

# Permit Modification Overview

Heritage Wind Project

Town of Barre, Orleans County, New York

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## LIST OF ABBREVIATIONS AND ACRONYMS

CLCPA	Climate Leadership and Community Protection Act
dBA	A-weighted decibel
HCA	Host Community Agreement
Hz	Hertz
kV	kilovolt(s)
L <sub>eq</sub>	equivalent continuous sound level
LOD	limits of disturbance
MW	megawatt(s)
NLEB	northern long-eared bat
NTP	Notice to Proceed
NYCRR	New York Code Rules and Regulations
NYSDAM	New York State Department of Agriculture and Markets
NYSDEC	New York State Department of Environmental Conservation
NYSOPRHP	New York State Office of Parks, Recreation, & Historic Preservation
O&M	operations and maintenance
ORES	Office of Renewable Energy Siting
PILOT	Payment in Lieu of Taxes
POI	point of interconnection
SHPO	State Historic Preservation Office
SSC	Site-Specific Condition
T&E	threatened and endangered
USACE	U.S. Army Corps of Engineers
USC	Uniform Standards and Conditions
USFWS	U.S. Fish and Wildlife Service
WMA	Wildlife Management Area

## 1.0 INTRODUCTION

Heritage Wind, LLC (Permit Holder or the Applicant) applied for a Major Renewable Energy Facility Permit (the Permit) Pursuant to Section 94-c of the New York Executive Law (Section 94-c) to construct an approximately 184.8-megawatt (MW) wind powered electric generating facility in the Town of Barre, Orleans County, New York (the Facility). This process included submittal of the original Article 10 Application, the transition to Section 94-c Document (Transfer Application), and a Section 94-c Supplement (cumulatively referred to as the Application). The Office of Renewable Energy Siting (ORES) issued a Final Permit to Heritage Wind, LLC on January 13, 2022, following completion of the issues determination process and evidentiary hearings. The Permit includes Site-Specific Conditions (SSCs) and applicable Uniform Standards and Conditions (USCs) that must be met during construction and operation of the Facility.

While authorizing a 33 turbine project, ORES took issue with the location of six turbines Heritage Wind had previously proposed within 2 miles of what was termed the “Iroquois Complex”—an area of federal and state wetland habitat conservation located southwest of the Facility Site, as defined in the application, consisting of the state-managed Oak Orchard and Tonawanda Wildlife Management Areas (WMAs) and the federally-managed Iroquois National Wildlife Refuge (see *Decision of the Executive Director in Matter 21-00026, Application of Heritage Wind* (January 13, 2022) at page 3-4).

Because of the SSCs included in the Final Permit regarding the six turbines (previously referred to as T01 through T06), Heritage Wind, LLC has reconsidered the viability of these turbines and has studied and analyzed a project modification that would enable the Facility to still generate renewable energy at a level allowed for at the interconnection location, while removing these turbines from the Facility layout. For that reason, Heritage Wind, LLC has relocated four of the six turbines to new locations within the previously studied Facility Site to offset the loss of generating capacity resulting from the removal of turbines T01 through T06. Two turbines from the Facility have been removed entirely, but the Facility’s total generating capacity has slightly increased due to the selection of new Vestas turbine models with a higher nameplate capacity.

Overall, Heritage Wind, LLC is proposing to utilize a newer turbine model with slightly larger generating capacity—an increase from 5.6 MW per turbine to either 6.0 MW or 6.8 MW per turbine—at a lower total tip height and using fewer total turbines. The proposed layout includes 31 wind turbines (rather than 33 currently permitted) at a maximum tip height of 656 feet (reduced from 676 feet approved in the Permit), as well as a decrease in the total length of access roads and collection lines (hereafter referred to as the Proposed Modified Facility). The materials provided herein establish that the overall Facility impacts are anticipated to be largely the same or less than approved in the Permit—for example, the Proposed Modified Facility layout reduces total impacts to wetlands and estimated occupied wintering habitat identified for state-listed grassland raptors. This request to modify the Facility layout (Permit Modification) focuses on potential impacts from the changes proposed between the Facility approved by the Permit (Permitted Facility) and the Proposed Modified Facility. As a result, this Permit Modification does not address the sections of a Section 94-c Application which are unaffected by the Proposed Modified Layout and thus outside of the scope of the Permit Modification such as public health and safety, electric system effects and interconnection, electric and magnetic fields, and geology, seismology and soils, among others. Those

matters have been fully addressed in the Final Permit and are not revisited in connection with this submission. The Permit Holder respectfully refers ORES staff to the Application and Final Permit, to the extent background information on any of those topics is sought in connection with this Permit Modification.

The Proposed Modified Facility will not result in a material increase in any identified adverse environmental impact or any significant adverse environmental impact not addressed by the USCs or other SSCs included in the Permit. Nor will they require a substantial change to the existing permit standards or conditions; to the extent that revisions to the Permit conditions are proposed, those revisions are identified herein. Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) has prepared this Permit Modification Overview document on behalf of Heritage Wind, LLC to summarize the modifications to the Facility and to comply with the requirements of 19 New York Codes, Rules and Regulations (NYCRR) 900-11.1. In the interest of time, and given that new turbine locations are proposed, the Permit Holder has agreed to treat this submission as a Major Modification under 19 NYCRR 900-11.1(c); therefore, the process by which ORES reviews the modification and determines whether it qualifies as major or minor is not needed, and the modification can proceed directly to the required comment periods and process required for a major modification.

This Permit Modification Overview first describes the Permitted Facility, as presented in the Final Permit approved on January 13, 2022, followed by a summary of the modifications for the Proposed Modified Facility (see Section 2.0). Section 3.0 provides detailed assessments of the changes in environmental impact associated with the Proposed Modified Facility. In support of the Proposed Modified Facility and associated environmental assessment described in Sections 2.0 and 3.0, the document includes supporting figures and attachments, where applicable. Lastly, the Proposed Modification necessitates a new local law waiver for setbacks to property lines for six turbines in order to accommodate the relocation of the four turbines within the existing permitted Facility Site.

## 2.0 PERMITTED FACILITY VERSUS PROPOSED MODIFIED FACILITY DESCRIPTION

ORES issued a Section 94-c Permit to Heritage Wind, LLC on January 13, 2022. As detailed in the *Decision of the Executive Director* (January 13, 2022), 6 of the 33 turbines in the Permitted Facility layout were sited within two miles of the boundary of the Oak Orchard WMA. The Oak Orchard WMA is an approximately 2,500-acre component of an area that has been referenced by ORES and New York State Department of Environmental Conservation (NYSDEC) as the "Iroquois Complex." The Iroquois Complex is an approximately 19,000-acre area of inland wildlife habitat that consists of the federally managed Iroquois National Wildlife Refuge, and two state WMAs managed by the NYSDEC: the Tonawanda WMA and the Oak Orchard WMA.

Six turbines were proposed to be sited within 2 miles of the Iroquois Complex: turbine T01 at 1.0 mile; turbine T02 at 0.8 mile; turbine T03 at 1.1 miles; turbine T04 at 1.3 miles; turbine T05 at 1.5 miles; and turbine T06 at 1.8 miles, respectively, from the nearest boundary of the Oak Orchard WMA. These six turbines were determined by ORES and NYSDEC to have the potential to interfere with spring and fall songbird migration and to pose an elevated risk of fatality for migrating birds.<sup>1</sup> Therefore, these six turbines have been removed from the Permitted Layout and the Proposed Modified Facility layout has been revised to relocate all turbines at least 2.0 miles from the Oak Orchard WMA (see Figure 1). As further described below, the Permit Holder is proposing to utilize a slightly different turbine model from the one proposed in the Application, which has a higher nameplate capacity per turbine, allowing the Permit Holder to reduce the total number of turbines proposed for this Facility from 33 to 31 turbines.

### 2.1 Permitted Facility

The Permitted Facility description reflects the design and layout outlined in the Permit approved by ORES on January 13, 2022:

- **Wind turbines.** The Facility was proposed to consist of up to 33 wind turbines with a total maximum nameplate capacity of 184.8 MW, to be located in the Town of Barre. The maximum height of the wind turbine models assessed in the Application was 675 feet.
- **Access roads.** Approximately 13 miles of Facility access roads were proposed. Temporary access roads were proposed to be gravel-surfaced and up to 60 feet wide to accommodate construction/delivery vehicles. These temporary roads were proposed to be restored for use as permanent access roads, which would be gravel-surfaced and typically 16 feet wide.
- **Collection lines.** The Facility was proposed to include approximately 37 miles of buried collection lines to deliver power from the wind turbines to the collection substation.
- **Collection and point of interconnection substations.** A collection substation was proposed to step up power to 115 kilovolts (kV), and a point of interconnection (POI) substation was proposed to interconnect with National Grid's existing Lockport-Mortimer 115 kV transmission line. The

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<sup>1</sup> State of New York Office of Renewable Energy Siting (ORES). 2022. *Decision of the Executive Director (Houtan Moaveni) for Heritage Wind*. (Issued January 13, 2022).



collection and POI substation were proposed to be connected by an overhead transmission line less than 200 feet long.

- **Meteorological (met) towers.** Two permanent met towers were proposed to be installed to collect meteorological data and support performance testing of the Facility.
- **Operations and maintenance (O&M) facility.** The O&M facility was proposed to be sited, on a 5-acre site adjacent to the collection and POI substations and include two buildings totaling approximately 4,000 square feet.
- **Temporary laydown yards/staging areas/temporary batch plant.** An approximately 13-acre site north of Gillette Road in the Town of Barre was proposed to accommodate construction trailers, storage containers, large project components, a temporary concrete batch plant (if needed), and parking for construction workers.
- **Facility Site.** As defined in the Application, the Facility Site is a 5,870-acre area that includes all parcels or portions of parcels proposed to host Facility components.

## 2.2 Proposed Modified Facility

Heritage Wind, LLC has made modifications to the previously Permitted Facility layout in response to Permit conditions and to minimize impacts to sensitive resources (Figure 1). An outline of the changes the Permit Holder is proposing as part of this Permit Modification is provided herein. To facilitate an effective comparison of impacts between the Permitted Facility and the Proposed Modified Facility addressed in this Permit Modification, see Figure 2. Updated design drawings are provided as Attachment 1.

The following description reflects the modifications to the design and layout of the Proposed Modified Facility in this Permit Modification:

- **Wind turbines.** Six turbines (former T01 through T06) that were originally located in the southwestern portion of the Facility Site have been removed. Four of these turbines have been relocated elsewhere, and two of these turbines have been removed entirely (i.e., net reduction from 33 to 31 turbines). The Proposed Modified Facility now includes 31 turbines with a total maximum nameplate capacity of up to 200.1 MW.<sup>2</sup> To optimize generating capacity with a smaller number of turbines, the nameplate capacity of each turbine has been increased from 5.6 MW to up to 6.8 MW.<sup>3</sup>

<sup>2</sup> Given this increase in nameplate capacity from 184.8 MW in the Final Permit to between 186 MW and 200.1 MW in the Proposed Modified Facility Layout (an increase of up to 15.3 MW in nameplate capacity), the Permit Holder is submitting, concurrent with this Modification, an additional \$15,300 in local agency account funding, to be made available to qualified local agencies to facilitate participation in the review of the major modification request. Moreover, given that the nameplate capacity of the Facility would change, the Permit Holder respectfully requests that the Final Permit be modified to reflect a 186 MW to 200.1 MW nameplate capacity. That change would impact the Permit cover material and Section 2 (Project Description).

<sup>3</sup> Although the Permitted Facility had a nameplate capacity of 184.8 MW, the Facility was approved for up to 200.1 MW through their queue position with the New York Independent System Operator (NYISO). The Permit Holder notes that its original submissions to the New York State Board on Electric Generation Siting and the Environment ("Siting Board") put the proposed nameplate of the Facility at 200 MW (see Siting Board case 16-F-0546); that total was reduced in the Article 10 Application to 184.8 MW, given the design of the Facility and model of turbines proposed at that time (March 2020). Turbine technology has advanced in the intervening 2+ years, making the current turbine models proposed more desirable for this Facility.

Despite the increased generating capacity, the total maximum tip height of the turbines will be reduced by 20 feet, from 676 to 656 feet, due to the reduction of the hub height from 410 to 390 feet.

- **Access roads.** As a result of the change to the turbine layout described above, some access road routes were revised, including a 1.4-mile decrease in road length. However, the design specifications of the access roads remain the same as in the Permitted Layout. The proposed length of the access roads would total approximately 11.6 miles. In general, access roads are proposed at a width of 16 feet, with 2 feet of compacted shoulders on either side of the roadbed which will be left unobstructed for fire apparatus and emergency access purposes, in compliance with the Fire Code.
- **Collection lines.** As a result of the change to the turbine layout described above, some collection lines were rerouted which resulted in a significant decrease in overall collection line lineal lengths. The proposed length of the collection lines would total approximately 22.7 miles, which results in a 14.3-mile decrease in comparison to the Permitted Layout.
- **Collection and POI substations.** The collection and POI substations remain the same as in the Permitted Layout.
- **Met tower.** One met tower location will remain as sited in the Permitted Layout. The second permitted met tower location is under consideration to change to a temporary power performance tower. The Applicant is proposing to include up to a total of three temporary power performance towers as part of the Proposed Modified Facility. These towers are anticipated to be up to 197 feet in height and are temporary facilities that will be up for approximately six months to one year following initiation of Facility operation. These temporary towers would then be removed, and the area restored in accordance with the Town's wind law provisions applicable to wind measurement towers.
- **O&M facility.** The O&M facility remains the same as in the Permitted Layout.
- **Temporary laydown yards/staging areas/temporary batch plant.** As a result of optimization for construction efficiency, a temporary laydown yard location was added. The new location will be the primary laydown yard where most construction activity would occur, including the location of the temporary concrete batch plant. The laydown yard in the Permitted Layout will be used for additional storage space if necessary. The temporary laydown yards will be approximately 28 acres, an approximate increase of 14 acres in comparison to the Permitted Layout. Following completion of construction and site restoration, these laydown yards will be removed, and the areas restored as described in the original Application.
- **Facility Site.** As a result of the layout changes described above, the total size of the Facility Site has decreased from 5,870 to 4,292 acres.

### 3.0 ENVIRONMENTAL ASSESSMENT

#### 3.1 Public Involvement

As documented in the Summary of Local Engagement and Outreach Efforts (Attachment 2), the Permit holder has continued outreach and coordination with the landowners, local community, and state agencies since submission of the Transfer Application by continuing to have a local office, respond to questions from residents, sponsoring local non-profits and events, and regularly attending town meetings. In addition, Heritage Wind, LLC attended a Town of Barre Town Board meeting on May 11, 2022, and presented the potential modification of the Facility to the Town and public attending the meeting. On July 21, 2021, Heritage Wind, LLC sent a letter to the Town providing a further description of the changes to the layout and identifying the need for a local law waiver due to the fact that the turbines were required to be relocated within the Facility Site. Outreach and community engagement will continue as appropriate through construction of the Facility, and the Permit Holder will adhere to the public notice and outreach requirements included in the Final Permit through construction, operations and decommissioning of the Facility.

#### 3.2 Location of Facilities and Surrounding Land Use

As shown on Figure 1, the proposed changes to the Layout and design of the Facility result in a modification to the Facility Site. To evaluate the proposed modifications to the Facility in relation to the surrounding land use, the Proposed Major Electric Generating Facility Location figure from the Application has been updated to show the new Facility Layout, including the wind turbines and associated infrastructure and facilities (Figure 3). The new Facility Layout no longer includes six turbines originally sited within 2 miles of the Oak Orchard WMA. This change addresses concerns that these turbines could increase the risk of avian fatalities.

The latitude, longitude, and ground surface elevation of all proposed turbines and permanent met towers included in the new Facility Layout are detailed in Table 1.

**Table 1. Latitude, Longitude, and Elevation of All Proposed Turbines**

Turbine/Met Tower Name <sup>A</sup>	Permitted Location (Y/N)	Latitude	Longitude	Top of Pedestal Elevation (feet)
T01	N	43.1485	-78.2253	636.5
T02	N	43.1502	-78.2192	640.5
T03	Y (formerly T8)	43.1611	-78.2151	646.5
T04	Y (formerly T9)	43.1806	-78.2129	661.5
T05	Y (formerly T10)	43.1782	-78.2057	663.5
T06	N	43.1812	-78.2032	659
T07	Y (formerly T12)	43.1782	-78.2008	656
T08	Y (formerly T13)	43.1617	-78.1871	653
T09	Y (formerly T14)	43.1783	-78.1838	667
T10	Y (formerly T15)	43.1752	-78.1833	656

Turbine/Met Tower Name <sup>A</sup>	Permitted Location (Y/N)	Latitude	Longitude	Top of Pedestal Elevation (feet)
T11	N	43.1472	-78.1824	652
T12	N	43.1495	-78.1764	649.5
T13	Y (formerly T17)	43.1725	-78.1747	651
T14	Y (formerly T19)	43.1577	-78.1728	644.5
T15	Y (formerly T20)	43.1683	-78.1714	652.5
T16	N	43.1726	-78.1674	654
T17	N	43.1489	-78.1665	643.5
T18	N	43.1501	-78.1595	672.5
T19	Y (formerly T22)	43.1821	-78.1558	672
T20	Y (formerly T23)	43.1770	-78.1444	657
T21	Y (formerly T24)	43.1833	-78.1440	653.5
T22	Y (formerly T25)	43.1698	-78.1444	646.5
T23	Y (formerly T20)	43.1803	-78.1434	654.5
T24	Y (formerly T21)	43.1728	-78.1433	683
T25	N	43.1909	-78.1412	670
T26	N	43.2098	-78.1263	670.5
T27	N	43.2036	-78.1269	667.5
T28	N	43.2065	-78.1259	669
T29	Y (formerly T31)	43.1943	-78.1216	653
T30	N	43.2024	-78.1191	660
T31	N	43.2104	-78.1194	671
Met Tower	Y (formerly MET-1)	43.1809	-78.2181	662

<sup>A</sup> The nameplate capacity of the Facility increased from 184.8 MW to between 186 MW and 200.1 MW to account for turbine models that have a greater nameplate capacity that have recently become available. The Facility's queue position allows for up to 200.1 MW.

### 3.3 Land Use

Based on the Proposed Modified Facility layout limits of disturbance (LOD), (see Attachment 1: Design Drawings), construction is now anticipated to disturb approximately 257.7 acres of land on a temporary basis and occupy 71.9 acres of land permanently (Figure 4). Overall, the Proposed Modified Facility layout now results in fewer impacts to vacant and agricultural lands in comparison to the Permitted Layout. Specifically, vacant land impacts will decrease by 0.1 acre and impacts to agricultural land will decrease by 10.6 acres. The land use impacts resulting from the Proposed Modified Facility layout are summarized in Table 2.

**Table 2. Comparison of Land Use Impacts: Permitted Facility vs. Proposed Modified Facility**

Land Use	Acres within the Facility Site		Temporary Impact (acres)		Permanent Impact (acres) <sup>A</sup>		Total Impact (acres)	
	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility
Residential	1,186	898.2	68.3	64	6.8	10.9	75.1	75.9
Vacant	193	76.2	4.8	4.4	0.3	0.5	5.0	4.9
Agricultural	4,490	3,317.6	217.2	189.3	43.3	60.5	260.4	249.8
<b>Total</b>	<b>5,869</b>	<b>4,292</b>	<b>290.3</b>	<b>257.7</b>	<b>50.4</b>	<b>71.9</b>	<b>340.6</b>	<b>330.6</b>

<sup>A</sup> Permanent disturbance will only be for the life of the Proposed Modified Facility (i.e., approximately 30 years) unless repowered.

### 3.4 Real Property

As detailed in Section 2.2 and Figure 1, the changes to the design of the Proposed Modified Facility occur within the immediate vicinity of the Permitted Facility to avoid new potential impacts in areas of the Town not previously assessed. Therefore, the Proposed Modified Facility does not result in any material changes to real property proposed for use in the Permitted Facility, aside from the elimination of parcels within 2 miles of the Oak Orchard WMA which would have previously hosted Facility components. The information and conclusions reached in the Application with regard to real property remain applicable (Figure 5).

As indicated above, an updated tax parcel map of the Proposed Modified Facility has been prepared and which depicts the following:

- Tax parcel boundaries, owner, and ID numbers for all parcels within and directly adjacent to the Facility Site
- Public and private roads planned for use as access to the Facility Site
- Zoning designations for the Facility Site and adjoining parcels.

The data for Figure 5 was obtained from the results of an American Land Title Association (ALTA) professional survey completed for the Facility Site, along with Orleans County Tax Parcel GIS data (from 2018) from the New York State GIS Clearinghouse, and Environmental Systems Research Institute StreetMap (2012). The final ALTA survey will be provided as a pre-construction compliance filing pursuant to 19 NYCRR § 900-10.2(h), along with mapping of plottable encumbrances.

### 3.5 Design Drawings

Site Plan Drawings dated July 2022 for the Proposed Modified Facility and other supporting drawings are included as Attachment 1. The drawings were prepared at a common engineering scale by Fisher Associates under the direction of a professional engineer, licensed and registered in New York State. These drawings

are issued for permit and will be finalized prior to construction as a compliance filing, as required by Section 7(c) of the Final Permit.

The Site Plan Drawings show the Proposed Modified Facility layout of the wind turbines, meteorological tower, temporary laydown areas, O&M building, project substation, POI, access roads, and underground collection lines. Typical dimensions including length, width, height, and pertinent setbacks are also depicted for all Facility components.

The supporting drawings contain typical design details of all Facility components, including lighting, gates, buildings, road cross sections, and structures. Typical dimensions, including length, width, and height of proposed structures and fixed equipment are also depicted for Facility components. Access road profiles correspond to each proposed access road and turbine foundation with the applicable design elevations.

### **3.6 Visual Impacts**

#### *3.6.1 Visual Impact Assessment*

The Visual Impact Assessment (VIA) provided in the Application analyzed potential visual impacts based on a maximum blade tip height of 675 feet above existing grade associated with up to 33 turbines. The Proposed Modified Facility will result in a reduction of total maximum tip height of the turbines to 656 feet from 676 feet and reduces the total number of turbines to 31. Heritage Wind, LLC is proposing shorter turbines because the new turbine models under consideration have a 119-meter hub height, rather than the 125-meter hub height turbine models previously proposed in the Transfer Application. While 14 turbines have shifted in the Proposed Modified Layout, the relocated turbines fall generally within the Facility Site area previously studied and shown on prior project mapping, and fall within the same general vicinity as the Permitted Layout's turbines. Still, Heritage Wind, LLC analyzed the potential effects of the Proposed Modified Layout changes on the visibility and visual effect, and presents the results of this analysis in the Addendum to the Visual Impact Assessment (Attachment 3). As outlined in the Addendum to the Visual Impact Assessment, the Proposed Modified Facility layout revisions do not result in any substantial changes to the conclusions reached in the original VIA, or to the overall visual impact from the Proposed Modified Facility as compared with the Permitted Facility.

Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of visual impacts from the Proposed Modified Facility, as it relates to both shadow flicker and general visual impacts, such as the requirement that the Applicant submit a final Visual Impacts Minimization and Mitigation Plan demonstrating compliance with various Permit Conditions in the compliance phase (Final Permit Section 6(f) and (g)). Nothing further is needed to address the visual impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility.

#### *3.6.2 Shadow Flicker*

The Applicant has updated Shadow Flicker modeling based on the Proposed Modified Facility layout (Attachment 4). This analysis applied the same methods outlined in the Application. The same shadow flicker

study area was utilized for the Proposed Modified Facility layout (i.e., the shadow flicker study area), and assessed projected shadow flicker at receptors located within 5,315 feet (10 rotor diameters) of the proposed turbines. The receptors studied include residential structures (both participating and non-participating), schools, office buildings, storefronts or known public recreation areas (e.g., campgrounds, trailheads within state forest lands), consistent with previous shadow flicker assessments for the Facility.

The updated modeling results showed that 112 receptors would be expected to have over 30 hours of shadow flicker per year before minimization and mitigation is applied. Forty-three of those 112 receptors are on participating parcels, while the remaining 69 are on non-participating parcels (to which the Final Permit's 30-hours-per-year shadow flicker limit will apply). These identified receptors break down as follows:

- 66 year-round residences on non-participating properties
- 23 year-round residences on participating properties
- 1 unknown structure on a non-participating property
- 4 unknown structures on participating properties
- 1 commercial structure on a participating property
- 16 commercial structures on participating properties
- 1 public structure on a non-participating property.

Heritage Wind, LLC will achieve compliance with the 30-hour per year shadow flicker limit for the 66 identified non-participating residences prior to construction, in the compliance phase. Preliminary operational reduction analysis indicated that nine additional non-participating receptors (all year-round residences) will receive less than the 30-hours per year of shadow flicker based on to the percentage of time that wind speeds are below the cut-in speed or above the cut-out speed. Thus, additional curtailment strategies will be developed to ensure compliance for the remaining 60 non-participating residences have been identified as currently exceeding the 30-hours-per-year of shadow flicker limit. These conclusions presented in the updated Shadow Flicker analysis (Attachment 4), are similar to those discussed in the 94-c Transfer Application.

To achieve compliance with the 30-hour-per-year shadow flicker limit at non-participating residential receptors, the Applicant will develop an additional compliance strategy during the compliance phase, as part of its Visual Impacts Minimization and Mitigation Plan required by 19 NYCRR Section 900-2.9. Possible operational controls or mitigation measures to achieve compliance are likely to include: 1) working with the landowner to sign a neighbor agreement and become a Project participant, 2) planting trees or installing window blinds to block the shadow flicker, and/or 3) installing detection systems on the turbines resulting in greater than 30 hours per year of shadow flicker at non-participating receptors. Final mitigation strategies will be selected prior to Facility construction and operation.

The Permit Holder will then submit that plan showing that, with the compliance strategy applied, the Facility meets the Final Permit's shadow flicker limit at non-participating residences in accordance with Final Permit Section 6(f) and (g), and 19 NYCRR Section 900-10.2. The current Final Permit includes provisions which memorialize this requirement. However, to the extent that any changes to the Final Permit are needed, ORES staff could add a subsection (g)(3) under Site Specific Condition 6(g) which requires that the final Visual Impacts Minimization and Mitigation Plan submitted in the compliance phase include a final curtailment strategy to demonstrate compliance with the shadow flicker limitation.

### 3.7 Noise and Vibration

The Permit Modification includes the relocation of wind turbines and associated components (access roads, collection lines, etc.), as well as a change in the wind turbine models under consideration, as compared with those considered in the Transfer Application. Further, while the location of the substation transformer has not changed, two Bard W72AA HVAC units at both the control enclosure building and the O&M Building have also been added. An addendum to the Preliminary Noise Impact Analysis (Attachment 5) was prepared to address these changes and present the results of the updated acoustic modeling for the Proposed Modified Layout.

The Preliminary Noise Impact Analysis Addendum included an updated analysis for the Vestas V162-6.0 and the Vestas V162-6.8 turbines. The results of this analysis indicated that all participating and non-participating residences are in compliance with the sound limits applicable to the Facility (Final Permit Section 5(V)(a)) and are further outlined below. The PNIA Addendum demonstrates that there is no substantial change to the noise or vibration impacts from the Proposed Modified Facility as compared with the Permitted Facility.

#### 3.7.1 Vestas V162-6.0

As shown in Tables 7-1A.1 to 7-8B.1 in Appendix D of Attachment 6 for the Vestas V162-6.0 wind turbine, the highest modeled ( $L_{eq}$  (8-hour)) sound level at a non-participating receptor is 45 A-weighted decibels (dBA) at receptor #18, a Year-Round Residence. The highest modeled ( $L_{eq}$  (8-hour)) sound level at a participating receptor is 52 dBA at receptor #1706. This receptor is labelled as Other and is considered a non-residential structure. The predicted worst-case 8-hour  $L_{eq}$  sound levels from the Project using the potential V162-6.0 wind turbine, are at or below the 8-hour  $L_{eq}$  design goals of 45 dBA for non-participating receptors, 55 dBA for participating receptors, and the worst-case 1-hour  $L_{eq}$  65 dB in the 16 Hertz (Hz), 31.5 Hz, and the 63 Hz octave bands for non-participating receptors at all modeled locations.

#### 3.7.2 Vestas V162-6.8

As shown in Tables 7-1A.2 to 7-8B.2 in Appendix B of Attachment 6 for the Vestas V162-6.8, the highest modeled ( $L_{eq}$  (8-hour)) sound level at a non-participating receptor is 45 dBA at receptor #1296. This receptor is labelled as Other and is considered a non-residential structure. The highest modeled ( $L_{eq}$  (8-hour)) sound level at a participating receptor is 52 dBA at receptor #1706. This receptor is labelled as Other. The predicted worst-case 8-hour  $L_{eq}$  sound levels from the Project using the potential V162-6.8 wind turbine, are at or below the 8-hour  $L_{eq}$  design goals of 45 dBA for non-participating receptors, 55 dBA for participating



receptors, and the worst-case 1-hour  $L_{eq}$  65 dB in the 16 Hz, 31.5 Hz, and the 63 Hz octave bands for non-participating receptors at all modeled locations.

### 3.7.3 *Substation Transformer*

While the location of the substation transformer has not moved since the Transition Supplement, the Preliminary Noise Impact Analysis Addendum included an analysis that accounted for the two Bard W72AA HVAC units at both the control enclosure building and the O&M Building. The unmitigated analysis resulted in non-compliance for two residential receptors (#119 and 158). A mitigated analysis that included a sound barrier wall to the south and east of the substation transformer demonstrated that all non-participating residences can meet the 35 dBA standard. However, the Applicant may consider other means of mitigation by implementing one of the following actions: utilizing quieter equipment, shifting the transformer further away from the receptors, executing additional good neighbor agreements, or by installing a mitigation measure (e.g., implementing a sound wall). The final noise assessment, submitted as a compliance filing, will demonstrate compliance at the two non-participating residences referenced above.

Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of noise impacts from the Proposed Modified Facility, such as the requirement that the Applicant submit updated noise modeling demonstrating compliance with various Permit Conditions in the compliance phase and a final Noise Complaint Resolution Protocol and Sound Testing Compliance Protocol (Final Permit Section 6(d) and (e)). It is not anticipated that anything further will be needed to address the noise impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility.

## 3.8 Cultural Resources

### 3.8.1 *Archaeological Resources*

To evaluate the potential cultural resource impacts, previously un-surveyed areas associated within the Proposed Modified Facility layout received supplemental pedestrian reconnaissance in April and May 2022, using the same methods described in the Application Phase IB Report.

Three historic period archaeological sites and one historic period isolated find were encountered as a result of the additional Phase 1B archaeology survey for the Proposed Modified Facility layout modifications. The archaeological sites encountered are comprised of scatters of fragmented historic period artifacts with minimal research potential. No evidence was uncovered to indicate that any of the sites are associated with significant events in history or significant persons in history, nor do any of the sites appear to embody distinctive characteristics of a type, method of construction, or work of a master. Additionally, the historic period isolated find location presents minimal research potential and no evidence of subsurface features. It was not recommended that any of the three archaeological sites or the isolated find are eligible for listing on the National Register of Historic Places, and no further testing at any of the identified archaeological sites appears warranted.

A memorandum was submitted on June 22, 2022, to the New York State Office of Parks, Recreation, & Historic Preservation (NYSOPRHP)/State Historic Preservation Office (SHPO) documenting the revised limits of disturbance and supplemental pedestrian reconnaissance survey efforts. Due to subsequent analyses, a revised memorandum was prepared and submitted to SHPO (Attachment 6). It is anticipated that concurrence from SHPO will be received, and no additional studies will be required. The Permit Holder will consult with NYSORPHP/SHPO as needed to address any potential comments received relative to the Proposed Modified Facility layout and any potential cultural resource impacts. Any additional consultation with SHPO will be provided to ORES staff.

### *3.8.2 Historic Resources*

A Historic Resources Mitigation Plan was previously prepared for the Application memorializing the consultation undertaken by the Permit Holder and NYSOPRHP regarding the Permitted Facility's potential effect on historic resources, and to describe proposed measures to mitigate them. The Historic Mitigation Plan detailed potential mitigation projects (i.e., including funding to support the projects) that were to be implemented to offset potential adverse impacts from the construction and operation of the Permitted Facility.

A memorandum was prepared to analyze the minor changes associated with the Proposed Modified Facility and to ensure the conclusions reached in the Historic Resources Mitigation Plan remain unchanged. The memorandum was submitted to NYSOPRHP/SHPO on June 22, 2022, and a response letter was received on July 14, 2022 (Attachment 7). The NYSOPRHP/SHPO response letter states that no new historic resources surveys or additional historic resources visual effects analysis are necessary at this time, and no changes to the approved Historic Resources Mitigation Plan are necessary. The Permit Holder will continue to consult with NYSORPHP/SHPO to address any potential concerns relative to the new Facility Layout and any potential impacts.

Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of cultural resource impacts from the Proposed Modified Facility, such as the requirement that the Applicant submit a final Cultural Resources Avoidance, Minimization and Mitigation Plan during the compliance phase (Final Permit Section 7(l)(g)). Nothing further is needed to address the cultural resource impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility, and given that SHPO has opined that, as related to Historic Resources, the proposed Modified Facility does not require changes to the approved Historic Resources Mitigation Plan.

## **3.9 Terrestrial Ecology**

The Proposed Modified Facility results in an overall reduction in impacts to Facility Site acreage, as detailed in Section 3.3. Accordingly, Therefore, the land cover classes and ecological communities occurring within the Facility Site, as described more fully below. Notably, the predominant land cover classes (cultivated crops and woody wetlands) and ecological communities (cropland and silver maple-ash swamp) remain the same as those described in the Application, with reductions in various impacts to nearly all land cover classes (with some remaining unchanged) (see Tables 3, 4 and 5). A comparison of land cover classes and ecological

communities between the Permitted Facility and those within the Proposed Modified Facility Site is provided in Tables 3 and 4, respectively.

**Table 3. Comparison of Land Cover Classes: Permitted Facility Site vs. Proposed Modified Facility Site**

Land Cover Class	Acres			Percent Cover (%)	
	Permitted Facility Site	Proposed Modified Facility Site	Net Change	Permitted Facility Site	Proposed Modified Facility Site
Cultivated Crops	3,985	3,121	-864	68	73
Woody Wetlands	1,344	783	-561	23	18
Deciduous Forest	179	145	-34	3	3
Pasture/Hay	154	115	-39	3	3
Developed, Open Space	85	65	-20	1	2
Developed, Low Intensity	29	29	0	<1	1
Emergent Herbaceous Wetlands	29	16	-13	<1	<1
Developed, Medium Intensity	11	9	-2	<1	<1
Mixed Forest	48	6	-42	<1	<1
Developed, High Intensity	3	2	-1	<1	<1
Herbaceous	2	1	-1	<1	<1
Open Water	<1	<1	0	<1	<1
Scrub/Shrub	<1	0	-<1	<1	0
<b>Total</b>	<b>5,869</b>	<b>4,292</b>	<b>-1,577</b>	<b>100</b>	<b>100</b>

Source: NLCD 2019 (Yang et al., 2018).

A review of Table 4 shows that the land covered by cultivated crops within the Proposed Modified Facility Site increased by 5% and land covered by woody wetlands and silver maple ash swamp ecological communities each decreased by 5%. Impacts to these communities are addressed in Table 5.

**Table 4. Comparison of Ecological Community Types: Permitted Facility Site vs. Proposed Modified Facility Site**

Ecological Community Type <sup>A</sup>	Acres			Percent Cover (%)	
	Permitted Facility Site	Proposed Modified Facility Site	Net Change	Permitted Facility Site	Proposed Modified Facility Site
Cropland	4,059	3,160	-899	69	74
Silver Maple-Ash Swamp	954	492	-462	16	11
Successional Southern Hardwoods	430	358	-72	7	8
Successional Shrubland	102	88	-14	2	2
Developed/Disturbed	86	67	-19	1	2
Pastureland	78	75	-3	1	2
Pine Plantation	36	<1	-36	<1	<1
Shrub Swamp	30	17	-13	<1	<1
Shallow Emergent Marsh	27	-	-27	<1	-
Mowed Roadside/Pathway	25	16	-9	<1	<1
Red Maple-White Pine Swamp	16	-	-16	<1	-
Open Water	10	5	-5	<1	<1
Mowed Lawn with Trees	10	5	-2	<1	<1
Successional Old Field	4	6	2	<1	<1
Spruce/Fir Plantation	1	1	0	<1	<1
<b>Total</b>	<b>5,869</b>	<b>4,292</b>	<b>-1577</b>	<b>100</b>	<b>100</b>

<sup>A</sup> Ecological community types have been defined based on Edinger et al., 2014.

Construction and operation of the Proposed Modified Facility will result in three distinct types of impacts to plant communities: temporary impacts, permanent conversion, and permanent loss. Temporary and permanent impacts to plant communities that could result from the Proposed Modified Facility construction and operation have been recalculated based on the limits of disturbance indicated on the updated Design Drawings (see Attachment 1). The estimated areas of temporary impacts, permanent conversion, and permanent loss of ecological communities within the Proposed Modified Facility are summarized in Table 5 (see also Figure 6)

Table 5. Comparison of Estimated Ecological Community Impacts: Permitted Facility Site vs. Proposed Modified Facility Site

Ecological Community Types	Temporary Impacts (acres) <sup>A</sup>		Permanent Conversion (acres) <sup>B</sup>		Permanent Impacts (acres)		Total Impact (acres)	
	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility
Cropland <sup>C</sup>	151.9	220.4	-	-	46	66	197.9	286.4
Successional Southern Hardwoods	9.7	19.1	7.0	8.6	1.7	2.4	18.3	30.1
Silver Maple-Ash Swamp	3.2	3	5.9	1.6	0.3	0.5	9.3	5.1
Successional Shrubland	5.1	7	5.4	3.7	5.4	1.3	11.7	12
Mowed Roadside/Pathway <sup>C</sup>	0.1	1.3	-	-	-	0.2	0.1	1.4
Disturbed/Developed <sup>C</sup>	1.1	3.2	-	-	0.4	1.3	1.5	4.5
Pine Plantation	0.9	-	0.8	-	0.1	-	1.9	-
Pastureland <sup>C</sup>	1.6	2.3	-	-	0.3	-	1.9	2.3
Successional Old Field	0.1	0.3	0.3	0.1	0.1	0.1	0.4	0.5
Mowed Lawn with Trees <sup>C</sup>	0.9	0.6	-	-	0.1	0.1	1.0	0.7
Spruce/Fir Plantation	<0.1	0.1	<0.1	<0.01	-	-	<0.1	<0.1
Shallow Emergent Marsh	<0.1	-		-	-	-	<0.1	-

Ecological Community Types	Temporary Impacts (acres) <sup>A</sup>		Permanent Conversion (acres) <sup>B</sup>		Permanent Impacts (acres)		Total Impact (acres)	
	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility
Shrub Swamp	<0.1	-	-	-	-	-	<0.1	-

Note: Impacts to public road rights-of-way are included in these calculations. Therefore, the total impact data presented in this table will not exactly match the data presented in other impact tables.

<sup>A</sup>These areas will not be maintained by the Permit Holder following construction. Unless otherwise disturbed/managed by the landowner, these areas would be expected to return to their pre-disturbance state over time.

<sup>B</sup>It is anticipated that all areas not converted to built facilities within 15 feet of buried collection lines, within 10 feet of permanent access road edges, and within 100 feet of wind turbine pads would be maintained in an early successional state following construction. All other areas outside of these distances would not be maintained by the Permit Holder.

<sup>C</sup>Buried collection line rights-of-way, permanent access road shoulders, and areas adjacent to wind turbine pads will not be maintained by the Permit Holder where they cross or are within active agricultural and/or developed communities unless otherwise mandated in the landowner lease agreement.

As detailed in Table 5, most impacts attributed to the Proposed Modified Facility construction occur within cropland and successional southern hardwood ecological community types. This is consistent for both the Permitted Facility and the Proposed Modified Facility.

### **3.10 NYS Threatened and Endangered Species**

The Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of impacts to threatened and endangered (T&E) species, including impacts to grassland bird habitat, from the Proposed Modified Facility, such as the requirement that the Applicant submit a final Net Conservation Benefit Plan during the compliance phase and conduct mitigation as required under the regulations (Final Permit Section 6(b)). However, nothing further is needed to address the grassland bird impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility, and particularly in light of the overall reduction in total acres of state-listed T&E grassland bird species habitat impact (refer to Section 3.10.5). Moreover, given the removal of the six turbines previously sited within 2 miles of the Oak Orchard WMA, SSC 6(b)(2) is no longer relevant or applicable to the Facility. On that basis, SSC 6(b)(2) should be removed from the Final Permit upon approval of the Proposed Modification.

Details pertaining to threatened or endangered species and avian impacts are summarized in the sections below.

#### ***3.10.1 Oak Orchard WMA and the Iroquois Complex***

The Decision of the Executive Director of ORES on January 13, 2022, indicated that 6 of the 33 turbines in the Permitted Layout were sited within 2 miles of the boundary of the Oak Orchard WMA and the broader Iroquois Complex that could potentially attract and concentrate state-listed T&E and other avian species. Moreover, according to the findings of the Decision, the Permitted Layout presented an identified risk to state-listed T&E and other avian species. In response to the Decision, the Proposed Modified Layout proposes changes to significantly reduce the potential risk to state-listed T&E and other avian species identified in the Decision. Specifically, the Proposed Modified Facility layout now has turbines located significantly farther from the Oak Orchard WMA and the two other wildlife areas that constitute the Iroquois Complex (Table 6). Therefore, any potential adverse impacts to any state listed avian T&E species using the Oak Orchard WMA and the larger Iroquois Complex would be avoided and minimized to the maximum extent practicable. The Final Permit Decision identified a potential higher risk to avian species during spring and fall migrations from the six turbines located within two miles of the Oak Orchard WMA. Thus, the Proposed Modification addresses this identified risk by removing the six turbines closest to the Oak Orchard WMA, which obviates the concern raised by ORES about proximity to that resource and potential impacts to avian species, while maintaining the needed generating capacity of the project and minimizing other impacts. This represents a significant benefit of the Proposed Modification.

**Table 6. Comparison of Distances to Wildlife Areas: Permitted Layout vs. Proposed Modified Layout**

Wildlife Area	Distance from Nearest Turbine to Nearest Boundary (Miles) <sup>A</sup>		
	Permitted Layout	Proposed Modified Layout	Net Change
Oak Orchard Wildlife Management Area	0.8	2.6	+1.8
Iroquois National Wildlife Refuge	3.1	5.1	+2.0
Tonawanda Wildlife Management Area	7.6	9.6	+2.0

<sup>A</sup>Distances are measured between the nearest Facility wind turbine and the nearest real property boundary for each wildlife area. For the Permitted Layout, the nearest Facility wind turbine is T01. For the Proposed Modified Layout, the nearest Facility wind turbine is T01.

### 3.10.2 Bald Eagle

In addition to reducing potential collision risk to state-listed avian T&E bird species that use the Oak Orchard WMA, the Proposed Modified Layout is located farther from the nearest known bald eagle (*Haliaeetus leucocephalus*) nest. The distance between the nearest Proposed Modified Facility turbine and the nearest known bald eagle nest location has increased from approximately 2 miles to approximately 4 miles, thereby avoiding possible impacts to nesting bald eagles that may be present within the broader area surrounding the Facility Site. The U.S. Fish and Wildlife Service (USFWS) *Eagle Conservation Plan Guidance* notes that disturbance is most likely to affect eagles within 2 miles of a nest, and the USFWS *Updated Eagle Nest Survey Protocol* states that a buffer distance of 2 miles would provide substantial protection for roosting eagles. Therefore, a setback of at least 2 miles avoids potential disturbance to nesting or roosting bald eagles.

As discussed in the Net Conservation Benefit Plan that was previously filed for bald eagle, risk to this species at the Facility is likely to be very low to near zero. However, the NYSDEC has stated that there is a possibility of incidental take (in the form of collision with operating wind turbines) during the operational life of the Facility. The estimated potential take for bald eagle remains negligible for the Proposed Modified Layout, and as noted previously, the Facility was redesigned to be farther away from the nearest known nest, which further reduces risk and possibility of incidental take. Pursuant to Section 94-c, if at any time during the operation of the Facility a bald eagle is injured or killed due to collision with Facility components, the Applicant proposes to either make a payment into the Endangered and Threatened Species Mitigation Bank Fund or implement an ORES-approved mitigation project. The Net Conservation Benefit Plan that was previously filed for this species will be updated to reflect the Proposed Modified Facility and submitted to ORES and NYSDEC as a compliance filing.

### 3.10.3 Northern Long-eared Bat

The Proposed Modified Layout includes a total nameplate capacity of up to 200.1 MW. Therefore, the Applicant has revised the estimated potential level of state-listed threatened northern long-eared bat (NLEB; *Myotis septentrionalis*) take for the Facility. Based on the NYSDEC methodology for estimating NLEB take presented in the Net Conservation Benefit Plan that was previously filed for this species, the estimated potential impacts would increase from up to 149 NLEB for 184.8 MW to up to 161 NLEB for 200.1 MW (over



a 30-year period). With the Facility's proposed curtailment strategy factored in, the estimated NLEB take would increase slightly from up to 23 NLEB for 184.8 MW to up to 25 NLEB for 200.1 MW (over a 30-year period). However, the Applicant has already implemented a NYSDEC-approved cave gating mitigation project to offset potential Facility-related take of NLEB by significantly reducing human disturbance of critical winter habitat used by approximately 3,000-4,000 bats (including some NLEB), promoting wintertime survival, and thereby contributing to the recovery of NLEB within New York (which achieves the required net conservation benefit for the species). Therefore, the mitigation project should more than offset the insignificant changes in potential impacts from the slight nameplate capacity increase. The Net Conservation Benefit Plan that was previously filed for this species will be updated to reflect the Proposed Modified Facility and submitted to ORES and NYSDEC as a compliance filing.

#### *3.10.4 Pre-Construction Avian Survey Coverage and Comparison of the Permitted Versus Proposed Modified Facility*

Given the changes from Proposed Modified Facility layout, the Applicant evaluated pre-construction avian survey locations and coverage for both the Permitted Layout and for the Proposed Modified Facility layout. Surveys to document T&E avian species use were conducted between 2016 and 2018 and were developed in accordance with guidance provided by the USFWS and NYSDEC staff. The pre-construction surveys included two years of winter grassland raptor surveys, two years of breeding bird surveys, two years of spring migratory raptor surveys, two years of small bird/large bird/eagle use point count surveys, one year of fall migratory raptor surveys, and one raptor nest survey. The surveys were consistent with NYSDEC survey guidelines available at the time, the USFWS *Land-based Wind Energy Guidelines*, and the USFWS *Eagle Conservation Plan Guidance*. In addition, the avian survey protocol, which identified the entire Town of Barre as the Project Area for potential siting of turbines and Facility components, was sent to the USFWS and NYSDEC for input prior to conducting the surveys.

Overall, the numbers and types of avian survey locations and coverage are substantially similar for the Permitted Layout and the Proposed Modified Facility layout. Wind turbines and other Facility components typically had multiple avian survey locations present nearby and given the relatively minor changes to Facility component locations, the type and extent of avian survey coverage did not appear to vary significantly between the Permitted Layout and the Proposed Modified Facility layout. Comparisons of avian survey locations and coverage are depicted on Figure 7.

#### *3.10.5 Short-eared Owl and Northern Harrier Occupied Wintering Habitat*

Although the extent of pre-construction avian survey coverage is similar for the Proposed Modified Facility layout in comparison to the Permitted Facility layout, modifications to the Proposed Modified Facility layout have resulted in a reduction in potential impacts to estimated occupied wintering habitat identified for two state-listed grassland avian species: (1) short-eared owl (*Asio flammeus*), a state-listed endangered species; and (2) northern harrier (*Circus hudsonius*), a state-listed threatened species. Specifically, total potential impacts to estimated occupied wintering habitat for these species have decreased from approximately 282 acres to approximately 202 acres. More specifically, the Proposed Modified Facility will result in a reduction of approximately 24 acres of impact to short-eared owl estimated occupied wintering habitat and approximately 77 acres of northern harrier estimated occupied wintering habitat, some of which overlaps.

In addition, the Proposed Modified Facility layout avoids impacts to estimated occupied wintering habitat identified for short-eared owl completely, although any potential mitigation would be expected to benefit both species given their similar wintering habitat preferences/requirements. Comparisons of the potential impacts to estimated occupied wintering habitat for the Permitted Facility layout and the Proposed Modified Facility layout are summarized in Table 7 and are also depicted on Figure 8.

**Table 7. Comparison of Potential Impacts to State-Listed Grassland Bird Occupied Wintering Habitat and Required Habitat Mitigation: Permitted Facility Layout vs. Proposed Modified Facility Layout**

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Facility Component(s)	Species <sup>A</sup>	Potential Adverse Modification of Estimated Occupied Wintering Habitat (Acres) <sup>B</sup>			Required Habitat Mitigation (Acres) <sup>C</sup>		
		Permitted Facility	Proposed Modified Facility	Net Change	Permitted Facility	Proposed Modified Facility	Net Change
[REDACTED]	SEOW	1.97	0.00	-1.97	0.39	0.00	-0.39
[REDACTED]	SEOW and NOHA	0.22	0.00	-0.22	0.04	0.00	-0.04
[REDACTED]	NOHA	0.34	0.00	-0.34	0.07	0.00	-0.07
[REDACTED]	SEOW and NOHA	21.60	0.00	-21.60	4.32	0.00	-4.32
[REDACTED]	NOHA	69.69	0.00	-69.69	13.94	0.00	-13.94
[REDACTED]	NOHA	1.56	0.00	-1.56	0.31	0.00	-0.31
[REDACTED]	NOHA	0.20	0.00	-0.20	0.04	0.00	-0.04

Facility Component(s)	Species <sup>A</sup>	Potential Adverse Modification of Estimated Occupied Wintering Habitat (Acres) <sup>B</sup>			Required Habitat Mitigation (Acres) <sup>C</sup>		
		Permitted Facility	Proposed Modified Facility	Net Change	Permitted Facility	Proposed Modified Facility	Net Change
[REDACTED]	NOHA	5.59	5.86	+0.27	1.12	1.17	+0.05
[REDACTED]	NOHA	1.11	1.11	0.00	0.22	0.22	0.00
[REDACTED]	NOHA	7.64	7.34	-0.30	1.53	1.47	-0.06
[REDACTED]	NOHA	13.10	13.73	+0.63	2.62	2.75	+0.13
[REDACTED]	NOHA	72.88	72.88	0.00	14.58	14.58	0.00
[REDACTED]	NOHA	26.00	25.85	-0.15	5.20	5.17	-0.03
[REDACTED]	NOHA	2.14	2.14	0.00	0.43	0.43	0.00
[REDACTED]	NOHA	2.12	2.13	+0.01	0.42	0.43	0.00

Facility Component(s)	Species <sup>A</sup>	Potential Adverse Modification of Estimated Occupied Wintering Habitat (Acres) <sup>B</sup>			Required Habitat Mitigation (Acres) <sup>C</sup>		
		Permitted Facility	Proposed Modified Facility	Net Change	Permitted Facility	Proposed Modified Facility	Net Change
██████████	NOHA	0.00	0.06	+0.06	0.00	0.01	+0.01
██████████ ██████████ ██████████ ██████████ ██████████ ██████████	NOHA	49.45	50.36	+0.91	9.89	10.07	+0.18
██████████ ██████████ ██████████ ██████████ ██████████ ██████████	NOHA	5.76	7.22	+1.46	1.15	1.44	+0.29
██████████ ██████████ ██████████ ██████████	NOHA	0.00	13.75	+13.75	0.00	2.75	+2.75
Total for Short-eared Owl		23.79	0.00	-23.79	4.76	0.00	-4.76
Total for Northern Harrier		279.40	202.44	-76.96	55.88	40.49	-15.39
Overall Total <sup>D</sup>		281.38	202.44	-78.94	56.28	40.49	-15.79

<sup>A</sup> SEOW refers to short-eared owl (*Asio flammeus*); NOHA refers to northern harrier (*Circus hudsonius*).

<sup>B</sup> The estimated occupied wintering habitat area identified for short-eared owl partly overlaps with an estimated occupied wintering habitat area identified for northern harrier.

<sup>C</sup> Required grassland bird habitat mitigation was calculated based on the Section 94-c uniform standards and conditions (Subpart 900-6.4(o)(4)), which specify "0.2 acres of mitigation for every acre of occupied grassland bird wintering habitat determined to be taken".

<sup>D</sup> Potential adverse modification occurs in areas of estimated occupied wintering habitat identified for both species (short-eared owl and northern harrier). Therefore, the overall total includes each acre of potential impact only once given the shared habitat areas.

>END CONFIDENTIAL INFORMATION

### 3.11 Water Resources and Aquatic Ecology

#### 3.11.1 Groundwater

Both the Permitted Facility and Proposed Modified Facility layouts are not anticipated to result in any significant impacts to groundwater quality or quantity, or to any public drinking water supply wells, aquifer protection zones, or groundwater aquifers on or within a 1-mile radius of the Facility Site. No known active residential/domestic water supply wells occur within 100 feet of any proposed collection lines or within 200 feet of any proposed wind turbine. With the Proposed Modified Facility layout, the nearest wells include one water well within 100 feet of an access road, and five water wells within 500 feet of proposed horizontal directional drilling locations.

The Permit Holder will adhere to the requirements of 19 NYCRR §900-6.4(n)(1) to conduct pre- and post-construction water quality testing of water wells on any non-participating properties within the specified boundaries to monitor for potential impacts (e.g., blasting, inadvertent returns). No impacts to well yields are expected as residential and community groundwater wells are generally assumed to be set deeper than the proposed wind turbine foundations and underground electrical collection lines. Furthermore, construction practices will adhere to the erosion and sediment control measures outlined in the Stormwater Pollution Prevention Plan, as well as the methods to prevent the discharge of hazardous material to the environment outlined in the Spill Prevention, Control and Countermeasures Plan, thus minimizing the potential for groundwater contamination.

#### 3.11.2 Surface Waters

In order to account for the Proposed Modified Facility layout changes, additional wetland and stream delineations were completed in April 2022. A total of nine additional streams were identified within the Proposed Modified Facility Site (Attachment 8). A Wetland and Stream Delineation Report Addendum was provided to ORES on June 7, 2022 (Attachment 8). The Applicant coordinated with Arcadis to conduct a Jurisdictional Determination site visit on June 22, 2022, to review the boundaries of delineated features in support of determining state jurisdictional status of the wetlands and streams identified in Attachment 8. The Applicant is awaiting a final Jurisdictional Determination from ORES.

Based on the Proposed Modified Facility LOD (as identified in the Design Drawings), construction is anticipated to result in 5,773 linear feet of temporary disturbance and up to 590 linear feet of permanent disturbance to perennial, ephemeral, and intermittent streams (Figure 9). Overall, the Proposed Modified Facility layout will result in more stream impacts in comparison to the Permitted Facility layout. Specifically, the Proposed Modified Facility will increase the impacts from 2,177 linear feet to 5,773 linear feet of temporary disturbance, and from 239 linear feet to 590 linear feet of permanent disturbance. These impacts are depicted on the Wetland Impact Drawings included in Attachment 9 and presented in Tables 8 and 9.

Table 8. Potential Temporary and Permanent Impacts to Surface Waters for Proposed Modified Facility Layout

Stream ID <sup>A</sup>	Stream Type <sup>B</sup>	NYSDEC Classification (if applicable)	Temporary Impact (sq ft)	Temporary Impact (ln ft)	Permanent Stream Impact (sq ft)	Permanent Impact (ln ft)	Type of Impact <sup>C</sup>	Figure 9, Sheet #	Preliminary Design Drawing (Attachment 1), Sheet #
1P	R3	Class C	683	57	-	-	CL	29	C-301
1Y	R6	-	44	30	48	30	AR	26	C-207
1Z	R6	-	55	23	171	54	AR	25	C-206
2A	R6	-	457	45	-	-	WT	26	C-207
2B	R3	Class C	5,154	505	17	6	AR, WT	25, 26	C-206, C-207
2D	R4	Class C	22	11	-	-	WT	26	C-207
2O	R3	Class C	1,792	183	-	-	CL	19, 21	C-213, C-306
2Y	R6	-	2,956	1,013	90	124	AR	11	C-229
3E	R6	-	100	50	50	25	AR	9	C-231
3F	R4	Class C	386	92	-	-	CL, WT	9, 10	C-230, C-231
3I	R4	Class C	260	20	-	-	WT	4, 5	C-226
3J	R4	-	4,337	296	930	75	AR, WT	6	C-226
3K	R4	-	1,195	116	-	-	AR, CL	8	C-223, C-310
3L	R4	Class C	6,119	278	-	-	CL	6	C-226
3M	R6	-	1,511	109	197	20	AR, CL	7	C-225 C-310
3N	R4	Class C	3,080	261	-	-	WT	4	C-226

Stream ID <sup>A</sup>	Stream Type <sup>B</sup>	NYSDEC Classification (if applicable)	Temporary Impact (sq ft)	Temporary Impact (ln ft)	Permanent Stream Impact (sq ft)	Permanent Impact (ln ft)	Type of Impact <sup>C</sup>	Figure 9, Sheet #	Preliminary Design Drawing (Attachment 1), Sheet #
4B	R4	Class C	185	58	-	-	CL, AR	28	C-208
4C	R4	-	253	62	121	32	AR	28	C-208
66ST01	R3	Class C	697	131	-	-	CL	15	C-303
66ST02	R6	-	105	26	-	-	AR	16	C-219
66ST06	R3	-	631	165	22	24	AR, CL	13, 14, 15	C-220
66ST07	R6	-	4,352	1,478	109	76	AR	13, 14	C-220
66ST08	R6	-	0.28	1	-	-	CL	15	C-303
66ST10	R6	-	1,264	763	531	124	AR	13, 14	C-220

<sup>A</sup> Stream ID assigned by EDR

<sup>B</sup> R3 = Upper Perennial, R4 = Intermittent, R5 = Unknown Perennial, R6 = Ephemeral

<sup>C</sup> AR = Access Road, CL = Underground Collection Line, WT = Wind Turbine

Table 9. Comparison of Anticipated Stream Impacts from Facility Construction: Permitted Facility Layout vs. Proposed Modified Facility Layout

Stream Type	Temporary Impact		Permanent Impact	
	Permitted Layout (sq ft)	Proposed Modified Layout (sq ft)	Permitted Layout (sq ft)	Proposed Modified Layout (sq ft)
Perennial	4,999	8,956	4	38
Intermittent	4,559	17,132	12	1,883
Ephemeral	4,347	10,844	611	1,196
TOTAL	13,905	36,932	627	3,117



Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of impacts to water resources from the Proposed Modified Facility, such as the requirement that the Applicant submit final drawings showing all facility components, including stormwater features during the compliance phase, and conduct stream restoration as required under the regulations (Final Permit Section 7(l)(c) and (f)(3)). Nothing further is needed to address the stream or water impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility.

### 3.12 Wetlands

In order to account for the Proposed Modified Facility layout changes, additional wetland delineations were completed in April 2022. A total of nine additional wetlands were identified within the Proposed Modified Facility Site (Attachment 8; Figure 10).

As indicated in Attachment 8, the additional wetlands have vegetation, soils and hydrologic conditions that are similar to the wetlands already identified within the Permitted Facility Site. The wetland functions and values provided by the additional identified wetlands are also similar to those provided by previously identified wetlands.

Based on a review of NYSDEC Freshwater Wetlands mapping, the Article 24 regulations, initial consultation with NYSDEC Regional staff, it is anticipated that up to five of the nine wetlands delineated within the Proposed Modified Facility Site may fall under state jurisdiction based on overlap or proximity to NYSDEC mapped wetlands, size (i.e., greater than 12.4 acres), and/or direct hydrologic connections to NYSDEC mapped wetlands (see Attachment 8).

Based on the Proposed Modified Facility LOD, construction is now anticipated to result in 1.34 acres of temporary impact, 0.79 acre of permanent forested wetland conversion, and 0.19 acre of permanent impact (i.e., loss/fill) to wetlands. Overall, the Proposed Modified Facility layout will result in fewer wetland impacts in comparison to the Permitted Layout. The acres of temporary wetland impacts will increase by 0.54 acre; however, the acres of permanent wetland conversion will decrease by 0.94 acre and the overall acres of permanent fill remain the same as approved in the Permit. The total impacts to state-regulated 100-foot wetland adjacent area will also decrease as a result of the Proposed Modified Facility LOD. These impacts are depicted in Figure 9 and presented in Tables 10, 11, and 12.

On February 16, 2021, prior to submitting the Joint Application for Permit, the Permit Holder had a meeting with the U.S. Army Corps of Engineers (USACE) to discuss the wetland mitigation anticipated to be required for the Facility. The Permit Holder submitted a Joint Application for Permit to ORES and the USACE on May 20, 2021. During a call on April 26, 2022, and in a subsequent email from the USACE on April 27, 2022, the USACE indicated that they did not have any comments on the Conceptual Wetland Mitigation Conceptual Plan to be incorporated into a final wetland mitigation plan. The Wetland Mitigation Plan will be updated to account for the minor changes in impact as a result of the Proposed Modified Facility and will be provided to both ORES and the USACE in a supplemental filing to the Joint Application for Permit, anticipated to be filed in August 2022.

Table 10. Anticipated Wetland Impacts from Facility Construction for Proposed Layout

ID <sup>A</sup>	Type <sup>B</sup>	Temp. Impact (acres) <sup>C</sup>	Perm. Wetland Conversion (acres) <sup>C</sup>	Perm. Impact (acres) <sup>C</sup>	Reason for Impact/ Crossing Method <sup>D</sup>	NYSDEC Wetland ID	Antic. Juris. Status <sup>E</sup>	Figure 9 Sheet Number	Preliminary Design Drawing (Attachment 1), Sheet #
1N	PEM	0.2	-	0.09	AR, CL	AL-7	F, S	32	C-203,
1N	PFO	-	0.07	-	AR, CL	AL-7	F, S	30	C-204
1T	PFO	-	0.06	0.07	AR	-	F	28	C-208
1T	PEM	0.08	-	-	AR, CL	-	F	28	C-208
1U	PFO	-	0.06	-	WT	-	F	27	C-208
1U	PEM	0.11	-	-	WT, CL	-	F	27, 28	C-208
1Z	PEM	0.07	-	<0.01	AR, CL, WT	-	F	25	C-206
2G	PEM	<0.01	-	-	AR	AL-12	F, S	23	C-209
2H	PFO	-	0.42	-	CL, AR	AL-6	F, S	17, 19, 21	C-213, C-235
2H	PEM	0.2	-	-	CL, AR	AL-6	F, S	18, 19, 21	C-213, C-235, C-306, C-307
2I	PEM	<0.01	-	-	AR	-	F	20	C-213
2J	PFO	-	<0.01	-	WT	-	F	19	C-213
2N	PEM	0.03	-	-	CL	-	F	12	C-217
3J	PSS	0.04	-	-	WT	-	F	5, 6	C-226
3J	PEM	0.18	-	-	WT	-	F	5, 6	C-226
3Q	PEM	<0.01	-	-	AR	-	F	31, 32	C-203
66W01	PEM	0.42	-	0.03	AR, CL, WT	HO-22	F, S	1, 2, 3	C-227, C-228
66W10	PFO	-	0.18	-	AR	Unmapped	F, S	13	C-220

<sup>A</sup> Delineated Wetland ID codes assigned by EDR.

<sup>B</sup> PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub (Cowardin et al., 1979).

<sup>C</sup> Acreages have been rounded to the nearest hundredth. Temp. = Temporary; Perm. = Permanent. Permanent forest conversion refers to tree clearing in a forested wetland in combination with temporary soil disturbance or temporary fill.

<sup>D</sup> AR = Access Road; CL = Collection Line; RI = Temporary Road Improvement; WT = Wind Turbine Work Area; C = Culvert(s) may be used for access road crossing(s); T = Direct burial trench may be used for collection line crossing(s);

<sup>E</sup> Anticipated jurisdictional status is preliminary. F = Anticipated to be federal jurisdictional; S = Anticipated to be state jurisdictional

**Table 11. Comparison of Anticipated Wetland Impacts from Facility Construction (Permitted Layout vs. Proposed Modified Layout)**

Wetland Type	Temporary Impact		Permanent Wetland Conversion		Permanent Impact	
	Permitted Layout	Proposed Modified Layout	Permitted Layout	Proposed Modified Layout	Permitted Layout	Proposed Modified Layout
Palustrine Forested	-	-	1.73	0.79	0.02	0.07
Palustrine Scrub/Shrub	<0.01	0.18	-	-	-	-
Palustrine Emergent	0.8	1.16	-	-	0.17	0.12
TOTAL	0.8	1.34	1.73	0.79	0.19	0.19

**Table 12. Comparison of Anticipated Impacts to State Regulated 100-Foot Wetland Adjacent Area**

Temporary Impact (acres)		Permanent Impact (acres)	
Permitted Layout	Proposed Modified Layout	Permitted Layout	Proposed Modified Layout
12.66	11.17	2.34	1.96

Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of wetland impacts from the Proposed Modified Facility, such as the requirement that the Applicant submit a final Wetland Restoration and Mitigation Plan during the compliance phase and conduct mitigation as required under the regulations (Final Permit Section 6(c)). Minor adjustments to the total acreage numbers outlined in SSC 6(c) will be needed to reflect the small changes in total wetland impact and required mitigation. However, nothing further is needed to address the wetland impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility, and particularly in light of the overall reduction in total permanent wetland impacts.

### 3.13 Agricultural Resources

Figure 11 and Table 13 show the distribution of agricultural land use throughout the Facility Site and the larger 5-mile Study Area.

**Table 13. Comparison of Impacts to Agricultural Land within the Facility Site (Permitted Layout vs. Proposed Modified Layout)**

Agricultural District	Acres within the Facility Site		Total Soil Impact (acres)		Temporary Soil Impact (acres)		Permanent Soil Impact (acres)	
	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility	Permitted Facility	Proposed Modified Facility
Orleans County District	4,941	3,528	144.3	284.5	97.3	219.7	47.0	64.8

As shown in Table 13, active agricultural areas comprise approximately 3,528 acres (82%) of the 4,292-acre Proposed Modified Facility Site. Construction of the Proposed Modified Facility will result in temporary disturbance of up to approximately 219.7 acres, and permanent impacts of up to 64.8 acres (e.g., the POI and collection substations, access roads). This does represent a slight increase in the total permanent impact to agricultural lands, as compared with the Permitted Facility, however the increase is modest and the total overall impact to agricultural lands (temporary and permanent) is relatively small as a percentage of the Facility Site's total agricultural acreage. Approximately 8% of the Proposed Modified Facility Site's total agricultural acreage would be impacted temporarily, and only 2% of that total acreage would be impacted permanently. Further, as the Permit Holder outlined more fully in the Transfer Application, the Proposed Modified Facility will allow the continued use of areas beneath wind turbines for farming, enabling agricultural activity to continue unhindered on the vast majority of agricultural land within the Proposed Modified Facility Site.

Table 14 presents a breakdown of impact resulting from the Proposed Modified Facility layout by type of agricultural use and on mineral soil groups 1-4 which are classified by the New York State Department of Agriculture and Markets (NYSDAM) as the best soils for agricultural production. Approximately 2,104 acres (49%) of the Proposed Modified Facility Site is classified in mineral soil groups 1 through 4. Within the subset of Facility Site lands classified as mineral soil groups 1 through 4, approximately 35.8 acres of

permanent impacts are anticipated in mineral soil group 2, 4.8 acres in group 3, and 0.8 acre in group 4. No impacts to mineral soil groups designated as 1, or the best farmland, are anticipated. The impacts from the Proposed Modified Facility to mineral soil groups 1 through 4 are less than the impacts from the Permitted Facility.

**Table 14. Impacts to Active Agricultural Lands from the Proposed Modified Facility Layout**

Agricultural Use	Acreage within Facility Site	Temporary Impact (acres) <sup>A</sup>	Permanent loss (acres) <sup>B</sup>	Areas Not Impacted (acres)
<b>Land Use</b>				
Row Crop	3,160	219.9	66	2,874.1
Pasture/Hayfield	74.6	2.3	0	72.3
<b>Mineral Soil Groups</b>				
Group 1	0	0	0	0
Group 2	1,528	114.4	35.8	1,377.8
Group 3	557.8	23.4	4.8	529.6
Group 4	18.2	2.6	0.8	14.8
<b>Total for Proposed Modified Facility</b>	<b>2,104</b>	<b>140.4</b>	<b>41.4</b>	<b>1,922.2</b>
<b>Total for Permitted Facility</b>	<b>2,585</b>	<b>152.2</b>	<b>46.8</b>	<b>2,386</b>

<sup>A</sup> Impacts that will occur only during construction. Temporarily impacted areas will be restored following construction and will be allowed to return to agricultural use.

<sup>B</sup> Areas of permanent loss include in agricultural areas subject to significant grading and installation of impervious surface (e.g., access roads, work pads and substations).

Overall, the Final Permit contains conditions which adequately address the avoidance, minimization and mitigation of impacts from the Proposed Modified Facility on agriculture, such as the requirement that the Applicant adhere to NYSDAM guidelines and hire an independent third-party agricultural monitor (Final Permit Section 5(III)(s)). Nothing further is needed to address the impacts of the Proposed Modified Facility on agricultural resources.

### 3.14 Effects on Transportation

The Route Evaluation Study has been updated to account for the routing of construction traffic that reflects the Proposed Modified Layout (see Attachment 9). Section 6 (Project Trip Generation Characteristics) and Figure 2 (Transportation Routes) of the Route Evaluation Study detail the updated number, frequency, and timing of vehicle trips as well as the specific access routes to account for the changes in Project Layout.

Consistent with the Application, virtually all traffic-related impacts associated with the Proposed Modified Facility will occur during the site preparation and construction phase when there will be a temporary increase in vehicle traffic on area roadways. The Proposed Modified Facility operation's traffic is anticipated to be limited to occasional pick-up truck traffic associated with routine maintenance activities. Once the Proposed Modified Facility is commissioned and construction activities are concluded, operational traffic impacts will be negligible. Therefore, the changes the Permit Holder is proposing as part of this Permit Modification do not affect the general conclusions included in the Application regarding impacts on transportation, and the Final Permit contains conditions which adequately address transportation matters.

### 3.15 Socioeconomic Effects

The changes the Permit Holder is proposing as part of this Permit Modification would not affect the general conclusions included in the Application regarding socioeconomic effects. The Proposed Modified Facility is anticipated to have local, countywide, and statewide economic benefits, including job creation, purchases of local materials and services, and direct revenue to the Town of Barre, Albion Central School District, and Orleans County in the form of a Payment in Lieu of Taxes (PILOT) agreement and a Host Community Agreement (HCA).<sup>4</sup> Additionally, income generated from direct employment during the construction and operation phases of the Proposed Modified Facility will be used to purchase community goods and services, further expanding the local economy.

To provide additional reference, an updated estimate of PILOT and HCA payments projected to be made to each taxing jurisdiction, based on the Permit Holder's internal estimates related to the modified layout, is included in Table 15. Payment amounts shown are based on a total Facility capacity of 186 MW.<sup>5</sup> Payment amounts would increase or decrease in direct proportion to changes in the Facility's final installed capacity.

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<sup>4</sup> The Permitted Facility had 5.6 MW located in Oakfield Central School District; however, with the removal/relocation of Turbines T01 through T06, that school district will no longer host Facility components or be included in the PILOT agreement.

<sup>5</sup> Although the Permit Holder is proposing a total nameplate capacity of between 186 and 200.1 MW (depending on final turbine selection) as part of this Permit Modification, the PILOT and HCA estimates assumes a total nameplate capacity of 186 MW to avoid overestimating the Facility's economic benefits—if the larger capacity Vestas turbine model is selected, and the total nameplate capacity is 200.1 MW, the actual payments will be adjusted accordingly. The final payment amounts to be provided to host communities pursuant to the PILOT and HCA agreements will be based upon the final nameplate of the Facility as constructed, and the terms of those agreements.

**Table 15. Estimated Annual and Total PILOT and HCA Amounts**

Taxing Jurisdictions Receiving PILOT or HCA Payments	Payment per MW (\$/MW)	Estimated Annual Installed Capacity (MW) within Jurisdiction <sup>A</sup>	Annual PILOT/HCA Estimate for Year 1	25-Year PILOT/HCA Estimate <sup>B</sup>
Town of Barre	\$6,750	186	\$1,255,500	\$40,836,833
Albion Central School District	\$1,125	186	\$209,250	\$6,806,139
Orleans County	\$1,125	186	\$209,250	\$6,806,139
<b>Facility Total</b>	<b>\$9,000</b>	<b>186</b>	<b>\$1,674,000</b>	<b>\$54,449,110</b>

Notes: All values in this table, apart from number of turbines within jurisdictions, are independently rounded, and therefore may not directly add up to the totals shown. All calculations utilized unrounded values.

<sup>A</sup> Annual nameplate capacity within jurisdictions is calculated by multiplying the number of turbines located within each jurisdiction by the turbine nameplate capacity (6 MW/turbine).

<sup>B</sup> The 25-Year PILOT/HCA total estimate was calculated using compounded annual interest rates of 2% for Years 1-14 and 2.5% for Years 15-25.

When compared to the projected payments presented in the Application, the Facility total payment per MW presented in this Permit Modification has not changed. However, the projected payment per MW to each taxing jurisdiction was adjusted to reflect the final terms of the PILOT agreement and HCA, which have been executed for this Project. Furthermore, the total nameplate capacity that the PILOT and HCA payments are based on increased by 1.2 MW and therefore the Facility total estimate for Year 1 and the 25-Year estimate are marginally higher in this Permit Modification compared to the totals presented in the Application. More specifically, the Facility total estimate for Year 1 and the 25-Year estimate increased by \$10,800 and \$351,284, respectively.

Overall, the Final Permit contains conditions which adequately address the socioeconomic impacts of the Facility, such as the requirement that the Applicant submit documentation of host community benefits to be provided (Final Permit Section 5(l)(j)). Nothing further is needed to address the socioeconomic impacts of the Proposed Modified Facility, which are not materially different from the Permitted Facility, though the Proposed Modified Facility does provide slightly greater economic benefits to the host communities through PILOT and HCA payments.

### 3.16 Environmental Justice

Based on 2014–2018 American Community Survey census data obtained from the United States Environmental Protection Agency Environmental Justice Screening and Mapping Tool (“EJSCREEN Tool”; <https://ejscreen.epa.gov/mapper/>), no potential EJ areas occur within 0.5 mile of the Proposed Modified Facility Site (the EJ Study Area). Therefore, the changes the Permit Holder proposes as part of this Permit Modification would not affect the general conclusions regarding environmental justice areas included in the Application.

### 3.17 Effect on Communications

Capitol Airspace Group, Inc. ran an updated microwave analysis of the site. The results of this analysis indicate that 15 paths associated with five microwave links overlie the Heritage Wind Project Site. Due to the narrow size of most of the microwave path Fresnel zones, Apex has microsituated turbine locations to avoid

all impacts to communications. Apex provided an updated Facility Layout notification to the National Telecommunications and Information Administration (NTIA) on June 17, 2022. Apex will provide a copy of the response from NTIA once available. Further, the Permit Holder has contacted Orleans County to obtain updated information regarding the County's proposed broadband initiative, and to provide GIS information to the County as needed to assess the Proposed Modified Facility's turbine locations relative to County communications equipment. While the Permit Holder does not anticipate any issues regarding this topic, ongoing coordination with the County will occur to ensure appropriate information is provided.

Nothing further is needed to address the communications impacts of the Proposed Modified Facility, given the lack of substantial change in impacts as compared with the Permitted Facility.

### **3.18 Local Laws and Ordinances**

In general, compliance with local laws and regulations will be as described in the Application and the Permit. However, the changes the Permit Holder is proposing as part of this Permit Modification will require one new waiver to reduce the local setback requirement for six turbines. The Town of Barre's local law requires a 1.5 times tip height setback from non-participating property lines. The Applicant was unable to modify the Facility Layout to remove the six turbines nearest the WMAs while still adhering to the Town's setback requirements. As a result of the efforts to remove turbines T01 through T06, there are six turbines which now require a waiver to meet the Town's 1.5 times tip height (984 feet) setback from non-participating boundaries (see Figure 12). All six of these turbines still meet ORES's required 1.1 times tip height (721.6 feet) setback under the regulations (19 NYCRR § 900-2.6(b)) but require relief from the Town's larger setback.

As the Permit Holder stressed in opposition to the proposal to remove the turbines closest to the WMAs, existing site constraints make it difficult to achieve the needed project capacity while adhering to both the 2-mile setback from the WMAs and the provisions of local law. Given that the ORES Executive Director has determined to impose the additional requirements on turbines within 2 miles of the WMAs, the Permit Holder has no other option but to request this setback waiver for turbines T01, T06, T16, T26, T27, and T31 in the new layout. These new proposed turbine locations are shown in the attached Figure 12.

The need for this waiver is driven primarily by (1) efforts to reduce potential impacts to avian species migrating near the Facility and/or utilizing the Oak Orchard WMA and (2) the need to appropriately space turbines at least 0.5 mile apart from one another to meet manufacturer guidelines on avoiding wind wake, the downstream disturbance of windspeeds between turbines within a wind facility which negatively impacts energy production and turbine efficiency. For example, turbine T01 must be located at a sufficient distance from turbine T02 to avoid wind wake, putting turbine T01 out of compliance with the Town's setback to non-participating property lines. The Permit Holder also worked to maximize setbacks from non-participating residences, and avoid other resource impacts, such as wetlands.

The Permit Holder was unable to meet the Town's 1.5 times tip height setback for these turbines for the following reasons:



- Turbine T01 – the location had to be shifted to leave space to site new turbine T02 and avoid wind wake effects between the two turbines. With both turbines in their proposed locations, there is no way for Turbine T01 to accommodate the Town setback. The parcel for which the waiver is needed consists of an open field and partially wooded area located at a significant distance from any residences—the nearest occupied residence to T1 is approximately 1,681 feet (2.6 times tip height) away.
- Turbine T06—in addition to shifting to accommodate the WMA issue, this turbine has been moved to reduce impacts to wetlands. The turbine was also shifted further away from Oak Orchard Road to reduce sound and shadow flicker impacts. However, it does not comply with the Town’s 1.5x tip height setback at its new location. The parcel for which the waiver is needed is an open field area located at a significant distance from any residences—the nearest occupied residence to T6 is approximately 1,580 feet (2.4 times tip height) away.
- Turbine T16 – this location was not originally proposed to host a turbine because it does not meet the Town setback, but the location had to be used to replace the turbines lost within 2 miles of the WMAs. The two parcels for which the waiver is needed are wooded lands located at a significant distance from any residences—the nearest occupied residence to T16 is approximately 2,331 feet (3.5 times tip height) away.
- Turbine T26, T27 and T31 – in order to remove turbines previously sited within 2 miles of the WMAs, the Permit Holder had to reorganize the northeastern portion of the Facility layout to make room for one additional turbine and avoid wind wake effects among that turbine cluster, putting these three turbines out of compliance with the Town setback. With regard to T26, the parcel for which the waiver is needed is a very small area of wooded land located at a significant distance from any residences—the nearest occupied residence to T26 is approximately 1,451 feet (2.2 times tip height) away. With regard to T27 and T31, the parcels for which the waiver is needed are wooded (T31) or agricultural fields (T27)—the nearest occupied residence to T27 is 1,777 feet (2.7 times tip height) away; the nearest occupied residence to T31 is 1,330 feet (2 times tip height) away.

Importantly, these six turbines still adhere to the Town’s setbacks to non-participating residences and commercial buildings (2.0 times turbine tip height, per Site Specific Condition 6(a)(2), Town setbacks for public roads, above-ground transmission lines and substations (1.5 times tip height, per Site Specific Condition 6(a)(1)), and the Town’s non-participating property line setback for the remaining 25 turbines in the project, as well as ORES setbacks for non-participating non-residential structures (1.5 times tip height). The extent of the waiver needed from the Town Law is outlined below in Table 16, which also shows each turbine’s compliance with the ORES setback (1.1x tip height).

**Table 16. Turbine Setbacks and Extent of Waivers Needed**

Turbine	Proposed Location (distance from nearest NP Parcel Boundary) (feet)	NP Property Line Setback Required by Town Law (feet)	NP Property Line Setback Required by ORES (feet)	Extent of Waiver Needed from Town Law (feet)
T01	724.0	984	721.6	260.0
T06	827.1	984	721.6	156.9
T16	725.4	984	721.6	258.6
T26	956.9	984	721.6	27.1
T27	736.5	984	721.6	247.5
T31	731.2	984	721.6	252.8

Under New York Executive Law § 94-c(5)(e), ORES “may elect to not apply, in whole or in part, any local law or ordinance which would otherwise be applicable if it makes a finding that, as applied to the proposed major renewable energy facility, it is unreasonably burdensome in view of Climate Leadership and Community Protection Act (CLCPA) targets and the environmental benefits of the proposed major renewable energy facility.” As a general matter, the Recommended Decision and Hearing Report (DMM Item 89, December 10, 2021) as well as the Heritage Wind Decision (DMM Item 101, January 13, 2022), as well as Exhibits 10 and 17 of the Application and the Application Transition Overview provided an extensive outline of the Facility’s environmental benefits, consistency with state energy policy, and contribution toward CLCPA mandates; those discussions are incorporated by reference here to support waiver of the Town setbacks. In adopting the CLCPA, the State Legislature characterized climate change as an existential threat to the “economic well-being, public health, natural resources, and the environment of New York” (CLCPA § 1(1)). The environmental and social harms posed by global climate change have long motivated the state’s aggressive clean energy policies. Experts estimate that air pollution and climate change cost each American an average of \$2,500 per year in health care, the burden of which falls disproportionately on vulnerable communities.<sup>6</sup> As demonstrated in the Record, renewable energy facilities such as this Facility offer significant environmental, public health, and community benefits, and will aid the state in transitioning from carbon-emitting electric generation, which has negative impacts on wildlife, birds, and human health, toward a carbon-free energy future.

<sup>6</sup> See Frank Ackerman and Elizabeth A. Stanton, Global Development and Environment Institute and Stockholm Environment Institute-US Center, Tufts University, for Natural Resources Defense Council. May 2008. The Cost of Climate Change: What We’ll Pay if Global Warming Continues Unchecked. Available at <https://www.nrdc.org/sites/default/files/cost.pdf>.

Under Title 19 NYCRR § 900-2.25(c), an applicant seeking a waiver of local laws must justify, with facts and analysis, an assertion that the burden imposed on the Proposed Modified Facility by the substantive provision of local law is unreasonable. This justification requires a discussion of the degree of burden caused, why the burden should not be borne by the applicant, that the request cannot reasonably be obviated by design changes to the facility, that the request is the minimum necessary, and that the adverse impacts of granting the request are mitigated to the maximum extent practicable. Requests may be based on existing technology, factors of costs or economics, and/or the needs of consumers for the facility.

Here, the degree of burden caused by the setback stems from the need to meet renewable energy generation capacity needs, while avoiding onerous restrictions placed on facility operations for turbines located within 2 miles of nearby WMAs, by allowing the Permit Holder to relocate turbines away from the WMAs and into locations which meet the ORES setbacks but otherwise do not comply with additional Town setbacks to non-participating boundary lines. As the Permit Holder has repeatedly stated, there is no other way to design this Facility to address the 2-mile distance from the WMAs while still adhering to local setbacks. Further, the request is the minimum necessary, as it amounts to just over 250 feet in difference between the ORES and Town setbacks. As noted above, the six turbines in question still adhere to the ORES setback for non-participating property lines of 1.1 times tip height—the waiver requested amounts to relief from the setback of no more than 262.4 feet, given that the maximum tip height of the turbines under consideration in this modification are 656 feet (1.5 times tip height = 984 feet; 1.1 times tip height = 721.6 feet), and is much less than 262.4 feet in some cases (T26). The ORES setbacks already provide ample protection to adjacent landowners, and the Town and ORES setbacks to residences ensure that this setback reduction does not bring turbines closer to homes than contemplated in the Town law. As demonstrated in Exhibit 15 of the Application, the standard fall radius for a wind turbine is equal to the height of the turbine—the ORES 1.1 times tip height setback already ensures additional space is added, and the additional 262.4 feet needed to comply with the Town's setback does not have a significant safety and other impact on the nearby property boundaries. For these reasons, thus, adverse impacts from waiver of the setback are not anticipated.

In summary, the requested waiver is necessary to allow for construction of the Facility at the capacity necessary to make it financially viable, given the final permit decision made by ORES with regard to the WMAs, while still ensuring that turbines are set back from residences, businesses, and public roads at distances compliant with the Town law, and from boundary lines at distances consistent with the ORES USCs.

Lastly, the Applicant notes that this waiver also requires a revision to Site Specific Condition 6(a)(1), which would need to be modified to state that the Permittee shall comply with the 1.5 times turbine tip height setback from non-participating property lines (except as applied to turbines T01, T06, T16, T26, T27, and T31, which shall adhere to a 1.1 times turbine tip height setback as required by 19 NYCRR § 900—2.6(b)). The Applicant respectfully requests revision of that SSC, in light of the circumstances supporting the waiver in this case.

### 3.19 Other Permits and Approvals

The following federal permits, consent, approvals, or licenses are anticipated to be needed for the Proposed Modified Facility:

- U.S. Army Corps of Engineers Nationwide Permit for the placement of fill in federal jurisdictional Waters of the United States (WOTUS) pursuant to Section 404 of the Clean Water Act (CWA)(Joint Application submitted May 20, 2021; status: pending)
- Water Quality Certification pursuant to Section 401 of the CWA (to be issued by ORES; status: pending)
- New York State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) pursuant to Section 402 of the CWA and Article 17 of the Environmental Conservation Law (to be obtained from NYSDEC prior to construction)
- National Historic Preservation Act, Section 106 Compliance through NYSOPRHP consultations (to be conducted in concert with the Joint Application process).

### 3.20 Decommissioning

The Permit Holder has not prepared a new decommissioning estimate for the Proposed Modified Facility because the Draft Permit already includes an SSC which will require the Permit Holder to prepare and submit a final Decommissioning and Site Restoration Plan as a compliance filing to establish the required financial security for decommissioning and to otherwise update the plan to reflect decommissioning costs going into Facility construction. In all likelihood, the total decommissioning costs may decrease given that the number of turbines and lengths of access road and collection lines in the Proposed Modified Facility have all decreased. For that reason, the decommissioning estimate provided in the Transfer Application is sufficiently conservative to allow consideration of this Modification without further analysis of decommissioning costs.

## 4.0 REQUESTED MODIFICATIONS TO THE FINAL PERMIT

In addition to the request outlined above to modify Final Permit Section 6(a)(1) to state that the Permit Holder will comply with a 1.5 times turbine tip height setback from non-participating property lines for all turbines except the six for which a waiver of that setback is sought herein, and modification of Section 4 to reflect the requested waiver, the Permit Holder requests the addition of an SSC to allow for issuance of Phased Notices to Proceed (NTP). Permit Holder is requesting this additional SSC to ensure that seasonal clearing and construction restrictions can be adhered to during the compliance and construction phases. A similar SSC was granted to Horseshoe Solar (Matter #21-02480) in Section 6(j) of that Applicant's Draft Permit (February 22, 2022). The text of that SSC, which Heritage Wind requests be added to its Permit, would read as follows:

*SSC 6(j) Phased Notice to Proceed - Consistent with 19 NYCRR §900-10.2, and in addition to the Notice to Proceed (NTP) authorization in 19 NYCRR §900-6.1(g), the Permittee may request a conditional NTP for a specific construction activity or specific phase of construction. For each such requested activity or phase, the*

*Permittee shall have submitted to the Office a scope of work and all applicable pre-construction compliance filings listed in 19 NYCRR §900-10.2 or this Draft Permit and identified by the Office as a condition to NTP approval.*

Major renewable energy facilities are often constructed in phases, as each phase frequently includes a contractor who specializes in the specific design and construction occurring for that phase. This is why, under Article 10, major renewable energy facilities often receive several NTPs for each phase of construction because each phase of construction requires specialized contractors and subcontractors who cannot be hired until their services are required. Moreover, not every phase of construction requires full Facility design; instead, construction activities can commence while other portions of Facility design are being finalized (e.g., access roads can be constructed while the collection system design is still being finalized). This site-specific condition will allow Heritage Wind to seek authority from ORES to phase construction as necessary for the Facility, in addition to the conditional "Notice to Proceed with Site Preparation" already permitted by the Permit and 19 NYCRR §900- 6.1(g), and in a manner consistent with other wind and solar facilities permitted by ORES and by the Siting Board under Article 10.

Lastly, the Permit Holder respectfully requests correction of what it believes is a typographical error in the Final Permit issued January 13, 2022. Specifically, in Section 4, Required Findings, the Final Permit waives "Barre Town Code §§ 350-105 and 350-106(3)" on decommissioning and imposes SSC 6(h) in lieu of those waived provisions of local law. The Permit Holder believes the citation to Section 350-106**(3)** (a preempted procedural provision applicable to testing and inspections) was in error, and should have been a reference to Section 350-106**(4)** (which reflects the section for which a waiver was sought on decommissioning timelines).

## 5.0 REFERENCES

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