Net Conservation Benefit Plan

Heritage Wind Project

Town of Barre
Orleans County, New York

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NCBP Appendix C, Mitigation Work Order for NLEB

This document contains confidential information pertaining to the location of endangered, protected, threatened or rare animal species pursuant to ECL § 3-0301(2)(r) and as such is entitled to confidential treatment under Sections 89(5) and 87(2) of the New York State Public Officers Law.

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1.0 INTRODUCTION

On behalf of Heritage Wind, LLC (the Applicant), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) has prepared this Net Conservation Benefit Plan (NCBP) for the proposed Heritage Wind Project (the Facility), located in the Town of Barre, Orleans County, New York. This NCBP was originally prepared in February 2020 to support an Application for a Certificate of Environmental Compatibility pursuant to Article 10 of the Public Service Law (PSL). Since that filing, this NCBP has been revised to support a siting permit application pursuant to Section 94-c of the Executive Law, and is also intended to assist the New York State Office of Renewable Energy Siting (ORES), New York State Department of Environmental Conservation (NYSDEC), and the New York State Department of Public Service (NYSDPS) in their review of the proposed Facility in accordance with the Section 94-c regulations and uniform standards and conditions. The Section 94-c uniform standards and conditions (Subpart 900-6.4(o)) contain the following NCBP requirements:[1]

> *(1) For facilities that would impact NYS threatened or endangered species other than NYS threatened or endangered grassland birds or their habitat, the permittee shall implement an approved Net Conservation Benefit Plan (NCBP) that shall include the following:*
>
> *(i) A demonstration that the NCBP results in a positive benefit on each of the affected species;*
>
> *(ii) Detailed explanation of the net conservation benefit to the species based on the actual location and type of minimization measures to be taken for each of the affected species;*
>
> *(iii) Full source information supporting a determination as to the net conservation benefit for each of the affected species;*
>
> *(iv) A consideration of potential minimization and mitigation measures for each of the affected species;*
>
> *(v) A consideration of potential sites for mitigation measures for each of the affected species;*
>
> *(vi) The identification and detailed description of the mitigation actions that will be undertaken by the permittee to achieve a net conservation benefit to the affected species, including, if applicable, payment of a required mitigation fee into the Endangered and Threatened Species Mitigation Fund established pursuant to section 99(hh) of the New York State Finance Law; and*
>
> *(vii) To the extent that physical mitigation will be performed, a letter or other indication of the permittee's financial and technical capability and commitment to fund and execute such management, maintenance and monitoring for the life of the facility/term of the siting permit.*

Before a Section 94-c siting permit can be issued, ORES must determine that the facility is designed to operate in compliance with applicable New York State environmental law, including the State Endangered Species Act (Environmental Conservation Law §11-0535 [ECL Article 11]) and its implementing regulations at 6 New York Codes,

[1] ORES issued the Section 94-c regulations and uniform standards and conditions in draft form on September 16, 2020; these have not yet been finalized.

Rules, and Regulations (NYCRR) Part 182. The 6 NYCRR Part 182 regulations include a listing of endangered species, threatened species, and species of special concern in New York, requirements for incidental take permit applications, and standards for issuance of incidental take permits. As described in 6 NYCRR Part 182.11, an endangered or threatened species mitigation plan (i.e., a NCBP) must include:

> *(1) the measures the applicant will undertake to minimize and fully mitigate impacts to any species listed as endangered or threatened in this Part for which the incidental take permit application is being submitted. All proposed measures shall be capable of successful implementation, and shall be legally, technologically, economically and biologically practicable;*
>
> *(2) data and information to ensure that the taking sought to be authorized by the incidental take permit will not reduce the likelihood of the survival or recovery of the species in New York;*
>
> *(3) a proposed method for monitoring the effectiveness of the plan; and*
>
> *(4) a description of the funding source, the level of funding, and the guarantee or assurance of funding that the applicant will provide to implement the endangered or threatened species mitigation plan including but not limited to bonds, insurance, or escrow.*

Therefore, this NCBP has been prepared in accordance with the substantive requirements of 6 NYCRR Part 182, which requires the preparation of a mitigation plan that will result in a net conservation benefit to state-listed species that may be affected by Facility construction and/or operation (NYSDEC, 2019a). According to 6 NYCRR Part 182.2, the term "net conservation benefit" is defined as follows:

> *(n) Net conservation benefit means a successful enhancement of the species' subject population, successful enhancement of the species' overall population or a contribution to the recovery of the species within New York. To be classified as a net conservation benefit, the enhancement or contribution must benefit the affected species listed as endangered or threatened in this Part or its habitat to a greater degree than if the applicant's proposed activity were not undertaken.*

Based on consultation with the NYSDEC, the United States Fish and Wildlife Service (USFWS), and environmental review and analysis conducted to date, the construction and operation of the proposed Facility may result in potential impacts to the state- and federally-listed northern long-eared bat (NLEB; *Myotis septentrionalis*). In addition, information pertaining to the state-listed and federally-protected bald eagle[2] (*Haliaeetus leucocephalus*) has been included in this NCBP to account for the possibility of Facility-related take that could possibly occur at some point during Facility operation. Given the abovementioned requirements and the potential impacts to these species, this NCBP identifies: (1) the estimated potential take of the listed species; (2) avoidance and minimization measures that will be implemented to reduce potential Facility-related impacts; and (3) mitigation measures that will be implemented by the Applicant to ensure that a net conservation benefit is provided for the potentially affected species.

[2] In October 2019, the NYSDEC announced a proposed change to the bald eagle's status from threatened to species of special concern (NYSDEC, 2019b; NYSDEC, 2019c). To date, this change has not yet occurred.

2.0 FACILITY LOCATION AND DESCRIPTION

Heritage Wind, LLC is proposing to construct a 184.8-megawatt (MW) wind energy facility in the Town of Barre in Orleans County, New York (see Figure 1). The Facility will include the construction and operation of up to 33 wind turbines, along with associated 34.5 kilovolt (kV) underground electrical collection lines, access roads, meteorological towers, an operation and maintenance (O&M) building, and a temporary construction staging/laydown area. These turbines and related facilities will be sited on privately-owned leased land within an approximately 5,813-acre Facility Site (see Figure 2). The Facility's physical footprint (i.e., the limits of disturbance) will be substantially smaller than the Facility Site. To deliver electricity to the New York State power grid, the Applicant proposes to construct a collection substation, which will "step-up" power to 115 kV, and a point of interconnection (POI) substation that will tie in with National Grid's existing Lockport-Mortimer 115 kV transmission line directly north of the POI substation.

3.0 BACKGROUND INFORMATION AND COVERED SPECIES

3.1 Agency Database Review and Consultation

In developing the Preliminary Scoping Statement (PSS), Revised Scoping Statement (RSS), Final Scoping Statement (FSS), and Article 10 Application for the Facility, the Applicant has gathered a substantial amount of information pertaining to existing ecological conditions and species occurrences within the Facility Site. This has included review of agency databases and multiple rounds of consultation with the New York Natural Heritage Program (NYNHP), the NYSDEC, and the USFWS.

Based on the results of agency database review and consultation completed to date, the state- and federally-listed NLEB has been identified as potentially occurring within the Facility Site, and therefore has the potential for incidental take as a result of Facility operation. However, the New York Natural Heritage Program (NYNHP), NYSDEC staff, and the USFWS have indicated that there are no known NLEB maternity roost trees within 1.5 miles or winter hibernacula within 5 miles of the Facility (i.e., no on-site occupied habitat or designated critical habitat present; see Appendix A). Still, the NYSDEC maintains that NLEB may be present throughout New York State when NLEBs migrate from summer habitat areas to winter hibernation sites (Denoncour, 2019a). Therefore, the NLEB is not considered to be present during the summer within the Facility Site based on post-white nose syndrome (WNS) data, but the species may still pass through the Facility Site during the late summer/early fall migratory period. Given the lack of occupied habitat or designated critical habitat for NLEB within the Facility Site, no pre-construction bat surveys were conducted by the Applicant and presence during the late summer/early fall migration period was assumed based on consultation with NYSDEC staff.

Agency database review and consultation, together with the results of pre-construction avian surveys conducted for the Facility, indicate that the state-listed and federally-protected bald eagle is sometimes present within and in the vicinity of the Facility Site (refer to the Heritage Wind Project Article 10 Application, Exhibit 22; Kerlinger, 2019). However, because the nearest known bald eagle nest is located approximately 2 miles southwest of proposed Facility components,[3] impacts to this species are not anticipated during Facility construction or operation. Nevertheless, NYSDEC staff have suggested that Facility-related impacts to bald eagle may be possible during operation, when direct collisions with wind turbines could conceivably occur at some point during the life of the Facility.

3.2 Covered Species Description and Habitat

This NCBP covers the state-listed threatened NLEB and bald eagle, which may be potentially affected by the proposed Facility (though based on review of data collected for the Facility Site and analyses conducted to examine potential impacts to state-listed species, mortality risk to both species is considered low; refer to the sections below for additional details).

NLEB

The NLEB is a medium-sized vesper bat with a typical body length of 3.0 to 3.7 inches and a wingspan of 9 to 10 inches that is distributed throughout much of Canada and the eastern/central United States. This forest-dependent insectivorous species' defining morphological characteristics (compared to other members of the genus *Myotis*) include especially large ears and particularly long, narrow tragi (NYSDEC, 2019d; Reid, 2006; USFWS, 2015; USFWS, 2019).

During the summer months, NLEBs typically emerge at dusk and aerially forage for a wide variety of insect species along hillsides and ridges within temperate and boreal forest landscapes. This species typically prefers to feed near understory vegetation in upland forest habitats. When at rest during the daytime, male and female NLEBs tend to roost separately in small colonies, often utilizing the cavities, crevices, and hollows of both live and dead (snag) trees with a diameter at breast height (dbh) that is equal to or greater than 3 inches (Altringham, 1996; USFWS, 2014). In addition to trees, NLEBs sometimes use human-built structures for roosting (USFWS, 2015; Reid, 2006).

In the late summer and early fall, NLEBs migrate across the landscape to winter hibernacula, which typically include caves and mines of varying sizes. Breeding activity for this species typically occurs in late summer and/or early fall, and females experience delayed fertilization until the spring. When hibernating either alone or in small groups (typically

[3] Based on an aerial nest survey conducted on May 6-7, 2018, as well as review of known nest data provided by NYSDEC and USFWS staff to date. Recent correspondence with NYSDEC and USFWS staff in August and September 2020 did not result in the identification of additional nests (or roosting concentrations) located less than approximately 2 miles from the Facility.

from November 1 to March 31; NYSDEC, 2019c), NLEBs prefer small, tight crevices within hibernacula. After hibernation and a return to summer habitat areas, female bats typically form maternity colonies in the spring and early summer, and most pups are born in June or July (NYSDEC, 2019e; Solari, 2018; USFWS, 2015).

Once common in forested landscapes throughout the northeastern United States, the NLEB has experienced a pronounced (more than 98%) decline since 2006 due to the effects of WNS, a fungal disease which compromises a bat's ability to survive the winter hibernation period (NYSDEC, 2019d). Though not as detrimental as WNS, human intrusion and disturbance associated with recreational activities (e.g., cave exploration), loss and/or degradation of hardwood forest habitat, and collision with vehicles and built structures represent additional sources of mortality for this species (USFWS, 2015). The NLEB was listed as threatened under the federal Endangered Species Act and the New York Endangered Species Law on April 2, 2015.

Bald Eagle

The bald eagle is a bird of prey that is easily identified in adult plumage by its large size, brown body, and distinct white head and tail. Bald eagles are approximately 30 inches tall with a wingspan of 72-84 inches; females are typically larger than males (Cornell Lab of Ornithology, 2020; NYSDEC, 2020a). Bald eagles are wholly North American and are present in every U.S. state except Hawaii, with the largest breeding populations found in Alaska, the Pacific Northwest, and Canada (NYSDEC, 2016a). Breeding populations also occur in much of the eastern United States, including New York.

In the summer months, bald eagles are sometimes found in primarily forested areas near large bodies of water, including lakes, reservoirs, marshes, swamps, and along rivers (NYSDEC, 2020a). However, bald eagles are adaptable, and now readily establish breeding territories and nests even in human-dominated areas with significant levels of disturbance and development (e.g., Schirato and Parson, 2006; Millsap et al., 2004), potentially through gradual habituation to human activity over several generations (Guinn, 2013). They are opportunistic feeders, with fish comprising much of their diet. However, carrion, waterfowl, waterbirds, small mammals, and turtles are also taken (USFWS, 2007). Bald eagle distribution varies seasonally, with individuals in northern latitudes often migrating southward during winter to areas where waters remain unfrozen (USFWS, 2007; NYNHP, 2020; NYSDEC, 2020a). These migrants sometimes concentrate in large numbers at communal roosts and feeding sites where food is abundant (USFWS, 2007; Cornell Lab of Ornithology, 2020, NYNHP, 2020). In late spring and early summer, individuals from southern latitudes may migrate northward, often summering as far north as the northern Canadian provinces (USFWS, 2007).

Breeding bald eagles occupy territories around active nests, which they will defend against intrusion by other eagles (USFWS, 2007) unless they are seeking a mate. Nesting may occur near coastlines, rivers, large lakes, or streams that support an adequate food supply (USFWS, 2007), though as noted above, bald eagles now readily nest within anthropogenically disturbed/developed areas. Therefore, bald eagles typically nest in mature trees, snags, cliffs, and human-made structures (e.g., transmission towers) in areas with generally unobstructed views of their foraging area (USFWS, 2007; Guinn, 2013). Nests are constructed with large sticks, spanning 4 to 6 feet in diameter and 3 feet deep (USFWS, 2007). In New York, elaborate courtship displays can be observed in late winter to early spring, with nesting activities occurring several months before egg-laying (USFWS, 2007; NYNHP, 2020). Egg-laying occurs in late April or early May, with an incubation period of approximately 33-35 days, fledging after approximately 10 to 12 weeks (USWFS, 2007).

Bald eagle populations were drastically reduced due to human persecution (e.g., nest raiding, shooting, tree cutting) as well as the use of the insecticide dichlorodiphenyltrichloroethane (DDT), with effects lingering after it was banned in 1972 (Kerlinger, 2019; Guinn, 2013). At that time, there were about 20 known bald eagle nests in New York. The population grew slowly until in about 2000, at which time the numbers had risen to about 50 nesting pairs. After 2000, the number of nesting pairs increased more rapidly to nearly 400 pairs in 2017 (refer to Kerlinger, 2019). In 2007, the conterminous U.S. population was determined to be "recovered" by USFWS and it was removed from the Endangered Species Act threatened species list (Kerlinger, 2019). Currently, bald eagles are protected under five sections of the Environmental Conservation Law of New York (ECL), including being listed as a threatened species pursuant to ECL Article 11, which protects bald eagles and their occupied habitat.

As noted above, in late October 2019, the NYSDEC announced a proposal (the Part 182.5 pre-proposal; NYSDEC, 2019c) that would delist the bald eagle. The status of this species would change from threatened to species of special concern in New York. The announcement stated that bald eagle and several other listed species had undergone "significant growth in their numbers and range." (NYSDEC, 2019b). Delisted species would no longer be "protected through a permit requirement for projects likely to cause harm to these species", as populations have increased in New York to levels that suggest these species are more stable and no longer threatened (NYSDEC, 2019b; Kerlinger, 2019). To date, this delisting has not occurred.

Federally, bald eagles are protected under the Migratory Bird Treaty Act of 1918 which prohibits the take of protected migratory bird species, as well as the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d), which prohibits the taking, possessing, or transporting eagles (including parts, nests, or eggs) without prior authorization pursuant to

federal regulations (50 CFR Part 22). Federal permits are available for the incidental take, possession, and transport of eagles, depending on the type of activity (USFWS, 2020a).

4.0 ESTIMATED POTENTIAL TAKE

4.1 New York State Incidental Take

According to 6 NYCRR Part 182.2, the term "take" is defined as follows:

> *(x) Take or taking means the pursuing, shooting, hunting, killing, capturing, trapping, snaring and netting of any species listed as endangered or threatened in this Part, and all lesser acts such as disturbing, harrying or worrying.*

NLEB

NLEB take may potentially result due to direct collision with operating wind turbines during the late summer/early fall migration period when NLEBs move from summer habitat areas to winter hibernacula. Other forms of NLEB take, such as tree clearing within 0.25-mile buffer areas around known NLEB hibernacula or within 150-foot buffer areas around known maternity roost trees during the pup season (see NYSDEC, 2019c), will not occur given the lack of these habitats within the Facility Site.

Bald Eagle

The Applicant completed over two years of baseline eagle use and eagle nest surveys to evaluate potential impacts to eagles consistent with the NYSDEC *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYSDEC, 2016b). There are no occupied bald eagle nests within the Facility Site, or within approximately 2 miles of the Facility. In addition, an Avian Risk Assessment was completed, and it concluded that risk to bald eagles at the Facility is likely to be very low to near zero (Kerlinger, 2019). 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.

4.2 Federal Incidental Take

NLEB

The latest Official Species List obtained from the USFWS does not list the NLEB as present within the area of the Facility, and does not identify critical habitats within the Facility Site under USFWS jurisdiction (see Appendix A). In addition, incidental take of this species is not prohibited under the federal Endangered Species Act (ESA) in accordance with the revised 4(d) Rule (USFWS, 2020b). Specifically, all energy infrastructure development and operation within the white nose syndrome (WNS) zone is conditionally exempt from ESA regulation provided they avoid take at

hibernacula and meet the conservation measures for surrounding forests. Therefore, no federal incidental take is likely to occur because known occupied hibernacula and known occupied maternity roost trees are not present within the Facility Site.

Bald Eagle

The Applicant completed over two years of baseline eagle use and eagle nest surveys to evaluate potential impacts to eagles consistent with the USFWS *Eagle Conservation Plan Guidance* (USFWS, 2013). As described above, there are no occupied bald eagle nests within the Facility Site, or within approximately 2 miles of the Facility. In addition, an Avian Risk Assessment was completed, and it concluded that risk to bald eagles at the Facility is likely to be very low to near zero (Kerlinger, 2019).

4.3 Estimated Potential Take

NLEB

To calculate estimated potential NLEB take, EDR used the current methodology detailed by NYSDEC staff in direct testimony on several other Article 10 cases for onshore wind energy facilities (Denoncour and Herzog, 2019a, 2019b, 2019c). This method relies on an annual bat fatality rate calculated based on the results of multiple, recent (2010-2016) post-construction studies conducted at operational wind energy facilities in New York State and southern Ontario, Canada (NYSDEC, 2019f; see Appendix B). This annual bat fatality rate for operational wind energy facilities is 6.7 bats per MW per year. Next, to determine the potential proportion of fatalities that may be represent NLEB individuals, the total documented number of bat fatalities (1,744) is divided by the number of documented NLEB fatalities (7). This calculation results in a NLEB proportion of 0.0040.

The NLEB-specific estimated potential take for the Facility was calculated by <BEGIN CONFIDENTIAL INFORMATION/> [redacted]. </END CONFIDENTIAL INFORMATION> This results in an estimated potential take of <BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION> (see Table 1 below). For the 30-year life of Facility, a total potential take of <BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION> is estimated, without minimization measures applied.

Table 1: Summary of estimated potential northern long-eared bat (NLEB) take without minimization.

Overall Documented Bat Fatality Rate (per MW per year)[1]	Proportion of Documented Fatalities that are NLEB[2]	NLEB-specific Estimated Fatality Rate (per MW per year)	Facility Nameplate Generating Capacity (MW)	Estimated Potential NLEB Take (Annual)[3]	Estimated Potential NLEB Take (30-year Life of Facility)[3]
6.7	0.0040	0.027	184.8	Up to 5	Up to 149

[1] Overall documented bat fatality rate determined using the average of reported fatality rates from post-construction studies for operating wind energy facilities in New York State and Ontario (NYSDEC, 2019f; see Appendix B). This is consistent with the methodology used by the NYSDEC for other recent Article 10 cases (Denoncour and Herzog, 2019a, 2019b, 2019c).
[2] NLEB-specific fatality proportion based on post-construction studies for operating wind energy facilities in New York State and Ontario (NYSDEC, 2019f; see Appendix B). This is consistent with the methodology used by the NYSDEC for other recent Article 10 cases (Denoncour and Herzog, 2019a, 2019b, 2019c).
[3] Values rounded up to the nearest integer.

Bald Eagle

To evaluate the potential risk to bald eagles, EDR referenced pre-construction survey reports and the ARA prepared for the Facility (Kerlinger, 2019). Results from aerial nesting surveys indicate that bald eagles do not nest within the Town of Barre or within approximately 2 miles of turbine locations. However, raptor migration studies and avian use studies conducted on-site indicate that some bald eagles do pass through the area during fall and spring migration, with small numbers present during the winter months.

Review of post-construction fatality studies conducted at wind projects in the United States and Canada indicate that bald eagles are not highly susceptible to colliding with wind turbines. The presence of wind turbines has rapidly increased throughout North America during the last 20 years. However, in 2017, reported fatalities of bald eagle were low, with only two fatalities recorded at 63 wind projects in Ontario, Canada and one fatality between 25 wind projects in New York (Bird Studies Canada, 2017). The NYSDEC have indicated that five bald eagle fatalities have now been documented at wind projects in New York (Bell and Palumbo, 2020). During this same time period, the number of bald eagle nesting pairs has increased to an all-time high, suggesting that growth in numbers of turbines has not impacted nesting, migrating, and wintering numbers of bald eagles in New York. Overall, there is no suggestion that the Facility's wind turbines will have a significant negative impact on the bald eagle population in the region or in the state. In addition, the Avian Risk Assessment concluded that risk to bald eagles from turbines at the Facility is very low to near zero (Kerlinger, 2019). Nevertheless, the NYSDEC maintains that there is the possibility for collisions with wind turbines during Facility operation.

5.0 AVOIDANCE AND MINIMIZATION MEASURES

The Applicant is implementing several NLEB avoidance and minimization measures, which include:

- Selecting a turbine model with a greater generating capacity, which has resulted in a Facility layout that includes fewer wind turbines and a reduced overall risk zone within the rotor-swept area of the turbines, when compared with the turbine layout previously proposed in the PSS. Specifically, the current layout includes 33 wind turbines instead of 47 wind turbines, and a nameplate generating capacity of 184.8 MW instead of 200 MW;
- Siting wind turbines and other Facility components in non-forested areas to the greatest extent practicable to minimize the amount of tree clearing required during construction;
- Performing tree removal activities between November 1 and March 31 to the extent possible;
- Employing acoustic bat deterrent systems (BDS) (or similar technologies) at wind turbines during Facility operation; and
- Implementation of a curtailment schedule that will significantly reduce potential fatalities (see below).

The Applicant is also implementing the following measures to avoid and minimize possible impacts to bald eagle:

- Siting wind turbines and other Facility components away from known occupied nests that occur outside of the Facility Site (there are no known nests, roosting concentration areas, or major open water bodies within the Facility Site). ;
- Siting wind turbines and other Facility components in agricultural and other non-forested habitats to the greatest extent practicable to minimize the amount of tree clearing during construction;
- Siting wind turbines in flatter areas and avoiding steep terrain to minimize the possibility of collision of birds using updrafts from steep terrain;
- Wide spacing of wind turbines within the Facility Site, ensuring blades are well above the ground, and avoiding a large number and high density of turbines in the layout to minimize the possibility of collision.

5.1 Minimization Strategy for NLEB

Multiple studies show that strategic seasonal turbine curtailment can reduce all bat fatalities by between 50% and 80%, and potentially higher, depending on the cut-in speed used and the bat species that typically occur at a given site (Arnett et al., 2011; Baerwald et al., 2009; Martin et al., 2017). For the NLEB specifically, curtailment is considered to be even more effective at reducing fatalities due to this species' size and already low proportion of documented bat fatalities at operational wind energy facilities (Denoncour and Herzog, 2019a, 2019b, 2019c; Gruver and Bishop-Boros, 2015).

Given the demonstrated efficacy of curtailment as a means of avoidance and minimization, Facility wind turbine operation will be curtailed on the following schedule:

- When wind speeds are less than <BEGIN CONFIDENTIAL INFORMATION/>[redacted]</END CONFIDENTIAL INFORMATION> meters per second (m/s) (cut-in speed) during the period from July 1 through October 1[4], 30 minutes prior to sunset through 30 minutes after sunrise, when air temperatures are greater than 50 degrees Fahrenheit (10 degrees Celsius).

Implementation of this curtailment schedule is expected to reduce potential NLEB fatalities by at least 85%, and potentially by more than 90%. This is supported by post-construction surveys conducted at wind energy facilities in the northeast where turbine curtailment has been implemented, which have not reported NLEB fatalities (Gruver and Bishop-Boros, 2015), as well as Article 10 direct testimony previously provided by NYSDEC staff (Denoncour and Herzog, 2017). Therefore, it is anticipated that estimated potential NLEB take will be reduced to <BEGIN CONFIDENTIAL INFORMATION/>[redacted]</END CONFIDENTIAL INFORMATION> throughout the life of the Facility (see Table 2 below). It is important to note that these are conservative estimates; actual NLEB take is very likely to be even less.

Table 2: Estimated potential northern long-eared bat (NLEB) take with proposed curtailment.

<BEGIN CONFIDENTIAL INFORMATION/>

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

</END CONFIDENTIAL INFORMATION>

The Facility also plans to test the use of BDS or other technologies that may become available, as a further measure to avoid and minimize potential impacts to bats. Currently available BDS emit ultrasonic sound in the same natural

[4] The July 1 to October 1 period includes the portion of the maternity season when juveniles become volant, as well as the majority of the fall migratory period. This is also the period during which the majority of NLEB fatalities have been documented at operational wind energy facilities (Gruver and Bishop-Boros, 2015).

frequency range as bats, interfering with their ability to echolocate and discouraging them from entering the area surrounding a turbine. These systems have been shown to be effective in reducing bat fatalities and can be paired with curtailment for even more significant reductions. At a project in Illinois, bat fatalities were reduced by approximately 60% to 95% when combining curtailment at 5.0 m/s and BDS (Iskali et al., 2019). BDS have not been tested on NLEB specifically given how few fatalities occur for this species at operational wind projects, but BDS likely benefits this species. The BDS can also be deployed for the entire active season for bats, which will further reduce fatalities outside of the fall migration period when curtailment is typically implemented. The potential reduction in fatalities resulting from BDS or other minimization strategies that may become available during the lifetime of the Facility have conservatively not been taken into account when calculating the expected minimum reduction in potential NLEB fatalities; however, BDS or other technologies may present future opportunities to further minimize take (through consultation with the appropriate agencies).

The proposed curtailment schedule will result in a significant reduction in potential NLEB fatalities and represents the greatest practicable means of minimizing potential Facility-related impacts to NLEB. In addition, the use of BDS will likely further decrease risk to this species.

5.2 Potential Population Effects

Though the proposed Facility may potentially result in the take of <BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION> over the 30-year life of the Facility with avoidance and minimization applied[5], authorization for the proposed activity is not anticipated to jeopardize the continued existence of the subject populations of NLEB for several reasons:

- The NLEB constitutes only a very small proportion of documented bat fatalities at operational wind energy facilities based on post-construction studies (Arnett and Baerwald, 2013; Gruver and Bishop-Boros, 2015);
- In the post-WNS era, most New York NLEBs are present in the southeastern portion of the state (e.g., Suffolk County) (Denoncour, 2019a, 2019b) and are therefore not expected to be present within the Facility Site in significant numbers;
- The species' full range includes much of Canada and the eastern/central United States where suitable forested habitat free from development remains, particularly in the northern areas of the NLEB range (Solari, 2018; USFWS, 2019); and

[5] To be conservative, take estimates do not account for added minimization that will likely be provided by BDS.

- Though the overall NLEB population is decreasing, the species is still widely distributed, and many areas of suitable habitat are located within protected areas (Solari, 2018).

Therefore, population-level effects to the NLEB are not anticipated as a result of the proposed Facility, especially given the proposed minimization and mitigation measures that will be implemented to offset impacts. Please note that additional information regarding the cumulative impacts to the NLEB and other bat species is provided in the Cumulative Impacts Analysis prepared for the Heritage Wind Project Article 10 Application (included as an Appendix to Exhibit 22).

6.0 PROPOSED MITIGATION

6.1 Net Conservation Benefit

Though the avoidance and minimization measures described above will significantly reduce NLEB take that may result from construction and operation of the proposed Facility, mitigation will be required to offset the remaining potential impacts. The proposed mitigation must provide a net conservation benefit to the affected listed species. According to 6 NYCRR Part 182.2, the term "net conservation benefit" is defined as follows:

> *(n) Net conservation benefit means a successful enhancement of the species' subject population, successful enhancement of the species' overall population or a contribution to the recovery of the species within New York. To be classified as a net conservation benefit, the enhancement or contribution must benefit the affected species listed as endangered or threatened in this Part or its habitat to a greater degree than if the applicant's proposed activity were not undertaken.*

6.2 Proposed Mitigation for NLEB

Based on consultation with NYSDEC staff and review of other recent Article 10 testimony and decisions, appropriate forms of achieving a net conservation benefit for NLEB typically include: (1) gating of known NLEB hibernacula; (2) preservation of land around and/or including known NLEB roosts and/or hibernacula; and (3) mist-netting and radio-telemetry surveys to identify new NLEB roost trees and/or hibernacula (Denoncour, 2019a, 2019b, 2019c; Denoncour and Herzog, 2019a, 2019b, 2019c; Siting Board, 2019a; 2019b, 2019c).

Of these options, the Applicant proposes to install cave gates at the <BEGIN CONFIDENTIAL INFORMATION/> [redacted] /END CONFIDENTIAL INFORMATION> (the location of the proposed mitigation site is depicted in Figure 3). Construction disturbance for installation is proposed to occur outside of the bat hibernation period (between late May and early September). Gate installation is expected to take five working days to complete.

<BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION> and supports 3,000-4,000 overwintering bats, including NLEB, according to the NYSDEC. <BEGIN CONFIDENTIAL INFORMATION/> [redacted] .</END CONFIDENTIAL INFORMATION>

Each gate will be an industry-standard bat-friendly gate designed as developed by the American Cave Conservation Association and Bat Conservation International (Fant et al. 2009, 2017 revision). Gates will be constructed <BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION>

With respect to the construction sequence, a weight-supporting bottom sill spanning the width of the opening will be installed first. The vertical support columns will be connected to the sill and the sill and columns will rest on solid bedrock floor or metal grating. Next, the columns will be supported by iron footers that prevent lifting of the expanded metal skirt. All columns and select horizontal bars will be attached to the cave with steel pins that will be pounded in pre-drilled holes in the bedrock. The pins will be welded to pin plates which is then welded to the gate. Next, an iron header bar is welded to the top of the vertical support columns and the bar guard/torsion plate is welded to the front side of the hangers on each vertical support columns. Finally, a lockable, removable bar is added to close the opening. Bat gates will be typically left unpainted and have an approximate life span of 25 years, depending on environmental factors.

A parking area and trailhead are located <BEGIN CONFIDENTIAL INFORMATION/> [redacted] </END CONFIDENTIAL INFORMATION>. These will likely be used as a staging area and for transporting materials to the installation site. One method of material transportation is for a crew to hand-carry materials from the parking area to the site, cutting pieces to length ahead of time. Alternatively, this area may also be used as a helicopter landing area for materials to be sling-loaded to the workspace above the cave. The preferred method of the contractor is to hand-carry materials.

The proposed cave gating is anticipated to more than adequately 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 NLEBs), promoting wintertime survival, and thereby contributing to the recovery of NLEB within New York (which achieves the required net conservation benefit for the species). In addition, the Applicant will also test and implement acoustic BDS (or similar technologies) as they become available, which may provide an additional benefit to NLEB and other bat species. It is likely that implementation of these technologies will provide further impact avoidance/minimization, particularly as they continue to improve.

6.3 Proposed Mitigation for Bald Eagle

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 (Mitigation Bank Fund) as established under Section 94-c of the Executive Law, or implement an ORES-approved mitigation project. Determinations as to the cause(s) of bald eagle injury or mortality will be made based on a detailed examination or necropsy (as applicable), which will include screening and testing for toxins (e.g., lead, mercury, pesticides). The Mitigation Bank Fund payment or ORES-approved mitigation project will be commensurate with the number of eagles taken and the outcome of any Facility-level review regarding the cause of injury or mortality, with the sole purpose of achieving a net conservation benefit for the species.

6.4 Commitment to Fund and Execute

Because physical mitigation is proposed for the NLEB, the Section 94-c uniform standards and conditions require the Applicant to demonstrate commitment to fund and execute the proposed mitigation actions. A work order document demonstrating the Applicant's financial and technical capability and commitment is provided in Appendix C.

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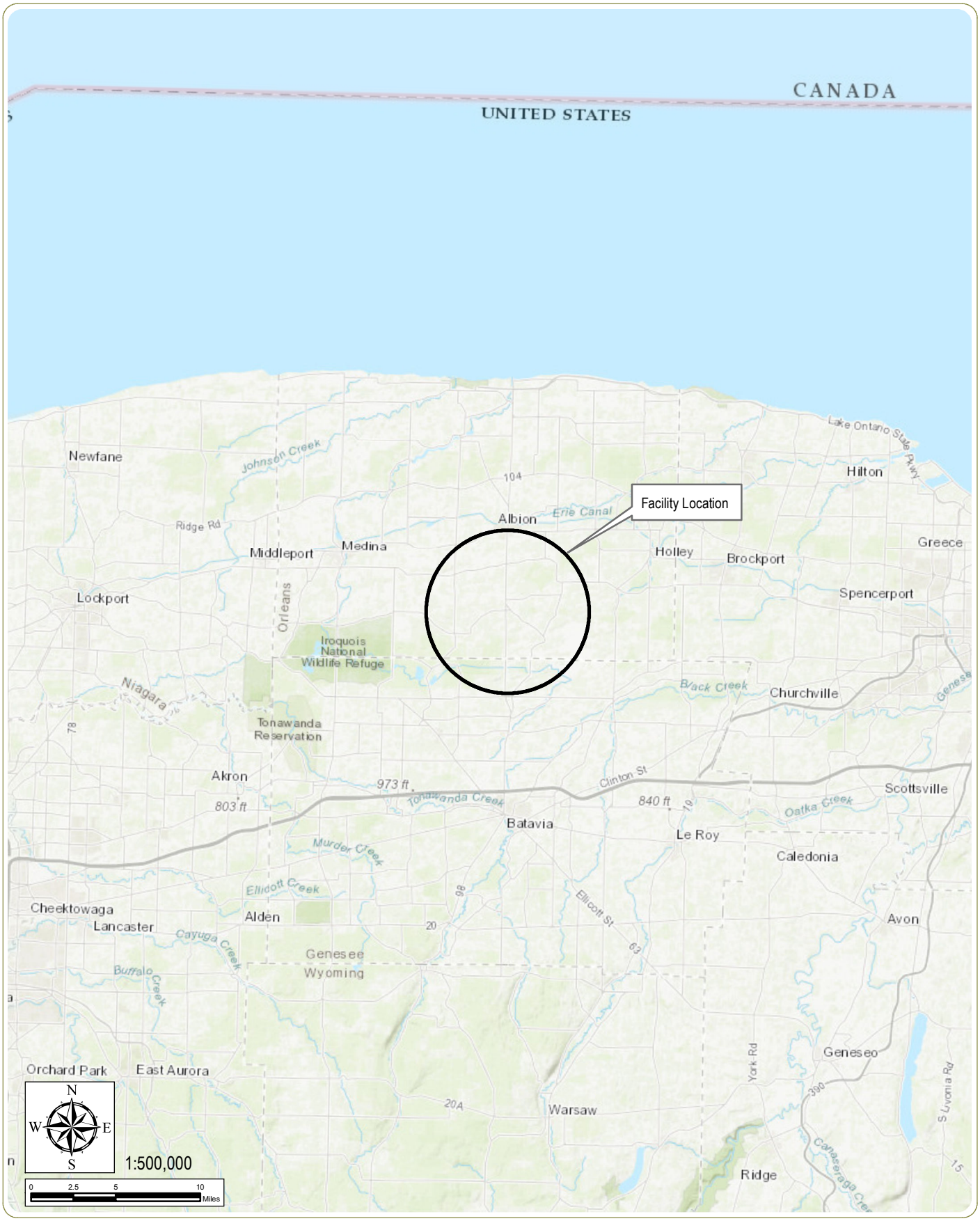
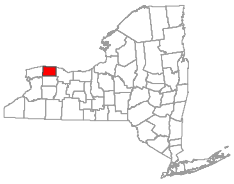
FIGURES



Heritage Wind Project

Town of Barre, Orleans County, New York

Figure 1: Regional Facility Location



Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on December 31, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Heritage Wind Project

Town of Barre, Orleans County, New York

Figure 2: Facility Layout

- Wind Turbine
- Met Tower
- Access Road
- Collection Line
- Collection Substation
- POI Substation
- O&M Facility
- Laydown Yard
- Facility Site
- Town Boundary
- County Boundary

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. **2.** This map was generated in ArcMap on December 31, 2019. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data. **4.** This figure depicts preliminary turbine locations, which are subject to change.

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APPENDIX A

Results of Agency Consultation and Database Review

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

April 22, 2019

Samouel Beguin
EDR
217 Montgomery Street, Suite 1000
Syracuse, NY 13202

Re: Heritage Wind Project (EDR Project No. 16153)
County: Orleans Town/City: Barre

Dear Mr. Beguin:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

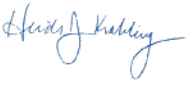
Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site. For wind projects, we also report state-listed birds within 10 miles and state-listed bats within 40 miles of the project site boundary.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 8 Office, Division of Environmental Permits at dep.r8@dec.ny.gov, (585) 226-5400.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

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The following significant natural community has been documented at the project site.

We recommend that potential impacts of the proposed project on this community be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQR. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following natural community is considered significant from a statewide perspective by the NY Natural Heritage Program. By meeting specific, documented criteria, the NY Natural Heritage Program considers this community occurrence to have high ecological and conservation value.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*HERITAGE CONSERVATION STATUS*
Wetland/Aquatic Communities			
Silver Maple-Ash Swamp			High Quality Occurrence of Uncommon Community Type

Documented at the northeast portion of the project site surrounding Powerline Road. This is a large, high quality swamp. 6158

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to www.dec.ny.gov/animals/97703.html for Ecological Communities of New York State.

The following state-listed birds have been documented within 10 miles of the project site.

The following list includes birds that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 8 Office at dep.r8@dec.ny.gov, (585) 226-5400.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*
Bald Eagle *Breeding - 7 locations*	*Haliaeetus leucocephalus*	Threatened	
Black Tern *Breeding - 1 location*	*Chlidonias niger*	Endangered	
Henslow's Sparrow *Breeding - 2 locations*	*Ammodramus henslowii*	Threatened	
King Rail *Breeding- 2 locations*	*Rallus elegans*	Threatened	
Least Bittern *Breeding - 2 locations*	*Ixobrychus exilis*	Threatened	
Northern Harrier *Breeding - 2 locations; Nonbreeding - 1 location*	*Circus hudsonius*	Threatened	
Pied-billed Grebe *Breeding - 3 locations*	*Podilymbus podiceps*	Threatened	
Sedge Wren *Breeding - 4 locations*	*Cistothorus platensis*	Threatened	
Short-eared Owl *Breeding - 1 location; Nonbreeding - 2 locations*	*Asio flammeus*	Endangered	
Upland Sandpiper *Breeding - 1 location*	*Bartramia longicauda*	Threatened	

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following state-listed bat have been documented within 40 miles of the project site.

The following list includes bats that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 8 Office at dep.r8@dec.ny.gov, (585) 226-5400.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*
Eastern Small-footed Myotis *1 Hibernaculum*	*Myotis leibii*	Special Concern	
Northern Long-eared Bat *1 Maternity Colony; 2 Hibernacula*	*Myotis septentrionalis*	Threatened	Threatened
Tri-colored Bat *1 Hibernaculum*	*Perimyotis subflavus*	Unlisted	

Animal Assemblage

Bat Colony
Hibernaculum

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: December 13, 2019
Consultation Code: 05E1NY00-2019-SLI-1475
Event Code: 05E1NY00-2020-E-03002
Project Name: Heritage Wind Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2019-SLI-1475

Event Code: 05E1NY00-2020-E-03002

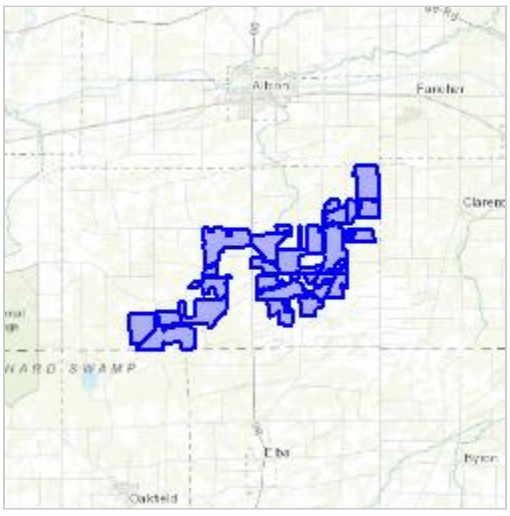
Project Name: Heritage Wind Project

Project Type: POWER GENERATION

Project Description: The proposed project is an up to 184.8 megawatt (MW) commercial-scale wind powered electric generating facility that will be located within the Town of Barre, Orleans County, New York. The project will be located on leased private land with the Town of Barre (the Facility Site) that is generally rural in nature. The proposed Facility will consist of the installation and operation of wind turbines, along with associated buried collection lines, access roads, meteorological towers, one operation and maintenance (O&M) building, and temporary construction staging/ laydown areas. To deliver electricity to the New York State power grid, the Applicant also proposes to construct a collection substation. An Application for the proposed project is currently being prepared in accordance with Article 10 of the New York State Public Service Law. It is anticipated that this Application will be submitted in 2019, and that construction will begin in 2020 or 2021.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.1368632733012N78.24367216740833W



Counties: Orleans, NY

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX B

List of Post-construction Fatality Studies

Recent post-construction studies used to calculate bat fatalities in New York, 2009-2015*

Project Name	State / Province	Author	Title	NLEB Fatalities	All Bat Fatalities	All Bat Fatalities/ MW/yr	Estimated Total Bat Fatalities/yr
Cohocton/Dutch Hills 2009	NY	Stantec 2011	Cohocton and Dutch Hill Wind Farms Year 2 Post-Construction Monitoring Report, 2010	0	69	26.7	3338
Cohocton/Dutch Hills 2010	NY	Stantec 2011	Cohocton and Dutch Hill Wind Farms Year 2 Post-Construction Monitoring Report, 2010	1	63	20.4	2550
Cohocton/Dutch Hills 2013	NY	Stantec 2014	Cohocton and Dutch Hill Wind Farms 2013 Post-Construction Wildlife Monitoring Report	0	44	3.2	400
Hardscrabble 2011	NY	WEST 2012	2011 Fatality Study October 18 – December 30, 2011, Hardscrabble Wind Project Herkimer County, New York	0	11	n/a	n/a
Hardscrabble 2012	NY	WEST 2013	2012 Post-Construction Study and AnaBat Study, Hardscrabble Wind Project, Herkimer County, New York, April 15 – October 15, 2012	0	179	10.7	792
Hardscrabble 2013	NY	WEST 2014	2013 Post-Construction Wildlife Fatality and AnaBat Studies, Hardscrabble Wind Project, Herkimer County, New York, May 1 to November 15, 2013	0	36	2.2	163
Hardscrabble 2014	NY	WEST 2015	2014 Post-Construction Study, Hardscrabble Wind Project, Herkimer County, New York, May 1 to September 30, 2014	0	10	4.1	303
Howard 2012	NY	WEST 2013	2012 Post-Construction Monitoring Studies for the Howard Wind Project, Steuben County, New York, Final Report April 13 – November 16, 2012	0	185	10	554
Howard 2013	NY	WEST 2014	2013 Post-Construction Monitoring Studies for the Howard Wind Project, Steuben County, New York, Final Report May 15 – November 15, 2013	0	32	2.1	116
Noble Altona 2010	NY	Jain et al. 2011	Annual Report for the Noble Altona Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2010	0	31	4.3	419
Noble Altona 2011	NY	Kerlinger et al. 2011	An Examination of the Relationship Between Bat Abundance and Fatalities at the Noble Altona windpark, Clinton County, New York. December 2011.	0	25	n/a	n/a
Noble Bliss 2009	NY	Jain et al. 2010	Annual Report for the Noble Bliss Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2009	0	36	6.3	633
Noble Bliss 2011	NY	Kerlinger et al. 2011	A Comparison of Bat Mortality in Farmland and Forested Habitats at the Noble Bliss and Wethersfield Windparks, Wyoming County, New York	0	18	n/a	n/a
Noble Chateaugay 2010	NY	Jain et al. 2011	Annual Report for the Noble Chateaugay Windpark. LLC, Postconstruction Bird and Bat Fatality	0	29	2.4	256

Source: New York State Department of Environmental Conservation (NYSDEC). 2019d. Eight Point Bat Testimony--Supporting Information. In the Matter of the Application of Eight Point Wind LLC, Case No.: 16-F-0062, Item No. 141. January 18, 2019. Available at: http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-F-0062 (Accessed December 2019).

			Study - 2010				
Noble Clinton 2009	NY	Jain et al. 2010	Annual Report for the Noble Clinton Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2009	0	42	8.9	895
Noble Ellenburg 2009	NY	Jain et al. 2010	Annual Report for the Noble Ellenburg Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2009	0	32	7.3	591
Noble Wethersfield 2010	NY	Jain et al. 2011	Annual Report for the Noble Wethersfield Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2010	1	75	16.3	2054
Noble Wethersfield 2011	NY	Kerlinger et al. 2011	A Comparison of Bat Mortality in Farmland and Forested Habitats at the Noble Bliss and Wethersfield Windparks, Wyoming County, New York	5	46	n/a	n/a
Maple Ridge 2012	NY	WEST 2013	2012 Post-construction Fatality Monitoring Study for the Maple Ridge Wind Farm, Lewis County, New York, Final Report July 12 – October 15, 2012	0	85	8.4	2703
Marble River 2014	NY	WEST 2015	Post-Construction Studies for the Marble River Wind Farm, Clinton County, New York, 2014 Fatality and Acoustic Bat Report: April – November 2014	0	22	0.5	108
Marble River 2015	NY	WEST 2016	Post-Construction Studies for the Marble River Wind Farm, Clinton County, New York, Draft 2015 Fatality Report: April – November 2015	0	38	2	431
Sheldon 2010	NY	WEST 2012	2010 Post-construction Fatality Monitoring Study and Bat Acoustic Study for the High Sheldon Wind Farm, Wyoming County, New York, Final Report April 15 – November 15, 2010	0	53	2.3	259
Sheldon 2011	NY	WEST 2012	2011 Post-construction Fatality Monitoring Study and Bat Acoustic Study for the High Sheldon Wind Farm, Wyoming County, New York, Final Report April 15 – November 15, 2011	0	38	1.8	203
Steel Winds 2012	NY	Stantec 2013	Steel Winds I and II Post-Construction Monitoring Report, 2012	0	19	2.5	88
Steel Winds 2013	NY	Stantec 2014	Steel Winds I & II Year 2 Post-Construction Wildlife Monitoring Report, 2013	0	34	6.1	214
Undisclosed Site A 2015	NY	-	-	0	11	n/a	n/a
Undisclosed Site B 2015	NY	-	-	0	47	4.6	432
Undisclosed Site C 2015	NY	-	-	0	33	3.0	49
Wolfe Island 2009	Ontario	Stantec Ltd. 2010	Wolfe Island EcoPower Centre, Post-Construction Follow-Up Plan, Bird	0	189	6.4	1266

Source: New York State Department of Environmental Conservation (NYSDEC). 2019d. Eight Point Bat Testimony--Supporting Information. In the Matter of the Application of Eight Point Wind LLC, Case No.: 16-F-0062, Item No. 141. January 18, 2019. Available at: http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-F-0062 (Accessed December 2019).

			and Bat Resources, Monitoring Report No. 2, July – December 2009				
Wolfe Island 2010	Ontario	Stantec Ltd. 2011	Wolfe Island Wind Plant Post-Construction Follow-Up Plan, Bird and Bat Resources, Monitoring Reports: No. 3, January – June 2010; No. 4, July – December 2010	0	145	11.8	2334
Wolfe Island 2011	Ontario	Stantec Ltd. 2012	Wolfe Island Wind Plant Post-Construction Follow-Up Plan, Bird and Bat Resources, Monitoring Reports: No. 5, January – June 2011; No. 6, July – December 2011	0	59	6.0	1187
Wolfe Island 2012	Ontario	Stantec Ltd. 2014	Wolfe Island Wind Plant Post-Construction Follow-Up Plan Bird and Bat Resources, Report No. 7, January-June 2012	0	8	0.3	59
				Total NLEB Fatalities	**Total All Bat Fatalities**	**Average All Bat Fatalities/ MW/yr**	
				7	1744	6.7	

*Data as of March 2018. NLEB fatalities and All Bat Fatalities are raw numbers reported at each project, including incidental finds that may not be factored into All Bat Fatalities/MW/yr. Estimated Total Bat Fatalities/yr is derived from the All Bat Fatalities/MW/yr multiplied by the nameplate capacity of the project. Data will be subject to augmentation and updating based on additional information made available to the New York State Department of Environmental Conservation.

Source: New York State Department of Environmental Conservation (NYSDEC). 2019d. Eight Point Bat Testimony--Supporting Information. In the Matter of the Application of Eight Point Wind LLC, Case No.: 16-F-0062, Item No. 141. January 18, 2019. Available at: http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-F-0062 (Accessed December 2019).

APPENDIX C

Work Order for Proposed Physical Mitigation