Colorado. 7 JOSEPH RODNEY: Okay. And then my second question 8 is, if there ever comes a day this whole project becomes defunct and the windmills fail, what's 9 the end game for the windmill? 10 11 DAN BOYD: So there is a decommissioning procedure as 12 well as a decommissioning bond for the project. So if RES or an owner of the project long down 13 14 the road does not continue to maintain and 15 operate the project, there's a procedure and a 16 bond in place to remove the facility. 17 JOSEPH RODNEY: One more quick question. voltage on your transmission lines? 18 The transmission lines is a one hundred 19 DAN BOYD: 20 and fifteen KV transmission line. So lower 21 voltage than the main lines that run through the 22 area. And in the farm it's thirty four thousand five hundred volts, which is approximately what 23

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TODD JOHNSON: Thank you, Joe. Sir?

HOWARD CROWELL: My name is Howard Crowell. in the town of Villenova. I was on the town board in Villenova in 2008 when this project was proposed originally. I was in favor then and I I want to stress to this board how important the project is to the Town of Villenova. We are a poor town. We don't have all the businesses you have here in Hanover. Wе don't have any grocery stores or car dealerships and stuff like that. Our total budget in the Town of Villenova is a little over six hundred thousand dollars. They are talking about a PILOT agreement of three hundred and six thousand which is around six percent of our budget.

We are known for our poor roads in

Villenova. We have vacant houses popping up

everywhere every time you turn around. The town

clerk says every time taxes are paid there's a

stack of unpaid bills that go to the county every

week -- every year, I'm sorry. So if this

project goes, it's going to make a big influence

on our taxes over in Villenova. And what I'm proposing is that if that's your goal with a little bit of extra money maybe after we're done paying our taxes maybe we'll come over to Hanover and buy a fish supper, buy groceries, buy a car, liquor store and when we get our roads fixed you can come over to visit our windmills.

TODD JOHNSON: Thank you, Howard. Sir, go ahead.

MIKE WHITE: Mike White from Silver Creek. I have

two questions. One is, where does the energy

that these windmills produce go? Does anybody locally benefit from the electricity? It's not

going to cut your electricity bill, right?

DAN BOYD: So the way the powergrid works in New York, same way as it works in a lot of different what we call power pools around the country. New York, we have our own. The way New York works is it's really a big pool and there's a lot of hoses that go in and there's a lot of drains at the bottom. We are all the drains, every light

switch, every house, every meter. So really every power plant is a hose into that pool

pouring water in and every business, person,

area, it takes the water out the bottom of the pool. I don't know where these electrons are going to go other than us putting them into that transmission line that goes right along the 90 for as far as we know.

MIKE WHITE: So won't it go to Jamestown?

DAN BOYD: And really at any substation along the way there it spans out and comes out and the electrons just go to where the first light switch goes on. So the first light switch that's closest to the substation is where this gets injected.

MIKE WHITE: I have a sister that lives in

Lackawanna. From her upstairs window she can see the windmills over the lake. She sees no benefit from the windmills. It didn't affect her electric bill. She lived there before the windmills. Since the windmills were put in, like, people that have a gas well put on their property, they get free gas. You have a windmill on your property, you don't get free electric.

DAN BOYD: So you do see the income from that and you

I BOYD: So you do see the income from that and you also see the tax benefits. And the more wind

that we do see put on the grid, you will see prices go down. Basically what happens is like other generation, wind does not have a fuel cost. Wind bids into the power pool at zero every day. Yeah, but that's assuming an increase --MIKE WHITE: DAN BOYD: That's up to us. So when you have wind projects putting zero onto the grid, hydro projects putting zero onto the grid, solar projects putting zero onto the grid because they have a free resource and they are going to generate no matter what, that pulls the clearing price of the grid down. You're not going to see your price going down if we're needing more and more and you're going with the higher priced fuels that are out there. The more of these low cost fuels that you put on the market, the higher you put that stack, the higher you push out of the clearing price, the more expensive That's the way the market works. generators. When you put on one one hundred megawatt wind farm or in the case of Buffalo a few wind turbines, when you need twenty-five gigawatts for the entire state, it doesn't push that enough.

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What I'm trying to do is push that up so that we
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       do see a benefit.
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   MIKE WHITE:
                 Okay. My second question is, you say
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       it's going to generate jobs. Are you going to
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       hire local or are you bringing -- they put in a
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       gas line up in Langford. Every worker on that
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       gas line came from West Virginia.
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    DAN BOYD: I can't speak for the gas line, but we do
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       this in a lot of places.
   MIKE WHITE: Are you going to hire local for the
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       construction?
    DAN BOYD: We will hire local as much as we can.
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                                                       Ιt
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       does not pay for us to bring in people from
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       Colorado and bring them to here.
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   MIKE WHITE: You don't bring in your own crew from
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       other states?
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    DAN BOYD: I don't know. I don't think we intend to.
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       I can't commit to that. I'm the development guy,
       but we do not typically bring people in from
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22 MARK SWEENEY: I can add to that a little bit.

economical.

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Having worked on a number of wind projects across

other places to build projects. It's not

the state that local laborers are always used to the extent possible. If there's a specialized need for equipment operators or electrical workers or something along those lines, that may have to be brought in. But to the extent possible, local laborers are used, local suppliers are used, local vendors are used. Ιt makes sense to get everything as close to the project as you can to reduce the cost. To expand on that, our estimating team and DAN BOYD: construction team is already in touch with many local venders in this area about working on this and other projects we are building in the state. This is not the first project we build in the state. We have been selected to build another project in the state for another developer and we are working on hopefully building others. are in touch with a lot of New York contractors. Thank you. Yes? TODD JOHNSON:

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20 CARRIE VASQUEZMARTE: My name is Carrie Vasquezmarte.

> You guys are all worried about economics and stuff. What about the sound it produces? I have a child. She's a year old and she has auditory

processing disorder. I have been reading up on
it. I'm all for clean energy, but I'm not for
the effect that it will cause on my child. And
from -- I spoke to Tegan and from what I
understand, I'll be seeing quite a few of them
from my backyard, you know.

DAN BOYD: I think we should talk in more detail and make sure we get you all the information. And get people that know a lot more and are a lot smarter than I am to speak to that.

CARRIE VASQUEZMARTE: Does it also affect like pacemakers, anything like that?

13 DAN BOYD: No.

14 | CARRIE VASQUEZMARTE: It doesn't?

DAN BOYD: I was just going to -- after qualifying that I'm a civil engineer, I deal with dirt and steel, that stuff is much more complex than my know-how. But we did have experts look at all this. The noise levels this project puts out are far below and I think that's one thing I missed before. With extending the distance we are from residences and reducing the number of turbines in the project, we reduced the level of sound at

residences significantly from previous projects. 1 2 To get the detail of your question we should 3 definitely have smarter people. But I would 4 assume --5 CARRIE VASQUEZMARTE: Yes, sir. 6 MARK SWEENEY: It's important to know also where you 7 live relative to the turbines because the distance that you live from them, even if you can 8 9 see them, the sound doesn't travel like your vision. 10 11 CARRIE VASQUEZMARTE: If I'm going to see six to ten and background noise effects children with this 12 13 disorder and if you see six to ten of them, 14 you're obviously going to hear them. 15 DAN BOYD: Not necessarily. 16 DANIEL SPITZER: Not necessarily and we will set you 17 up with one of the experts. When you have multiple towers it's not like, for example, if 18 you're far enough away that the noise is at a 19 20 background level at forty decimals. It's not forty decimals plus forty decimals plus forty 21 22 decimals. When you have multiple noise sources 23 It doesn't actually add. The noise covers over

each other. When the wind is really blowing, it's not the turbines you can hear, for example. So there's noise experts that look at a lot of these things, but usually the main source of auditory impact is going to be the closest wind turbine to you. Then they look at the second one and that usually adds three decimals. But for the most part, that's what you want to know. So they need to know exactly where you are to answer your question.

CARRIE VASQUEZMARTE: Okay.

TEGAN KONDAK: We can look at the map together, but no resident is within the fifty decimal noise.

MARK SWEENEY: The town's law set a standard that the noise levels can't exceed fifty decimals at the exterior of any residence. We studied that to make sure all the turbines, the substation and all the other components, that there's no levels above fifty decimals at any residence. So that is step one. The DEC also has a guide on how to assess noise impacts. That's all been discussed and analyzed in the noise report. That looks at how much it changes over the ambient level. We

are in compliance with that as well. 1 2 CARRIE VASOUEZMARTE: Okay. 3 MARK SWEENEY: So it's a very good question you 4 asked. Very important, but it is something 5 that's been looked at thoroughly and we will be 6 happy look at your specific questions. 7 TODD JOHNSON: Ma'am? 8 ROSEANN MOHNEY: Hi, my name is Roseann Mohney and I received a notice for this because I live up on 9 10 Stebbins Road. I am going to be a ways away from 11 the turbines, but I want to know what the impact will be that more outlying areas have received 12 13 this notification. And then secondly, you 14 brought up fifty decimals. What is that equal to 15 that we would understand? 16 DAN BOYD: A refrigerator in your kitchen. 17 MARK SWEENEY: I'm not sure what the conversation 18 level is, if you remember? Forty-two to forty-four decimals is a common conversation. 19 20 I'm projecting my voice right now so I'm a little above that. So a normal conversation in your 21 22 house is about forty-two to forty-four. So the reason the notices had gone out that far is the 23

town has an extensive notice provision in its law that anywhere around specifically the wind overlay district, if you're within fifteen hundred feet of that you get a notice for this meeting. It doesn't necessarily mean there's anything near you, it just means you fall within that basket. It's quite an expansive notice provision. So your town was doing a good job.

ROSEANN MOHNEY: That's great, but how will that affect property or our life, you know, as it goes on every day?

MARK SWEENEY: Property values were studied and there's a study in the application, which is another requirement this town has in its law.

Basically, as Dan answered a little bit earlier, the studies have been reviewed and found there's really no negative impact on property values at all. There's some studies that suggest because of the increase flow of money into the community which lowers taxes and creates jobs and creates spin-off benefits for business, that can actually make it a more attractive place for people to come and live, which can elevate the property

value. That's the way the studies have worked.

And then as far as impacts to the community, that's also studied in the Supplemental Draft Environmental Impact Statement which was done as well as the application. And basically what you're boiling it down to is the visual impact. You'll see the turbines. So the visual points are assessed with photo simulation, facts and studies done. By all means, I can't answer your question specifically to your home, but the information is available.

ROSEANN MOHNEY: So it's more of a visual impact at that distance?

14 MARK SWEENEY: Correct.

TEGAN KONDAK: You said you're on Stebbins Road? So you're on the northern end of the project boundary. So the turbines are actually pretty far south from your property. It's more of the switch line that bumps it up from the 115 KB line that Dan was talking about to the main line along the 90 and then the transmission line through the area.

ROSEANN MOHNEY: Where is that station that bumps up

the area? 1 2 TEGAN KONDAK: You can come here if you want. on the edge of the picture. 3 4 ROSEANN MOHNEY: So the actual bump up station -- I 5 can talk to you about that after. Okay. Thank 6 you. 7 So now back to the decimals. TODD JOHNSON: 8 fifty decimals? 9 MARK SWEENEY: Correct. 10 So, you know, just as a question to TODD JOHNSON: 11 you, maybe you may know the answer, maybe you don't, but when you have a semi coming down the 12 New York State Thruway getting off the exit and 13 14 they hit their Jake brake, what is the decimal 15 limit level on the New York State Thruway? 16 MARK SWEENEY: I don't know if there's a specific level on the Thruway. Those standards for trucks 17 are set. The DOT probably controls that and it's 18 more than fifty. 19 20 TODD JOHNSON: Because if you get off in Hamburg 21 there's a sign that says not to exceed ninety 22 decimals. So if you put that into perspective, 23 Roseann, a semi with a Jake brake slowing down,

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you're about eighty-five decimals.
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   DAN BOYD: A refrigerator is fifty.
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   TODD JOHNSON:
                   Just putting it into perspective when
       you're talking about decimals. Mr. Wooley?
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   MARK WOOLEY: Mark Wooley. Tonight I'm here for the
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       cemetery board for Pioneer Cemetery.
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       understand you have a transmission line going
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       through that area. My question is, how is the
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       transmission line going to be put in and where
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       would that be in effect on the cemetery property
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       itself?
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   DAN BOYD: Would you be able to help us understand
       where that cemetery is? I'm not familiar with
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       it.
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   MARK WOOLEY: Sure. It's coming right outside the
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       village.
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   TODD JOHNSON: All set, Mark?
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   MARK WOOLEY: Certainly.
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   TODD JOHNSON: Thank you. Ma'am?
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   JUDY PHILLIPS: Judy Phillips, Silver Creek, South
       Dayton Road. I'm a resident of Villenova.
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       been following this project since 2008.
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       been on both sides of the fence. As a landowner
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that was approached for a lease back in '08 and I've also been to the largest turbine project in the state up on Tug Hill, I've been to Madison and I'm opposed to this project and yet I understand why a lot of people would be in favor of it. It is hard to argue against the type of PILOT payment and the type of money that could come in to both Villenova and Hanover, but I have some questions that I've been waiting since February to have answered. Will the rotation of the blades affect over-the-air television? it interfere, will it eliminate them and how will you mitigate it other than setting up a complaint line? DAN BOYD: We have answered that. Not only in the study --JUDY PHILLIPS: I read it. DAN BOYD: -- but in the last hearing and just already this evening. The study showed there would not be adverse impact and if there was adverse impact we would mitigate. We are not certain what that mitigation is until we know

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what the issue is.

MARK SWEENEY: Excuse me. Also, so you know, all of the answers to those questions because you're talking in February. You're talking about the hearing on the Supplemental Draft Environmental Impact Statement. All of the comments from that, all of the comments from the Villenova hearing, all of the comments from this hearing will be summarized and answered specifically in the final Environmental Impact Statement. So we've tried to give you answers during these hearings so you have information, but they will be formally responded to in the Final Environmental Impact Statement.

JUDY PHILLIPS: I see. All right. What about interfering with NOMA? That will also -- because I haven't read anything and I have, you know, the communication papers right here. In fact, if the gentleman there would like to see. These are all in these binders that are available behind to every person here that are in your town clerk's office.

DAN BOYD: That is being responded to in the FEIS, but it's nothing new. We all have seen this

happen, the interference the projects show on the 1 weather radar and so many other areas in the 3 There is potential for that, but we all understand when we see that it looks like it 4 5 could potentially be raining in small areas 6 around the Bliss Project --7 JUDY PHILLIPS: What about snow? I mean --8 DAN BOYD: You do see a difference, but it will be answered in the FEIS. 9 10 JUDY PHILLIPS: Since you haven't updated your 11 numbers from the 2008 Noble Project on the number of construction vehicles that it will take for 12 the construction phase and also the number of 13 14 vehicles to bring in the crane and the turbines, 15 I had to estimate it. So would I be correct in 16 stating that it will take about twelve thousand 17 three hundred roundtrip loads for just the gravel and soil removal for this project? 18 19 DAN BOYD: I don't have those numbers. 20 DANIEL SPITZER: The numbers would not be the same in 2008 because --21 22 JUDY PHILLIPS: I am aware of that. That's half of 23 what was in '08.

MARK SWEENEY: Just so you know in connection with those trips, one of the things we are obligated to do with the towns, both towns, is to enter into agreements to protect the roads. We have to identify the roads that we're going to use, which we've done. We will then have to once before construction commences is assess those roads with both photographs and video to determine their current condition and suitable. Identify areas that need to be improved to accommodate those trucks and then also maintain them during the construction and then at the end of the construction make sure they are in suitable condition. If we have to change a turning radius or something like that for a truck to make a swing, we'll remove that. So all of that. trips that are there, yes, they are what they are, but there's provisions both towns will require to make sure your roads remain passable and safe during construction and then at the end of the construction stay in a suitable condition for future use.

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JUDY PHILLIPS: I read somewhere that the average

warranty on a wind turbine is two years and can be increased up to five years and that the likelihood of equipment failure increases in later years of the project. Is this true? DANIEL SPITZER: It depends on the project and the developer. We don't generally ask proprietary information. I can tell you that projects I've worked on all have warranties and then they have insurance products. So think about who's got the It's the bank. And the bank is most involved. going to have a warranty or an insurance product in place for the entire life of a loan. the second people who are involved? Usually a pension fund for a long-term investor. Again, there's going to be an insurance product or a warranty involved for the life of the project. They don't produce any money if they break. of things break. Steel Winds Project, when that was put in it was a company out of -- out of It was the first American Clipper, out of Iowa. wind turbines built. They literally bought turbines number two through nine. If you read the IPO that was put out, the first one, they

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said that was a great learning experience because all of them basically broke. The generators had gears that didn't match and they all literally Then the blades, which came from burnt down. Brazil I think in that case, fell apart. They had a really good start. So the company had A, insurance on the generators and turbine. had insurance on the blades and they had business interruption insurance to pay for the money they lost. And the project was rebuilt literally. Steel Winds is sort of sort of a second generation of those turbines because they all got rebuilt and doing fine. They are all up and running and doing well.

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MARK SWEENEY: The other thing I'll also point out is that like any other significant capital project, if you have a power plant that's powered by gas, that's going to need maintenance and it's going to need updating and need parts to be replaced. Same would apply here. This will be maintained, it will be improved. If a windmill is not working, as Dan said, it will have to be replaced or repaired. It doesn't do anybody any good to

leave it sitting doing nothing. And ultimately if it was left sitting doing nothing there's a decommissioning plan in place that the first obligation is on the developer to remove them if they're not being used. If they fail to do it there's a bond in place to allow the town to do it itself.

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DANIEL SPITZER: Without getting too much into the mechanics, if you get on the internet it can tell you the actual number of parts, moving parts, in a turbine is actually significantly reduced over the years as technology has gotten better. more is done with magnets now as one of the ways they've actually built up the speed of these turbines. Not so much by just gear boxes, but also by the way the electromagnetics work. of what they've done has actually reduced it. think if you look at the trends of the industry, the industry, AWEA or the Energy Information Administration, you will see the trend is actually repairs in the industry towards the newer turbines, these are obviously state of the art whatever goes in, are having actually fewer

repairs and lasting longer in terms of the older ones. If you go out to California and go out to that Tehachapi and also over by I10 --

DAN BOYD: Palm Springs.

DANIEL SPITZER: -- Palm Springs, those were all put in in the middle of the eighties and most of them are still running. Those are literally dinosaurs of the industry. These things are pretty strong. They stand up pretty well and the trend is also towards less and less problems and less and less maintenance.

DAN BOYD: And just to clarify, again, we are talking about Vestas turbines here. They are the world leader in wind turbines. More deployed than any other company. We are not talking about a start up. We are talking about the one that will continue to go.

DANIEL SPITZER: Actually, that's a good point. If
you want to see Vestas turbines at work, most of
the turbines that are in the North Sea, pretty
much one of the most violent bodies of water
there is, those offshore turbines are all built
by Vestas out of Denmark. If you go to

Copenhagen between the airport and Sweden there's 1 2 a channel where a lot of shipping goes through and there's a whole line of Vestas turbines in 3 Most of the offshore ones that deal with 4 there. 5 much rougher conditions. One of the reasons why 6 the onshore ones are tougher these days because 7 they've gotten better and better as they've had 8 to deal with much worse conditions of offshore. 9 JUDY PHILLIPS: Okay. So these are a hundred and ninety-one feet taller than the Statue of 10 11 Liberty. I've learned about something called accelerated depreciation which, correct me if I'm 12 13 wrong, which means that wind project, wind 14 turbine companies, can write off the value of 15 their equipment on their financial balance sheets 16 over five years rather than the typical 17 twenty-year lifetime of the project. Does this mean that companies sell to another company and 18 -- yours is also a BOP Company, right? 19 20 DAN BOYD: We do do the Balance of Plant 21 construction, yes. Right. 22 JUDY PHILLIPS: 23 DAN BOYD: Just for everyone else, Balance of Plant

means we don't build wind turbines, but we build everything else except for the wind turbines. We install the wind turbines but we don't assemble them. We don't manufacture them.

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JUDY PHILLIPS: Is it common in the industry because of this accelerated depreciation that wind companies sell frequently over a five year period --

DANIEL SPITZER: If you have a tax equity deal and some of the deals with tax equity depends on whether the company has profits or whether they may have traded for cash so they don't have to borrow the money. One of the tax benefits is the accelerated depreciation. And yes, what they do is set up what's called a corporate special purpose vehicle. So it's like an entity and then the company that buys the tax benefit becomes one of the owners of the windmill farm. So they could be any sorts of company. When wind farms were first built in New York, when Dan and Mark were first starting out and I was, they were all put up for finance. The tax equity investor was always GE Capital and then the recession hit and

GE Capital ran out of profits. So in a more recent tax equity deal, did one in Wyoming County where it was Wells Fargo's hedge fund and a union bank with a hedge fund. So entities that have taxable income and, therefore, need or have a capacity to buy the reduction in federal taxes. This is all federal taxes that we are talking And, yes, accelerated depreciation that the government makes available actually for a wide range of assets. You know, most of us if you have -- a good example is, do you know what If you're in a business and you Section 179 is? have a cell phone, you can write off your cell phone the year you buy it. You don't have to That's a Section 179 deduction up depreciate it. to a certain dollar amount. That's another form of accelerated depreciation. And, yes, that is one of the tax credits the company would use or would sell to a partner in their venture. One thing I would also add is any MARK SWEENEY: company that would buy the project at any point would be subject to all of the requirements,

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conditions and agreements that are part of the

permits and agreements entered into by this 1 2 developer. The laws of this town specifically 3 require it. If they are going to sell it out to 4 another party they have the obligation to come to 5 the town, notify them and then go from there to 6 make sure the company taking over the project can 7 maintain and adhere to all of the conditions that 8 were set forth in the agreements and the permits. DAN BOYD: And we can talk about this more after if 9 10 you want. 11 TODD JOHNSON: Thank you. Sir? 12 DOUGLAS BUNKER: Douglas Bunker. We own a hill. 13 it not true that any successor company that 14 acquires this property would have the same 15 bonding requirements and same all other 16 requirements? 17 DAN BOYD: Yes, sir. 18 DOUGLAS BUNKER: And in one sense it's not 19 substantial whether or not you sell it to another 20 company or not? 21 DAN BOYD: Correct. 22 DOUGLAS BUNKER: We still have the same guarantees 23 and the town does?

1 MARK SWEENEY: Correct. 2 DOUGLAS BUNKER: One of the things I am reassured by 3 is the fact that you're using the latest technology, that the density of these turbines 4 5 will be much smaller and that essentially no one 6 is going to be confronted with some dense array 7 of turbines staring them in the face. 8 all guaranteed to be far removed from a 9 residence, but in addition to that, the increased capacity of the turbines and fewer number of them 10 11 leaves us with no concern about the aesthetics. At least leaves me that way. Finally, the last 12 thing is I never baked a cake, but I'm told that 13 14 you can't bake a cake without breaking eggs. 15 a little disruption with construction doesn't 16 seem to be a big factor for me. 17 TODD JOHNSON: Sir? 18 DENNIS RAK: My name is Dennis Rak, R-A-K. First of all, I would like to commend everybody for coming 19 20 to this public hearing and expressing your opinion. We learned yesterday that happened. 21 22 Anybody can do it. I'm glad everybody here is 23 doing that. I would like to voice my support for

the project. I think that all the obvious benefits have been stated both financially and environmental. It's hard to overlook those types of things. Nobody wants to see a windmill. love windmills. I put them up at my own property. I think it's great. I have a fifty turbowatt turbine I power most of my business with. Some people find them offensive and nothing we can say today will change how someone feels. From our standpoint we have to get energy from somewhere. If they want to put a nuclear plant there this would be a bigger group right now and it probably wouldn't happen. know, what are alternatives? We need to take advantage of our assets. We have a wind asset It's going to bring money into the community. I don't see the negative.

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You mentioned windmills off of Denmark. I had a chance to go to Denmark a number of years ago on a business trip and I saw those in the North Sea. They are impressive. I visited a farmer in Denmark and he had multiple turbines on his property and he cropped and grew grain and

other biomass crops in between the rows of the 2 windmills. It's a great fit in the rural 3 community to have agriculture and wind production 4 in the same place. These are the things we need 5 We need to take advantage of what our to do. 6 assets are. Again, I would just like to voice my 7 support for the project. 8 TODD JOHNSON: Thank you. BILL EACKER: Bill Eacker from Dennison Road. 9 First I'm a commercial 10 I'm going to make a statement. 11 I fly airplanes and helicopters. are medical helicopters in this area that are VFR 12 13 only. What is your maximum tower height going to 14 be? 15 DAN BOYD: We are below five hundred feet. BILL EACKER: 16 But what is it going to be? 17 Four ninety-two. DAN BOYD:

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18 BILL EACKER: Four ninety-two. Add a thousand to 19 That's about fifteen hundred feet. that. Every 20 air medical operation in this area relies on VFR 21 operations only. They can't fly under clouds. 22 FAA regulations in a concept of aeromedical

helicopters in a crash rates what they have,

which is very dangerous, especially doing VFR. They come up with a program where you do a thorough map recognizance. When you go to an accident scene -- when you go to an accident scene, what's the quickest way for you to get there? Line of sight. Point A to B. If you look at these towers in both areas and where the helicopter is located, WCA Hospital, they have to raise their weather minimums a thousand feet VFR. That's going to slow the response times. It may not even allow them to take off because the clouds are too low based on these new man-made Think about that when someone is obstacles. laying on the side of the road. We can't go because, you know what, the weather says it's not good enough. You have to go by ambulance or circumnavigate. Someone is going to get hurt. That's all I have to say about that. I've had to fly around some windmills. Not pretty.

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Another question I have is, when the project is finished how many jobs are going to be required just to maintain the project? Those are the real jobs you're really talking about that

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you're going to create. The construction jobs,
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       they're going to be here and then they're going
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               But when these obstacles are up, how many
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        jobs are going to be used to maintain them?
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       That's all I want to know.
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   DAN BOYD:
               I think I mentioned the jobs earlier.
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       It's about six to eight jobs for the wind farm.
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        I would like to stress the construction jobs
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               I don't think anyone minimizes those
       again.
        jobs.
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   BILL EACKER:
                  That's another thing.
                                         How many jobs
       did we lose at Petri's, Rem-Tronics?
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                                              And this is
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       going to create six or eight jobs.
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    TODD JOHNSON:
                   Thank you, Bill.
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    BILL EACKER:
                  You're welcome.
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    TODD JOHNSON:
                   Sir?
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    ELLIOT JIMERSON: Yeah, my name is Elliot Jimerson,
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       J-I-M-E-R-S-O-N. The idea of these jobs, you
       need to -- I'd like to look at a more broad
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       perspective. Yes, the construction jobs will be
       for a short period of time, but the money that
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       comes into the area -- if people have more money
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        in their pockets, they're going to have more jobs
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because if I have a lot of money I'm going to hire people for jobs to do things around the yard, whatever. You can't do anything if you have no money in your pocket. So when it brings money into the area it produces jobs in this aspect. The idea that the windmills themselves produce jobs for a short period of time, but the money coming into the area will then create the The town will be able to buy better snow iobs. plows, more snow plows, more drivers because they are probably operating on a very minimum amount of employees right now. Because the reason why I know some of this is because we weren't always very wealthy. We were kind of poor. I never came from no wealthy silver spoon family, that's for sure. I had to work real hard. thing is, when money does come into the area it produces a lot of jobs.

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I'm a member of the Seneca Nation. We found a way to bring money into our area. We produce a lot of jobs. Not the idea of just construction and then the jobs aren't there, that's not necessarily true. If a human being has money

then there's going to be people working. That's all.

TODD JOHNSON: Thank you, sir. Who hasn't spoken yet?

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PAUL FICKELSCHERER: My name is Paul Fickelscherer, F-I-C-K-E-L-S-C-H-E-R-E-R. I live on Route 39 where this project is proposed. There would be a windmill on three sides of my property to the east, south and west. I'm totally against this project on many different levels. First of all, I can't see where it would bring any benefit to the town in lieu of taxes or these -- excuse me for being nervous. But they are coming in with state subsidies, federal subsidies and they are not going to pay any property taxes. I don't understand how they can put up millions of dollars in windmills and not be assessed any tax These windmills, as I am told, they cost on it. a couple million dollars a piece and they produce a couple million dollars of electricity a year. Do you see how bad you're getting burned for the money? The average savings on a tax payer in this town will be maybe ten dollars. I'm willing

to pay an extra twenty dollars on my taxes to not see these windmills brought in for the impact it will have on the nature alone. Having eagle nests within three thousand feet at the end of this reservoir to where they are constructing, it's like a half a mile from the eagle's nest. That's one of our, I would say, one of the best assets of this town with nature. In the area they are putting it in there's bear, bobcat, It's a major area for birds because of hawks. the lift from the air on the lake. I watch the eagles circle above my farm all the time. catch the wind come up. I can't believe an Environment Impact Study wouldn't have something to do to keep these windmills out of here. fact is you're saying it's going to bring all this money, it's not bringing nothing. going to save a few bucks on each person's taxes.

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The worst thing about it is the health effects. I have a paper I would like to read that has to do with the health effects on this. After doing some research I found an article in the Hearing Health and Technology Matters called

Wind Turbine Noise and Human Health. It was written by Jerry Punch, Ph.D. He's an audiologist consultant in areas related to community noise. And Richard James, INCE, BME, who works at Central Michigan University Department of Communication Disorders. He's an acoustical consultant with over forty years of experience in industrial noise measurement and The article states that emissions of control. infrasound, sound which is not normally heard by most human listeners, and low frequency noise by industrial wind turbines has an adverse health effects on humans. These health effects include stress, trouble sleeping, headaches, dizziness, nausea and motion sickness. Wind turbine noise has unique acoustic characteristics when compared to other environmental noises, which include low amplitude modulated and intermittent occurrences To prevent adverse health effects of tone. scientists have recommended that distance separating turbines and residence be two and a half miles or more. Multiple families have abandoned their homes to escape industrial wind

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turbine noise exposure. There's enough scientific evidence to warrant setting turbines at this distance to avoid some harmful effects which can occur in a substantial percentage of population. It is unacceptable to consider people living near wind turbines as collateral There's been plenty of people reporting sickness, headaches and just other adverse health effects from these windmills that are going right now in the Wyoming County ones and these are the same products. I can't understand how the regulations -- these people can come in and say we are going to raise it another eighty feet -you know, seventy, eighty feet and by the way, we're going to double the turbine size. effects from that infrasound off of these turbines being twice the size is going to be twice the impact. You say, oh, we double the size of the turbines, you're going to be living -- we are going to be living under an electric field created by these. It's an industrial -- I want to say it's a power project over three hundred feet over our head we are

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going to be living under. You can pick up the electric magnetic radiation. They pick up on You can see it. If you watch the six o'clock news and Don Paul will say this, over here that's just the wind turbines, the electric coming off them. It's not something make believe. People come down with migraines and all other kinds of things. I don't understand how this can even -- why they think this was a good idea. Maybe if they look so nice in the water, put them out over Lake Erie. I don't care. should be protecting our bald eagles, the nest The windmills won't kill them, but they there. will abandon that area there. You won't see that. Would you like to address anything I've said?

17 DAN BOYD: If that's okay?

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18 | TODD JOHNSON: Go ahead, Dan.

DAN BOYD: I think every one of those points are absolutely addressed in the studies by experts in all the fields. The wildlife studies have been going on prior to 2008, including many bald eagle and raptor surveys. The nest is about a mile

from the closest turbine? I'm not an expert in that. We can get you more information and walk through the studies.

PAUL FICKELSCHERER: Not with me, other people.

DAN BOYD: We are engaged with the DEC as well as the U.S. Fish and Wildlife on these issues. We are currently having great conversations. They see this as a mitigation to other potential things that would impact wildlife and birds and eagles and raptors much more adversely.

Along with infrasound, it is also studied. The study that you cited as well as another NASA study that's been cited before, talks about infrasound in commercial and industrial applications. It talks about a specific decimal level at which infrasound at a certain frequency -- and I'm not going to say the exact numbers because I'll get them wrong -- but they are in the studies in the Environment Impact Statement. But this project and the wind turbines and wind turbines used on this project are well below ten decimals below the lowest level at which any adverse effects would be seen

from infrasound. So it has been studied. 1 Even 2 to the report that's cited there on the NASA 3 report that's been cited in other ones, it's below those levels. So we need to make sure when 4 5 we are looking at data and information and 6 reports, that we look at the whole thing and 7 don't just take the pieces we want to see. 8 top of that, the last part about the EMF or electrical radiation, that is not a fact. 9 These do not emit electricity into the air and things. 10 11 If you do see that on the radar, that's the radar picking up the wind turbine blades that go 12 13 around. Radar senses particles, things in the 14 air. Physical actual things. PAUL FICKELSCHERER: It picks up the 15 16 electromagnetic --17 It gets rain, it gets clouds because DAN BOYD: 18 that's a physical thing there, water droplets. 19 Wind turbine comes around and it sees that. So I 20 want to make sure we are looking at the full --Taxes in the beginning, where you guys 21 COLIN ERDLE: 22 aren't assessed for taxes like all the other 23 property owners?

DAN BOYD: So taxes, we are paying a tax that we do
negotiate. We negotiate with the town, we
negotiate with the county to pay the tax just
like any business, any commercial entity that
comes into a new area. It's the way it works so
that you can make a project happen that might not
happen otherwise.

MARK SWEENEY: We were discussing earlier the eighty-six thousand annually that will be paid to the town, that's in the form of what they call a payment in lieu of taxes, a PILOT payment, which is that payment to reflect the monies coming in. It goes to all the taxing jurisdictions, the school districts, the town and county and it's split up according to that agreement. In addition, there's also a host community fee that's paid to the town on top of that PILOT payment. And that's not shared with anyone, that's direct to the town.

COLIN ERDLE: Does that come from federal grants or state grants?

MARK SWEENEY: No, it's from the company. They can't get any of those. Those are called tax

incentives and credits. The only way they get 1 those tax credits is if the turbine is turning 2 3 and creating revenue. So then that offsets the tax that would be created from that revenue. 4 5 It's not actual money handed to them to build a 6 project. 7 TODD JOHNSON: Mr. Rodney? 8 JOSEPH RODNEY: Really quick. Just one thing about 9 Every day I go through a gauntlet construction. to bring money back to your county. I work in 10 11 Niagara Falls, Batavia, you name it. I bring money back here to spend it. Hopefully I can get 12 to work on these windmills if they do happen. 13 14 That's the nature of construction. There's a lot 15 of us around here every day as construction 16 workers that bring money back here. 17 TODD JOHNSON: Paul Duck? 18 PAUL DUCK: My last question is, when this project is complete, do you have a buyer in place for the 19 20 power that's produced? 21 DAN BOYD: So we do not have a buyer at this point. 22 We are still a little ways from doing that. 23 Obviously we're still permitting at this point.

We are in a number of different conversations with potential buyers.

TODD JOHNSON: Mr. Golumbeski?

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GREG GOLUMBESKI: I have a property on 39 next to Paul. I've done the same thing as most of you, a lot of studying, a lot of background on the internet, talking to people. Granted, okay, it's not going to bring a lot of jobs in. The people that have the wind turbine or have a substation or whatever power line going through, whoever is subsidizing in this room, it's a natural habit that if you make more money, you spend more money. So if I make more money every year I'm going to spend more money. They are going to pay more taxes on these so people will benefit. Maybe the Town of Villenova will get a new ambulance. Maybe you will get radar so you can fly over the turbine or something that works for Granted, it's probably really expensive, but over a long-term period I guess we all signed on for or are trying to sign on for. You know, over the long-term it's going to make a difference. Any little bit helps. Every single

one of us and even everybody who lives in the counties of Villenova and Hanover it's a proven fact; the more people make, the more they spend.

That's all I have to say. Thank you.

TODD JOHNSON: Thank you. Sir?

ALLEN GAGE: My name is Allen Gage and we have a family farm up on 39. I want to start by saying that's a very nice picture you have there. I am valedictorian of my class and went on to further educate myself for environmental science at college and all their research behind everything is spot on. They've done study after study and there's literally nothing I can personally see wrong with the project. They are doing a phenomenal job. For people worried about aesthetics, I'm just looking around here, I feel like I'm going to be looking at these things longer than most of these people, no offense.

I think they are wonderful to look at. We have a family up in Pike and Bliss, New York.

Nothing bad to say about it. They say hunting is better overall, there's more deer. So there's really nothing I can say wrong about them. They

did a study with birds where they took a flock of pigeons and they let them loose a little distance away from the blades and instead of flying into the blades and getting sliced, they flew around the blades. That shows you they are not just going to die. Like the bald eagle, they know their surroundings. They're not just going to go. They lived there for so long, they're not just going to fly away. I can't say anything bad about these things. It wouldn't make sense for you guys to vote no on them. It would help the economy in this area so much. That's about it. TODD JOHNSON: Thank you young man. Anyone else wishing to be heard this evening? JIM BOCK: Jim Bock, Hanover Road. B-O-C-K, like the Does the Hanover section hinge on Villenova getting theirs passed? DAN BOYD: We see it as one project. It would be -they both work with each other. JIM BOCK: And even if Hanover did not want theirs, would that still allow the transmission lines to go through because that would be a lot lower. You wouldn't have to change the height.

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1 DANIEL SPITZER: You know, transmission lines by themselves when the project in another town 3 generally get regulated by the public service commission rather than by the town. Like when 4 5 National Grid is putting in new transmission 6 lines. So if you have a project in the other 7 town like we are dealing with in the Cassadaga 8 one, Stockton is getting the switch yard, so 9 they're not really involved in the project. So it's a different set. If it's truly transmission 10 11 as opposed to distribution lines, as I understand -- I'm only really an expert on the 12 part I wrote -- it would not be considered a wind 13 14 facility. And so generally it would be 15 considered what's called an essential public 16 service. And generally, put it this way, it's 17 very tough to say no to essential public service. Eminent domain? 18 JIM BOCK: 19 DANIEL SPITZER: No, eminent domain, that is totally 20 Eminent domain is when someone takes different. your property. That's if they don't have a 21 22 right-of-way. The town has nothing to do with 23 that.

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   JIM BOCK: They have to have right-of-way for the
       transmission?
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    DANIEL SPITZER:
                     Right, but assuming they had the
       transmission lines whether the project was in
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       Hanover or Villenova, assuming they had the
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       right-of-way, your question you asked was who
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       gets to approve it. What I'm saying is
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       transmission lines, if this products not in town,
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       generally the public service commission --
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    JIM BOCK:
               Well, I'm for it is what I'm saying.
                                                      The
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       transmission lines would still be able to go
       through even if Hanover did not approve, correct?
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   DANIEL SPITZER:
                     That's correct, sir, but what I
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       emphasize too from what Dan said from day one
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       when I was retained by the two towns, this has
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       always been viewed as a joint project.
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       towns have been working together now for ten
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       years.
               Because the majority is actually in
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    JIM BOCK:
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       Villenova of the windmills.
                     Yes, sir.
21
   DANIEL SPITZER:
               Would it be viable without Hanover?
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    JIM BOCK:
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   DANIEL SPITZER:
                     No, sir. It's not -- well, when I
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look at a project on behalf of the community, it's not my job to look at whether it's financially viable. It's my job to assist the town and evaluate the impact and assure the town is protected to the maximum extent. So I don't look at things like whether or not something is viable because -- you know, if you came to town to say I want to open up a business to compete with McDonalds, the town board doesn't have the right to say we think you're nuts and, therefore, we are saying no. You have a right to conduct a What the town board does do is it business. passes zoning and other laws to protect the community and to regulate what happens within the community and that's what I assist with. TODD JOHNSON: Thank you, Dan. Yes, ma'am? CHRIS SOMMER: Yes, my name is Chris Sommer, S-O-M-M-E-R. I'm up on Route 39. Is any of these here going up on Route 39, the windmills? I thought that's what I heard. DAN BOYD: All south of 39 but some relatively close to it. If you want to come up you can look close.

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1 DANIEL SPITZER: After the meeting, Mr. Supervisor, if anyone wants to come up and show Tegan and Dan 3 where your property is they will be able to show 4 you where the windmills are and all those things 5 to your specific property. You're kind of a 6 distance away so don't hesitant to ask 7 afterwards, here's where I live. mentioned earlier, it's a very expansive public 8 9 notice provision. 10 CHRIS SOMMER: Because I'm with that gentleman there. 11 I'm against them. Look at Bethlehem Steel Plant. At the time it brought in a lot of jobs. 12 13 people are very sick now. We don't know what 14 these are going to cause years down the road. Ιt 15 won't be in my lifetime but it will be in my 16 children's lifetime. The more of these that go 17 up, the more dangerous they are to the public. 18 mean, if Villenova needs the money, then great. Locate them in Villenova. But I just -- and I 19 20 don't appreciate having to look at them. I don't 21 think they are pretty. 22 DANIEL SPITZER: Ma'am, may I ask you a question? 23 CHRIS SOMMER: Sure.

- 1 DANIEL SPITZER: What did you mean by the people are
- 2 sick in Lackawanna?
- 3 CHRIS SOMMER: No, I'm saying from the steel plant.
- 4 When the steel plant was going everybody thought
- 5 it was great jobs and everything. People were
- 6 making a living. That's terrific, but now that's
- 7 all over with there's many sick people.
- 8 DANIEL SPITZER: I understand. I appreciate you
- 9 explaining that. Thank you.
- 10 | TODD JOHNSON: Thank you. Anyone else wishing to be
- 11 heard? Yes?
- 12 EILEEN BATON: Eileen Baton, B-A-T-O-N. I live on
- 13 Dennison. When is the public comment period
- 14 going to be closed?
- 15 | TODD JOHNSON: When everybody is wishing to have been
- 16 heard.
- 17 | EILEEN BATON: It's not like thirty days because they
- 18 are obviously going to do a final EIS?
- 19 TODD JOHNSON: Yes.
- 20 EILEEN BATON: When is the last day before the final
- 21 EIS?
- 22 | TODD JOHNSON: At this point we have to close our
- 23 public hearing, then there would have to be a

point where we have to approve certain things that are happening this evening based upon the public hearing, based upon public comments, either yes or no, with any action being taken on anything in relevance to the Ball Hill Wind Project. At that point that probably would not even be as early as our next regular board meeting on November 14th. That's the purpose of having a public hearing, to listen to the pros and cons, to review, research, go back to all the people involved to get the answers. Colin Erdle. Will you be releasing the COLIN ERDLE: data on when the public hearing is going to end? Absolutely. The public hearing ends tonight, okay. It's a matter of when the action is taken upon the three proposals that are

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TODD JOHNSON: Absolutely. The public hearing ends tonight, okay. It's a matter of when the action is taken upon the three proposals that are brought forward to us tonight for the public hearing; which is the minute application for the Ball Hill Wind Project, it is also for proposed local law to increase the height from four hundred twenty feet to four hundred and ninety-five feet and it's also for the proposed local law to create a wind overlay zoning

district for this project. So, I mean, there's 1 2 several things that have to be looked at. 3 the public hearing tonight is to get public 4 comments based upon questions that need to be 5 entered by all of the residence here tonight. Αt 6 that point we do our research back with the 7 companies and then we also make a time frame 8 where we are going to make a determination on how 9 we are going to approve any or all three of those 10 proposals. At that point that will be publicly 11 notified within our local newspaper, which is The Observer, and also announced at a town board 12 meeting for action that would be taken in the 13 14 future. 15 EILEEN BATON: Another question. For the wind 16 overlay district, does that mean you can build a 17 windmill anywhere in that district? 18 DANIEL SPITZER: Mr. Supervisor, with your 19 permission? 20 TODD JOHNSON: Yes, Dan. Part of the application is a special 21 DANIEL SPITZER: 22 use permit which would list the permits of the 23 So if you create a district that terms all out.

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just means you get past the first layer of
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       approval.
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                   Then you have to have a permit with
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       the specific turbine. If the board were to
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       approve the special use permit, if would list the
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       location of the turbine and what turbines were
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       approved. So no turbine that's not in the
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       proposal -- in other words, no turbine that
       hasn't been studied would be allowed in this
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       process.
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    TODD JOHNSON: And that would be a separate article
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       within the town also. Ms. Sommer?
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    CHRIS SOMMER:
                   So there won't be a vote where people
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       can vote yes or no and a majority?
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    TODD JOHNSON:
                   There's five people that vote and
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       you're looking at them right now.
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    CHRIS SOMMER:
                   So what we think isn't going to
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       matter?
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    TODD JOHNSON:
                   No, what you think does matter.
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       That's how we base our decision.
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    EILEEN BATON:
                   But not everybody --
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    TODD JOHNSON:
                   That would be correct. There are four
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       deciding votes up here with myself being the tie
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       breaking vote. We also all get e-mails and phone
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calls from people in the community giving us
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       their opinion as well that we weigh in on.
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       ma'am?
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   MARIANNE STAWITZKY: Marianne Stawitzky,
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       S-T-A-W-I-T-Z-K-Y, Allegany Road, South Dayton
6
       actually. Will we be allowed to send letters to
7
            I'm not good at speaking but I would like
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       my opinion to be heard. Can we address a letter
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       to you?
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   TODD JOHNSON: Absolutely.
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   MARIANNE STAWITZKY: Is there a time limit on this?
   TODD JOHNSON: No, whenever you want to. We already
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       received over five hundred letters so far from
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       residence of both Villenova and the Town of
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       Hanover for and against this.
   MARIANNE STAWITZKY: Well, I'm very much against it
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       at this point. And where do I address them to?
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   TODD JOHNSON: Right where you came tonight; 68
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       Hanover Street, Silver Creek, New York.
   MARIANNE STAWITZKY: Anybody in particular?
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   TODD JOHNSON: Town supervisor or town counsel.
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   MARIANNE STAWITZKY: Can it be e-mailed?
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   TODD JOHNSON: You can do that too. Hanboard at
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1 Roadrunner dot com.

MARIANNE STAWITZKY: Okay. Thank you.

TODD JOHNSON: You're welcome. Anyone else? Okay.

With everybody wishing to have been heard and have been heard, at this time the purpose of the public hearing was for the Ball Hill Wind Energy Project on the amended application for a special use permit. Also the hearing is for proposal of the law to increase height restrictions for wind energy conversion system from four hundred and twenty feet to four hundred and ninety feet. And also the public hearing is proposed local law to create a wind overlay zoning district in accordance with Article 16 of the town zoning law entitled Wind Energy Conversion System. At this time I need a motion to declare the public hearing closed.

JANINE SALZMAN: We are still doing all three in the same public hearing as advertised in the paper.

TODD JOHNSON: That is correct. At this point all three items on the agenda for the public hearing is for one public hearing, which has been posted and published by our town clerk and that is also

on review at 68 Hanover Street, Silver Creek, New York.

TODD JOHNSON: Request a motion to declare the public hearing closed.

JANINE SALZMAN: When we're all done. We have two more to go.

7 TODD JOHNSON: Okay.

JANINE SALZMAN: The second public hearing will be on the maximum height change from four hundred twenty feet to four hundred ninety-five.

for the evening will be for the proposed local law to increase the height restrictions for the Wind Energy Conversion Systems from four hundred twenty feet to four hundred ninety-five feet.

It's the local law to amend Section 1508E3 in the zoning law in the Town of Hanover to increase the maximum height of any Wind Energy Conversion System, WECS, commonly known as a wind turbine or windmill. Be it enacted by the town board of the Town of Hanover as follows; section one, Section 1508E3, the zoning law in the Town of Hanover reads, the maximum total height preventing WECS

1 shall be four hundred and ninety-five feet. The third public hearing is to amend local law of the 3 zoning map of the Town of Hanover to create a wind overlay zone district be it enacted by the 4 5 town board in the Town of Hanover as follows; 6 section one, the official map of the Town of 7 Hanover is amended to add a wind overlay zone 8 district as shown on the attached map. would be all three, correct? 9 10 JANINE SALZMAN: Correct. Thank you, sir. 11 BERNARD FELDMANN: At this time, Mr. Supervisor, with everyone wishing to be heard, I'll make that 12 13 motion to close the public hearing. 14 LOUIS PELLETTER: I second the motion. 15 TODD JOHNSON: At this motion we have a motion by Mr. 16 Feldmann, seconded by Mr. Pelletter. All those 17 in favor? Opposed? At this time the public 18 hearing is now closed. 19 20 21 22 23

1 STATE OF NEW YORK) 2 SS: 3 COUNTY OF ERIE) 4 5 I, Lindsey L. Elliott, a Notary Public in 6 and for the State of New York, County of Erie, DO HEREBY CERTIFY that the proceedings in the above 7 matter were taken down by me in a verbatim manner 8 9 by means of Machine Shorthand, on November 9, 10 2016. That the transcript was then reduced into 11 writing under my direction. I further CERTIFY that the above-described 12 13 transcript constitutes a true and accurate and 14 complete transcript of the testimony. 15 16 LINDSEY L. ELLIOTT, 17 Notary Public. 18 19 20 21 22 23