

## 2.0 REVISIONS TO THE SEIS

One of the mandates of SEQRA is to prepare an Environmental Impact Statement (EIS) as early as possible in the review process. As a result, it is common for projects to change after an EIS is submitted, particularly in response to comments on the EIS. This FEIS builds upon the SEIS, providing responses to comments and, in this Section, addressing Project changes that have occurred since the SEIS was accepted as complete and released for public comment.

### 2.1 CHANGES TO THE PROJECT LAYOUT AND SCHEDULE

Subsequent to the preparation of the SEIS, development of the Project continued to advance. In order to provide flexibility for engineering and construction purposes, address feedback from participating landowners, and further reduce the potential for environmental impacts, the following modifications to the Project have been made (see Figures 1-16 of this FEIS, which correspond to Figures 1-16 of the SEIS and have been updated to reflect the final Project layout).

- *Alternate Wind Turbine Locations No Longer Proposed:* The Project layout presented in the SEIS included 37 proposed turbine locations as well as six alternate turbine locations. The 37 proposed turbines locations have been selected and all of the alternate turbine sites, as well as collection lines and access roads associated with these turbines, are no longer proposed (see Figure 3).
- *Minor Project Layout Shifts:* In addition to the removal of the six alternate turbines, some minor changes have been made to the Project layout since preparation of the SEIS. Several access roads and collection line routes have shifted slightly in order to reduce wetland impacts, avoid identified archaeological resources, reduce impact to agricultural land, accommodate landowner preferences, and align with shifted turbines. The final layout has 10.6 miles of access roads and 17.9 miles of collection lines. In addition, 11 turbines have been shifted less than 250 feet in order to ensure compliance with local setback laws (See Figure 21) and accommodate landowner preference. A comparison of the SEIS layout and the FEIS layout is provided in Figure 3. Turbine shifts are summarized below:
  - Turbine 1 has shifted approximately 162 feet southwest.
  - Turbine 3 has shifted approximately 3 feet southeast.
  - Turbine 9 has shifted approximately 87 feet east.
  - Turbine 13 has shifted approximately 30 feet north.
  - Turbine 18 has shifted approximately 1 foot north.

- Turbine 20 has shifted approximately 102 feet north-northeast.
- Turbine 21 has shifted approximately 249 feet east-southeast.
- Turbine 27 has shifted approximately 75 feet east.
- Turbine 28 has shifted approximately 37 feet north-northwest.
- Turbine 29 has shifted approximately 23 feet southwest.
- Turbine 37 has shifted approximately 242 feet northeast.
- *Additional Project Parcels:* There were 106 parcels totaling approximately 5,895 acres in the SEIS layout. Due to changes in the Project layout, additional parcels have been leased by the Applicant for hosting Project facilities or have established setback agreements. Likewise, some parcels originally included as participating are no longer hosting Project facilities or no longer require setback agreements. The result of these changes is a Project Site that includes 121 parcels consisting of approximately 6,190 acres (see Figure 1).

A revised schedule reflecting anticipated dates of permit issuance and construction is provided below.

**Table 3. Revised Construction Schedule**

Task	Anticipated Date	Timing Restrictions
<b>Pre-Construction Permits and Notifications</b>		
FEIS Submission to Co-Lead Agencies	02/12/16	-
Determination of FEIS Completeness	02/19/16	-
Road Use Agreements Approved County	02/08/16	-
Ten Day Period of Consideration of FEIS Initiates	02/20/16	10-Day No Action Period Required by SEQRA
Distribution of FEIS to Involved Agencies	02/23/16	-
Payment In Lieu of Taxes Agreement Finalized	03/02/16	-
Co-Lead Agencies Issue SEQRA Findings Statement	03/02/16	-
Towns Issue Wind Energy Permit and Approve Waivers	03/02/16	-
Host Community Agreement Finalized	03/02/16	-
Towns Issue Building Permits	03/03/16	-
Community Notice of Start of Construction and Publication of Complaint Resolution 1-800 number	03/03/16	-
Issuance of SPDES Permit	03/03/16	-
Nationwide Permit Authorization Issued by Corps of Engineers	04/12/16 <sup>1</sup>	-

Task	Anticipated Date	Timing Restrictions
<b>Construction</b>		
Estimated Mobilization Date	02/29/16	-
Pre-Construction Survey/Stakeout	02/29/16	
Environmental and Safety Training	03/01/16	-
Tree Clearing Operations	03/03/16	Tree clearing conducted prior to May 1 <sup>2</sup>
Road Construction	6/1/2016	-
Substation and Switchyard Construction	6/1/2016	-
Electrical Collection System Construction	6/1/2016	-
Foundation Construction	6/25/2016	-
Wind Turbine Assembly and Erection	8/22/2016	-
Switchyard and Substation Energization and Commissioning	10/5/2016	-
Energization and Commissioning of Turbines	10/18/2016	-
Final Grading	10/18/2016	-
Restoration Activities	10/18/2016	-
Projected Substantial Completion Date	11/18/2016	-

<sup>1</sup>Assuming permit issuance is 45 days from USACE deeming the Joint Permit Application complete.

<sup>2</sup>To avoid impact to federally-listed threatened northern long-eared bat, the Applicant intends to complete tree clearing by April 30. The Final Rule for northern long-eared bat under Section 4(d) of the Endangered Species Act, which came out on January 14, 2016, provides flexibility in the tree clearing schedule (USFWS, 2016). Discussion with USFWS and NYSDEC regarding northern long-eared bat is ongoing, and may result in a tree clearing period that initiates after, or extends beyond, March 31.

## 2.2 ADDITIONAL ANALYSIS OF ENVIRONMENTAL IMPACTS

As described in Section 2.1 of this FEIS, since the preparation of the SEIS, there have been minor revisions to the Project layout, and the alternate turbine locations have been eliminated from the Project. This section summarizes changes to environmental impacts as a result of these minor Project layout changes.

Many of the impacts in the SEIS were reported separately for the 37 proposed turbine locations and the six alternate locations, including soils, wetlands, and ecological communities impacts (see Sections 2.2 and 2.3 of the SEIS). These impacts have changed very slightly due to the minor layout shifts, and differences are summarized in the following sections. In addition, several of the impact analyses prepared for the SEIS included both proposed and alternate turbine locations. These analyses were re-performed using only the 37 final turbine locations for this FEIS. These analyses

include visual impact, shadow flicker, and noise impact assessment. In all cases, total impacts were unaffected or slightly reduced as a result of eliminating the six alternate turbine sites from the Project layout. Each of new analyses is described below.

### 2.2.1 Wetland Impacts

Wetland and stream impacts described in Section 2.2 of the SEIS were calculated from impact assumptions applied across the Project layout. Concurrent with the preparation of the SEIS, Project engineering has advanced, including development of clearing and grading plans for access roads and other components. The more refined design information provided by the Project engineering replaces and supersedes the impact assumptions presented in the SEIS. A Joint Application for Permit to impact wetlands on-site was submitted to the USACE and NYSDEC on December 12, 2015, which included wetland impact drawings with acreages and types of impact for all wetland and stream impacts anticipated for the Project (see Appendix A). Wetland impacts for this Project have been reduced by reducing the proposed area of disturbance where Project components intersect with wetlands and streams, and by plans to install collection lines underneath many of the wetlands and streams crossings by directional drilling, thereby causing no impact at these locations.

Temporary wetland impacts have been reduced from approximately 1.64 acres estimated in the SEIS layout to 0.95 acre for the FEIS layout. Permanent loss of wetlands as a result of wetland fill has been reduced from 0.13 acre in the SEIS to 0.12 acre in the FEIS. Forested wetland conversion has been reduced from approximately 0.88 acre for the SEIS layout to 0.27 acre for the FEIS layout. No NYSDEC protected wetlands will be impacted as a result Project construction or operation. Table 4 provides a comparison of total wetland impacts in the SEIS and the FEIS.

**Table 4. Changes in Wetland Impacts from the SEIS to the FEIS**

SEIS			FEIS		
Temporary Disturbance (acres)	Permanent Loss (acres)	Forested Wetland Conversion (acres)	Temporary Disturbance (acres)	Permanent Loss (acres)	Forested Wetland Conversion (acres)
1.64	0.13	0.88	0.95	0.12	0.27

Total linear feet of stream impact was not reported in the SEIS, however, engineering has now quantified stream impacts at a site-specific level based on construction plans. Approximately 209 linear feet of streams will be temporarily impacted by installation of buried collection lines and access road construction. Approximately 63 feet will be permanently impacted by access road grading and filling and culvert installation (see Appendix A). No NYSDEC protected streams are anticipated to be impacted by Project construction or operation.

## 2.2.2 Vegetation and Soil Disturbance

Impacts to soils and vegetation were described in Sections 2.1 and 2.3, respectively, of the SEIS. Minor layout shifts of turbine locations and access roads from the SEIS layout to the FEIS layout have resulted in very slightly different impacts to these natural resources. In all except one case, turbine shifts have occurred within the same natural community/ecological type. Turbines 1, 3, 13, 20, 21, 27, 28, and 29 were shifted within the agricultural fields in which they were originally sited, Turbine 18 was shifted within the same forest, and Turbine 37 was shifted within the same patch of successional scrub/shrub. Since publication of the SEIS, the parcel of land containing Turbine 9 has been cleared by the landowner. Therefore, Turbine 9 is now located in successional shrubland, while previously it was located in forest. These shifts, therefore, result in very little change in impacts from the SEIS to the FEIS. Impacts to soils and vegetation are summarized below in Tables 5 and 6.

**Table 5. Changes in Impacts to Soils from the SEIS to the FEIS**

SEIS		FEIS	
Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)
280.8	49.5	291.2	49.2

**Table 6. Changes in Impacts to Vegetation from the SEIS to the FEIS**

Land Use Type	SEIS		FEIS	
	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)
Active Agriculture	222.4	27.7	234.3	28.9
Disturbed/Developed	3.2	0.7	3.3	0.4
Forested	170.8	17.5	163.6	16.3
Successional Shrubland/Old Field	27.0	3.5	37.2	3.5
Open Water	0.2	0	0.2	0
<b>Total</b>	<b>423.6</b>	<b>49.4</b>	<b>438.6</b>	<b>49.2</b>

The differences between impacts from the SEIS to the FEIS layouts are not substantial. Temporary impacts to soils with the FEIS layout are about 291.2 acres, up about 4% from the SEIS. Permanent impacts to soils are about 1% less with the FEIS layout, down to 49.2 acres from 49.5 acres in the SEIS. Temporary vegetation impacts are about 3% higher for the FEIS layout, with approximately 438.6 acres of temporary disturbance. Permanent impacts to vegetation are about 1% less for the FEIS layout, totaling about 49.2 acres.

Comments from several agencies indicated that all clearing impacts to forests should be considered permanent. Forest clearing impacts can be characterized as one of three types: permanent impacts, where forests would be replaced with built facilities (roads, turbines, etc.), permanent conversion, where forests would be cleared and maintained as successional communities for the life of the Project (areas under the turbines or beneath overhead collection lines), and temporary impacts where forest would be allowed to regrow following construction (e.g. along buried collection line routes and along the periphery of access roads and turbine sites). In the latter areas, the Applicant will only remove stumps where necessary to install underground components, will not use herbicides to prevent sprouting, and will not remove trees as part of routine vegetation management during Project operation. Ecological succession will restore the forested condition of these areas over time. Therefore, while forest clearing may be a long term temporary impact, it is not permanent. It is worth noting that all of the forests within the Project site are second-growth in nature and have been cut and allowed to regrow in relatively recent history. Therefore, to clarify, the Project will result in temporary impacts to about 96.7 acres of forest, permanent conversion of 67.0 acres of forest to successional communities, and permanent loss of about 16.3 acres of forest.

#### Forest Fragmentation

Further analysis of forest fragmentation impacts was prepared in response to comments from the NYSDEC and the New York State Department of Public Service (DPS). SEIS Section 2.3.2.1 notes that some level of forest fragmentation will occur as a result of Project construction. However, most forests within the Project site are already highly fragmented, generally consisting of relatively small successional woodlots and managed timber stands. Geospatial analysis shows that most of the forest patches that will be disturbed by Project construction are generally not large enough to provide the interior forest habitat conditions that could be subject to fragmentation impacts. In order to quantify the effect of fragmentation, those forested areas that were 1,000 feet or greater distance from the forest edge were identified using geographic information system (GIS) software. The forest edge was defined as places where successional areas, public roads, agricultural fields, or disturbed/developed areas were located adjacent to forests. Two thousand feet is the distance identified in comments by NYSDEC as the distance to which some edge effects may penetrate into a forest (see Comment S-34 in Section 4 of this FEIS), so using 1,000 feet from the forest boundary as the threshold beyond which the forest is considered interior represents a conservative approach.

Only five patches of forest greater than 1,000 feet from a forest edge were identified within the Project site (Figure 19), totaling approximately 127 acres. The FEIS Project site contains approximately 3,460 acres of forest, so only about 3.6% of the forests on the Project site are interior forests, as defined by those areas greater than 1000 feet from a forest edge. One of these areas, located approximately 1,500 feet west of Turbine 15 south of Mary Carey Road, is a patch of forest approximately 15 feet by 20 feet, totaling less than 0.005 acre. The second largest patch is a 3.7 acre area located between Turbines 18 and 19. Clearing for installation of collection line is proposed in this area. However,

it is a managed timber stand that currently experiences ongoing disturbance from logging, and therefore does not provide high-quality interior forest habitat. A third 18.8 acre patch located in the southwest portion of the Project site north of County Route 24 will be completely avoided. Five of the six alternate turbine sites evaluated in the SEIS were located in this area, and impacts to the interior forest here have been avoided by eliminating the alternate turbines. The largest interior forest patch is located directly south of Turbine 25, off of Town Line Road, and totals 93.7 acres. Although no clearing is proposed within this forest patch, approximately 20.3 acres may experience some adverse fragmentation impacts due to construction occurring within 1,000 feet of its borders. The final patch, a 10.7 acre area located directly west of Turbine 16 off of Jericho Road, will also experience fragmentation impacts due to nearby Project construction.

These findings are consistent with the statement in Section 2.3.2.1 of the SEIS that some level of habitat loss and fragmentation will occur as a result of Project construction. However, the great majority of the forests within the Project site (96.4%) are already fragmented, and additional clearing associated with Project construction will have limited adverse impacts due to habitat fragmentation and edge effects.

### ***2.2.3 Visual Impact Assessment***

The viewshed analysis provided in Section 2.5.2.2.1 of the SEIS evaluated a 43-turbine Project that included both proposed and alternate turbine locations. In order to evaluate the impacts of the 37-turbine FEIS layout, and to account for minor shifts at five turbine locations, the viewshed analysis was re-performed using the FEIS turbine layout. A new study area was established, which included all land within 7.5 miles of FEIS turbine locations within the United States (the "study area"). While the SEIS study area encompassed 266.8 square miles, the FEIS study area was slightly smaller, at 257.2 square miles. The assumptions and parameters used in viewshed modeling were the same for the FEIS and SEIS analyses. Results are provided in Table 7 below, as well as Figure 11 of this FEIS, which is an updated version of Figure 11 of the SEIS.

Potential Project visibility does not differ greatly when comparing the 43-turbine layout evaluated in the SEIS with the 37-turbine FEIS layout. Turbines will be fully screened from view by intervening topography from approximately 21.8% of the visual study area (compared with 23.1% for the SEIS Project layout and study area) (Figure 11, Sheet 1). Once the screening effects of mapped forest vegetation are factored into the analysis, visibility is greatly reduced and that figure increases to 77.1% of the visual study area (77.3% for the SEIS) that is anticipated to be fully screened from view (see Figure 11, Sheet 2). Very similar results are reported for potential visibility of the FAA warning lights on the turbine nacelles, with 25.8% of the visual study area (27.2% for the SEIS) fully screened from view by topography alone

and 80.5% (80.6% for the SEIS) fully screened when mapped forest vegetation is factored into the analysis (see Figure 11, Sheets 3 and 4).

**Table 7. Viewshed Results for 7.5-Mile Study Area from the SEIS to the FEIS**

Number of Turbines Visible	Blade Tip Topography Only Square Miles (% of Study Area)		Blade Tip Topography and Vegetation Square Miles (% of Study Area)		FAA/Nacelle Topography Only Square Miles (% of Study Area)		FAA/Nacelle Topography and Vegetation Square Miles (% of Study Area)	
	SEIS	FEIS	SEIS	FEIS	SEIS	FEIS	SEIS	FEIS
0	61.6 (23.1%)	56.0 (21.8%)	206.3 (77.3%)	198.3 (77.1%)	72.6 (27.2%)	66.3 (25.8%)	215.0 (80.6%)	206.9 (80.5%)
1-10	15.8 (5.9%)	14.9 (6.0%)	18.8 (7.0%)	19.2 (7.5%)	19.6 (7.4%)	19.3 (7.4%)	20.7 (7.7%)	21.0 (8.1%)
11-20	13.4 (5.0%)	14.6 (5.8%)	12.3 (4.6%)	12.9 (5.0%)	19.3 (7.2%)	20.7 (8%)	12.1 (4.5%)	12.1 (4.8%)
21-30	15.9 (6.0%)	17.8 (6.9%)	9.8 (3.7%)	10.5 (4.0%)	18.3 (6.9%)	21.7 (8.4%)	7.3 (2.7%)	7.9 (3.0%)
31-40 (SEIS) 31-37 (FEIS)	21.6 (8.1%)	153.8 (59.7%)	9.0 (3.4%)	16.4 (6.2%)	27.2 (10.2%)	129.2 (50.1%)	6.5 (2.4%)	9.2 (3.5%)
41-43	138.5 (51.9%)	0 (0%)	10.7 (4.0%)	0 (0%)	109.8 (41.2%)	0 (0%)	5.3 (2.0%)	0 (0%)
<b>Total Visible</b>	<b>205.2 (76.9%)</b>	<b>201.1 (78.4%)</b>	<b>60.5 (22.7%)</b>	<b>58.9 (22.8%)</b>	<b>194.2 (72.8%)</b>	<b>190.8 (73.9%)</b>	<b>51.8 (19.4%)</b>	<b>50.3 (19.4)</b>

<sup>1</sup>The SVIA visual study area totals 266.8 square miles for the SEIS and 257.2 square miles for the FEIS. Due to rounding to the 10<sup>th</sup> of a square mile and a 10<sup>th</sup> of a percentage, the sum of the individual turbine count group categories may not precisely equal the size of the study area or 100%.

The major difference between the FEIS and SEIS viewshed results is that the maximum number of turbines within a view has decreased from 43 to 37.

To determine whether this decrease in turbine density would alter the Project's visual impact, the visual simulations prepared for the SEIS, which were based on 43 potential turbines, were revised to illustrate the 37 turbine layout (FEIS Figure 12). In addition, at the request of a Town Board member from the Town of Bellmont, an additional simulation from a location near the Bellmont town line on Jericho Road was also prepared (FEIS Figure 12, Sheet 10). The revised simulation from County Route 24 near the hamlet of Bellmont Center most clearly shows the effect of removing the alternative turbines from the Project layout (FEIS Figure 12, Sheet 1). However, as a whole, these simulations show that while slightly fewer turbines may be visible, the overall change in visual impact is minor. Thus, the conclusions presented in the SEIS remain accurate.

## 2.2.4 Shadow Flicker Analysis

As with the viewshed analysis, shadow flicker impacts reported in Section 2.5.2.4 of the SEIS were evaluated for a Project that included 43 proposed and alternate turbine locations. In order to quantify impacts for the 37-turbine FEIS layout, the shadow flicker analysis was re-performed. As in the original analysis, resident receptors within 1,140 meters (10 rotor diameters) of a proposed turbine (i.e., those that could potentially perceive shadow flicker) were identified. These included 322 residential structures (as opposed to the 364 receptors evaluated for the SEIS analysis), which are identified on Figure 13 of this FEIS (directly comparable to Figure 13 of the SEIS). The analysis was prepared in accordance with the methods and assumptions outlined in Section 2.5.2.4 and Appendix N of the SEIS.

Table 8 provides a summary of predicted shadow flicker impacts from the revised FEIS Project layout and compares these impacts to the SEIS Project layout. Most (76%) of the receptors will likely experience shadow flicker under the 30 hour/year impact threshold, and some (12%) of the receptors in the analysis are predicted to experience no shadow flicker at all. The FEIS shadow flicker analysis indicates that up to 77 receptors (24%) are predicted to experience shadow flicker in excess of 30 hours/year, before the screening effects of vegetation and topography are taken into account. At most receptor locations shadow flicker will occur primarily in the early morning or late afternoon and will generally last less than 1 hour per day. Appendix G provides graphical tables of all receptors predicted by the model to experience over 30 hours of shadow flicker per year.

**Table 8. SEIS/FEIS Shadow Flicker Effects Comparison**

Predicted Shadow Flicker	SEIS Layout		FEIS Layout	
	43 turbines		37 turbines	
	364 receptors within 1,140 meters of turbines		322 receptors within 1,140 meters of turbines	
	Receptors (count)	% of Receptors	Receptors (count)	% of Receptors
0 hours	60	16	39	12
0-1 hour/year	1	<0.5	1	<0.5
1-10 hours/year	80	22	71	22
10-20 hours/year	79	22	80	25
20-30 hours/year	56	15	54	17
30+ hours/year	88	24	77	24

As stated in the SEIS, although modeled shadow flicker at some receptors exceeds the 30-hour per year impact threshold, these calculations do not take into account the actual location and orientation of windows, nor the screening effects associated with existing, site-specific conditions and obstacles such as trees and/or buildings. In addition, this analysis assumes turbine rotors are continuously in motion. Given these assumptions, the predicted shadow-flicker frequency represents a conservative scenario, and almost certainly overstates the actual frequency of shadow flicker that would be experienced at any given receptor location. Furthermore, many of the modeled shadow flicker hours are

expected to be low intensity because they would occur during the early morning or late afternoon hours when the sun is low in the sky. As the sun sinks below the horizon, more of its light is scattered by the atmosphere, which has the effect of dampening its brightness and therefore reducing its ability to cast dark shadows (EMD, 2013).

A threshold of 30 hours per year was established in Section 2.5.2.4 and Appendix D of the DEIS as the level of impact requiring additional analysis and possible mitigation measures. Of the 77 receptors that could experience greater than 30 hours of shadow flicker per year, 18 are non-participating residences. The details regarding anticipated shadow flicker at each non-participant receptor where shadow flicker is predicted to exceed 30 hours per year are summarized below in Table 9 and a visual representation is provided as Figure 13 of this FEIS.

**Table 9. Non-Participant Receptors Predicted to Exceed 30 Hours of Shadow Flicker**

Receptor ID	Predicted Shadow Flicker (days/year)	Predicted Max Daily Shadow Flicker (hh:mm/day)	Predicted Annual Shadow Flicker (hh:mm/year)	SEIS Predicted Annual Shadow Flicker (hh:mm/year)	Change in Predicted Annual Shadow Flicker (+/- hh:mm/year)
5 <sup>1</sup>	173	0:52	31:55:00	31:16:00	+ 0:39
72	211	0:53	43:05:00	43:05:00	0:00
74	159	1:06	37:26:00	37:40:00	- 0:14
82	220	0:58	42:57:00	42:55:00	+ 0:02
84	205	1:05	51:52:00	51:54:00	- 0:02
106	157	0:53	35:45:00	39:11:00	- 3:26
155	229	0:33	31:26:00	32:18:00	- 0:52
176	238	1:47	81:55:00	81:56:00	- 0:52
179	280	1:31	64:37:00	72:16:00	- 7:39
181	161	1:10	31:42:00	32:49:00	- 1:07
186	262	1:17	62:26:00	63:19:00	- 0:53
187	224	1:02	42:05:00	41:07:00	+ 0:58
189	217	1:07	56:03:00	54:24:00	- 0:53
190	243	0:43	37:59:00	37:25:00	+ 0:58
191	233	0:50	48:42:00	47:54:00	+ 0:58
314	145	1:07	34:38:00	34:38:00	0:00
315	150	1:00	32:47:00	32:55:00	- 0:08
596 <sup>2</sup>	186	1:04	39:05:00	36:25:00	+ 2:40

<sup>1</sup> Receptor is a commercial maple products establishment.

<sup>2</sup> Receptor is unoccupied.

As described in Section 2.2.3 of this FEIS, an updated viewshed analysis was prepared for the revised FEIS Project that shows areas that are screened from view of the turbines by mapped topography and forest vegetation (see Section 2.2.3 and Figure 11 of this FEIS). This viewshed analysis indicates that nine of the 18 non-participant receptors predicted to experience over 30 hours of shadow flicker will not have views of the Project due to screening provided by mapped topography and vegetation. The remaining nine receptors were checked on a case-by-case basis for screening by vegetation or existing buildings, and five of the nine (receptors 155, 176, 179, 187, and 190) were found to have nearby trees or buildings that would at least partially screen shadow flicker effects (see SEIS Table 28). Therefore, only four receptors (receptors 106, 189, 191, and 596) could experience shadow flicker effects similar to those predicted by the model due to their lack of screening by topography, mapped vegetation, or on-site trees or buildings.

In order to avoid the potential for annoyance or other impacts to non-participating landowners, prior to commercial operation, the Applicant will offer neighbor agreements to each of the remaining four potentially affected property owners. If these landowners are not interested in neighbor agreements, the Applicant will explore alternative mitigation measures with the landowner, e.g., installation of screen plantings or installation of light-blocking blinds.

### ***2.2.5 Noise Impact Analysis***

Noise impacts reported in Section 2.7 of the SEIS were evaluated for a 43-turbine Project that included both proposed and alternate turbine locations. In order to quantify impacts for the final 37 turbine layout, Hessler Associates, Inc. re-performed the noise impact analysis using the final Project layout. The analysis was performed using the same assumptions and parameters as the original analysis conducted for the SEIS. A memo summarizing the updated results is attached as Appendix C.

Results from the modeling showed that potential noise impacts resulting from final 37-turbine Project layout are the same as or less than those reported in the SEIS. The most significant change involves removal of sound impacts in the southwestern corner of the Project site, where of five the six alternate turbines were located (see Figure 3 of this FEIS and Plots 1-3 of Appendix C). The anticipated noise impact in that area is considerably reduced by the removal of the alternate turbines. Although 11 of the 37 proposed turbines locations have shifted slightly from their locations in the SEIS Project layout, none of these shifts has significantly changed the sound level at any residence. Therefore, the expected operational noise impact for the "conservative" and "typical" design scenarios (Plots 1 and 2 of Appendix C, respectively) remains consistent with impacts described in Section 2.7.2.2 of the SEIS. In addition, the results of the updated analysis demonstrate that the final Project layout remains in compliance with the local noise limit of 50 dBA at all non-participating residences (Plot 3 of Appendix C).

## 2.2.6 *Microwave Path Analysis*

Section 2.12.2.2.1 of the SEIS stated that wind turbines within the Project would not interfere with any of the five microwave paths identified within the Project site. Two of the minor turbine shifts described in Section 2.1 of this FEIS are proposed in order to avoid microwave paths (Turbines 3 and 18). None of the remaining nine wind turbines that have shifted from the SEIS layout to the FEIS layout (Turbines 1, 9, 13, 18, 20, 21, 27, 28, 29, and 37) are in the vicinity of a Fresnel Zone, (i.e., the area around a microwave path inside of which wind turbine components could interrupt communication). Therefore, no impacts to microwave communications systems will result from the minor turbine shifts in the FEIS layout.

## 2.3 **ADDITIONAL INFORMATION**

### *Stormwater Pollution Prevention Plan*

The Stormwater Pollution Prevention Plan (SWPPP) for the Project was not finalized when the SEIS was released. Therefore, the SWPPP from EDPR's Marble River Wind Farm was appended to the SEIS as an example that was substantially similar to the Plan that would be prepared for the Project. The Jericho Rise SWPPP has since been finalized, and is attached to this FEIS as Appendix B.

### *Historic/Cultural Resources Consultation and Mitigation*

Section 2.6.2 of the SEIS describes potential impacts to and mitigation measures for archaeological resources as a result of the Project. Phase 1B archaeological resources surveys were conducted for the Project in 2008 (Tetra Tech, 2008) and 2015 (EDR, 2015b) that identified significant archaeological resources within the Project's area of potential effect (APE). These findings are summarized in Section 2.6.2.1.1 of the SEIS. A report was submitted on November 23, 2015 to the New York State Office of Parks Recreation and Historic Properties (NYSOPRHP), per their role as the SHPO, that identified all the cultural sites recorded during both the 2008 and 2015 Phase 1B archaeological resources surveys and showed these sites in relation to the Project layout. The Applicant has committed to avoiding all impacts to all potentially significant archaeological sites through intentionally siting Project components and construction disturbance away from these locations. The mapped locations of identified archaeological sites will be included on Project construction maps surrounded by a 100-foot (minimum) buffer, identified as "Environmentally Sensitive Areas" or similar, and marked in the field by construction fencing with signs that restrict access. These measures were included as recommendations in the report submitted to NYSOPRHP. On December 30, 2015, NYSOPRHP responded that they concurred with the findings of the Phase 1B Survey Report suggesting these measures would be sufficient to

avoid impact to archaeological resources (see Appendix H). Therefore, consistent with the findings in the SEIS, no impacts to archaeological resources will occur as a result of the Project.

On behalf of the Applicant, a historic resources survey (EDR, 2015a) for the Project was prepared and submitted to NYSOPRHP for review and comment on November 11, 2016 (see Appendix H). The historic resources survey was conducted (per the *SHPO Wind Guidelines*) in accordance with a Work Plan developed in consultation with, and approved by, NYSOPRHP staff. Per the *SHPO Wind Guidelines*, the APE for visual impacts on historic properties for the Project was defined as those areas within five miles of proposed turbines which are within the potential viewshed (based on topography) of the Project (NYSOPRHP, 2006). The results of the historic resources survey were summarized within Section 2.6 of the SEIS. The historic resources survey report also included a detailed assessment of potential visual effects on historic resources, including areas specifically requested by NYSOPRHP. The results of the visual effects analysis relative to historic resources are summarized below.

A total of 120 resources were inventoried as part of the historic resources survey. The results of the survey are as follows:

- One property (the Almanzo Wilder Boyhood Home) listed on the NRHP is located within the APE.
- There are 92 properties located within the APE that Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services (EDR) recommends are NRHP-eligible (note that 86 of these are properties that have been previously determined eligible by NYSOPRHP, two properties were previously included in the Cultural Resource Information System database (CRIS) but were not formally evaluated for NRHP-eligibility, and four are newly identified by EDR).

There are 25 additional properties within the APE that were formerly determined NRHP-eligible (or were previously included in CRIS but were not formally evaluated for NRHP-eligibility) that EDR is recommending are not NRHP-eligible and two properties that were formerly determined NRHP-eligible that are now demolished.

Consideration of the screening effects of both topography and mapped forest vegetation in the viewshed analyses (i.e., the vegetation viewshed analysis) indicates that views of the Project will be completely screened from the only NRHP-listed site in the APE and 27 of the 93 properties recommended by EDR to be NRHP-eligible (see Figure 17). However, the vegetation viewshed analysis does not take into account screening that would be provided by buildings, street trees, yard vegetation, or other objects that could screen views of the Project from many locations (especially in urban, village, and hamlet settings). In addition, characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken consideration in the viewshed analyses, so actual visibility of the

Project is expected to be significantly less than indicated by viewshed mapping. In general, the visual effect of the Project will be more significant from locations with open views of the Project. Open views towards the Project are less frequent in developed areas due to the extent of screening provided by existing buildings, vegetation, and other objects. In many locations, views of the Project will be limited to occasional, partially screened view where portions of single (or relatively few) turbines (or turbine blades) will be visible in the gaps between existing buildings and yard vegetation.

In review correspondence dated June 10, 2008, NYSOPRHP indicated that they had identified several key loci where visual impacts should be carefully assessed, including the villages of Chateaugay and Burke, and the north end of Lower Chateaugay Lake, and recommended that visual simulations (or similar analyses) be created to better understand the full extent of the potential visual impacts associated with the Project (Bonafide, 2008). As part of the historic resources survey report for the proposed Jericho Rise Wind Farm Project, EDR conducted a historic resources visual effects analysis addressing potential visual impacts from these key loci.

To show anticipated visual changes associated with the proposed project, high-resolution computer-enhanced image processing was used to create realistic photographic simulations of the completed Project from each of the areas identified by NYSOPRHP (see Figure 18). The photographic simulations were developed using a three-dimensional computer model of the proposed wind turbine created by EDR based on information provided by Jericho Rise Wind Farm, LLC. These simulations were included in the historic resources survey report submitted to NYSOPRHP on November 11, 2015.

From some of the vantage points identified by NYSOPRHP, the proposed Project will be screened by existing buildings and/or vegetation. In these instances, the simulations included in Figure 18 show the turbines where they would be visible, and depict a color overlay of the accurate location and scale of the turbines where they would not actually be visible from those locations. These renderings are included to illustrate the effect that screening provided by vegetation, topography and/or buildings has on Project visibility from some of the locations indicated by NYSOPRHP. An analysis of the Project's potential visual impacts on the areas identified by NYSOPRHP, based on the simulations as well as field observation, is provided below.

#### *Village of Chateaugay (Historic District)*

The Village of Chateaugay is located approximately 1.2 miles northeast of the Project site, and includes several NRHP-Eligible properties, primarily clustered around the core of the village. The proposed Chateaugay Village Historic District is comprised of 18 contributing resources (including several late nineteenth and early twentieth century commercial buildings) located primarily along U.S. Route 11 (Main Street), at the intersection of New York State Route 374 (Depot Street). Although the viewshed analysis prepared as part of the historic resources survey report indicated considerable

Project visibility (see Figure 17), field review indicated that views toward the Project from within the historic district and historic core of the village are heavily screened by buildings and topography.

There are minimal opportunities within the historic district for any potential open views toward the Project, mostly available from streets radiating south from the center of the village along State Route 374, as well as west of the village along Route 11. The simulation prepared from the corner of Iron Avenue and Depot Street (near the NRHP-eligible Rutland Depot) indicates that although views of one turbine may be available above the tree line, views south of the village center toward the Project are largely screened by topography, vegetation and/or buildings (Figure 18, Sheet 1). The viewshed analysis prepared as part of the historic resources survey report indicated a narrow, consistent band of Project visibility west of the village Chateaugay along Route 11 (see Figure 17). The simulation prepared from the corner of Route 11 and Cemetery Road (near the NRHP-eligible Saint Patrick's Cemetery) indicates that views from Route 11 toward the Project are only partially screened by topography, vegetation and/or buildings, and the blades of several turbines are visible above the tree line to the south (Figure 18, Sheet 2). Field review confirmed that views to the south along Route 11 are only occasionally interrupted by vegetation and/or buildings. However, few historic resources previously determined NRHP-eligible are located along the portions of Route 11 with potential increased Project visibility.

#### *Village of Burke*

The Village of Burke is located approximately 2.2 miles west of the Project site and is primarily residential in character. Several historic resources previously determined NRHP-eligible (primarily late nineteenth century residences) are located near the village center at the intersection of Main Street and Depot Street. Although the viewshed analysis prepared as part of the historic resources survey report indicated moderate potential Project visibility within the village center (see Figure 17), field review indicated that views toward the Project from within the village are significantly screened by buildings and vegetation.

The simulation prepared from West Main Street indicates that distant views of one turbine may be available looking east along Main Street, but the majority of views would be screened by topography and/or vegetation (Figure 18, Sheet 3). The simulation prepared from Depot Street south of the village center is the most open view of the Project near the concentration of NRHP-eligible historic resources in the Village of Burke. The simulation indicates that while views of some wind turbines are available above the tree line, the majority of the turbines are screened by topography and/or vegetation (Figure 18, Sheet 4).

### *North End of Lower Chateaugay Lake*

A small cluster of historic resources previously determined NRHP-eligible are clustered along State Route 374 at the north end of Lower Chateaugay Lake, approximately 2.8 miles southeast of the Project site. The resources include two late nineteenth century lakeside houses, and the Banner House Inn, a summer retreat inn that dates to 1837. Although the viewshed analysis prepared as part of the historic resources survey report indicated moderate potential Project visibility considering topography only (see Figure 17), field review indicated that views toward the Project from Route 374 are heavily screened by vegetation along the west side of the road. The potential for any open views toward the Project is limited to views across the north end of the lake where there are breaks in the vegetation along the road. The simulation prepared from the west side of Route 374 at the north end of Lower Chateaugay Lake indicates that views will be completely screened by topography and/or vegetation (Figure 18, Sheet 5).

In summary, the visual effects analysis included in the historic resources survey report and summarized in this section provides the necessary information for NYSOPRHP to consider the Project's potential effect on historic resources. As described in Section 2.6.2.2.2 of the SEIS, relative to the Project layout that was evaluated in the DEIS and presented in the 2008 report to NYSOPRHP, the reduction of the number of proposed turbines and corresponding reduced size of the visual study area in the SEIS serves to reduce the potential visual impact of the Project. However, as described in Section 2.5 of the SEIS, the overall visual effect of the Project is not anticipated to be significantly different than that described in the DEIS.

Possible mitigation projects for visual impacts historic resources as a result of development of the Project were outlined in Section 2.6.2.2.2 of the SEIS, and are currently being discussed with the Towns of Chateaugay and Bellmont. The Applicant intends to enter into a Memorandum of Agreement (MOA) with the Towns of Bellmont and Chateaugay to fund historic preservation projects that will benefit historic resources within the Project's APE. Ongoing consultation with the Towns of Chateaugay and Bellmont and NYSOPRHP will ensure the agreed upon mitigation project(s) are suitable and meaningful for local historic preservation.

### *Eagle Observation Study*

At release of the SEIS, an Eagle Observation Study, which monitored bald and golden eagle passage rates, as well documented the presence of other raptors in the Project site, was still ongoing. Section 2.3.1.3 of the SEIS summarized results from January to August 2015, and the study was set to continue through December, 2015. Data from January to August 2015 indicated very sparse use by eagles, with only three observations of bald eagles and no observations of golden eagles on the Project site during that time period. The SEIS stated that adverse impacts to bald and golden eagles were unlikely, given the low use observed by these species during the survey. Preliminary results of the study from September to December, 2015 are now available. No additional bald or golden eagle observations were made

during that time period. These results confirm the findings of the SEIS that Project operation is unlikely to adversely impact bald and golden eagle populations within the Project site.

In addition to eagles, the study also noted occurrence of other raptors observed during the eagle survey. These included: American kestrel (45 individuals), broad-winged hawk (17), Cooper's hawk (3), northern goshawk (1), northern harrier (17), osprey (1), rough-legged hawk (3), red-tailed hawk (52), and sharp-shinned hawk (3). These findings are consistent with those presented in the SEIS, and conclusions regarding potential impacts to these species summarized in Section 2.3.2.2 of the SEIS remain valid. It should also be noted that these numbers are preliminary and could change slightly in the final report, which will be shared with the USFWS and NYSDEC. The Applicant will engage in ongoing consultation with these agencies in order to ensure that development of the Project meets all applicable guidelines and regulations.

#### Northern Long-Eared Bat Protection Measures

The northern long-eared bat is a federally threatened species with potential habitat within the Project site (see SEIS Sections 2.3.1.3, 2.3.1.4, and 2.3.2.2). The SEIS assumed that clearing operations would take place between October 1 and March 31 in order to avoid impacts to the northern long-eared bat. Since release of the SEIS, the Final Rule for northern long-eared bats under Section 4(d) of the Endangered Species Act (ESA) was issued. In this document, released January 14, 2016, the USFWS has provided flexibility in the clearing schedule and exempted operation of wind turbines from the ESA take prohibition (USFWS, 2016). Therefore, the Applicant will be discussing implications of the 4(d) rule on construction and operational protection measures with USFWS and NYDEC. Based on those discussions, the Applicant may be implementing different measures than what is currently included in the document entitled "*Jericho Rise Wind Farm Northern Long-eared Bat Take Avoidance Measures Franklin County, New York*" dated December 10, 2015.