Agricola Wind Project

Permit Application No. 23-00064

1100-2.12 Exhibit 11

Terrestrial Ecology

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EXHIBIT 11 TERRESTRIAL ECOLOGY

(a) Identification and Description of Plant Communities

The Facility Site encompasses approximately 3,989 acres in Cayuga County, New York and is largely comprised of rural agricultural lands (i.e., row cropland) interspersed with isolated forested communities. Plant communities present within the Facility Site and within 100 feet of the limits of disturbance on adjacent properties (the Study Area) correspond with specific community descriptions provided in *Ecological Communities of New York State* (Edinger et al., 2014). EDR classified and mapped each plant community based on land cover and soil data collected during various on-site field surveys conducted in 2023 and 2024 (e.g., wetland and stream delineations and avian surveys). As a result, EDR has identified 10 different communities, which are described in Exhibit 11(a)(2). The Study Area is dominated by active agricultural communities (i.e., row cropland, field cropland, and pastureland) and a mix of woody wetlands and deciduous forests.

Figure 11-1 illustrates the plant communities within the Study Area, and anticipated impacts to plant communities. Table 11-1 in Exhibit 11(b) provides the total acreage for each plant community identified within the Study Area, as well as the anticipated impacts to each community as a result of Facility construction and operation.

(1) Significant Natural Communities and Rare Plants

The Applicant coordinated with state and federal agencies to determine the presence of special status plant communities within the Study Area. An Official Species List obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system did not identify any federally listed plants or rare communities in the vicinity of the proposed Facility (Appendix 12-A).

The New York Natural Heritage Program (NYNHP) maintains data on state listed rare, threatened, and endangered plant and animal species, as well as significant ecological communities. A site-specific request for documented occurrences was submitted to the NYNHP on March 5, 2021. The NYNHP response was received on April 26, 2021 (Appendix 12-A) and identified no records of state listed plants or significant natural communities within the Study Area. A review of the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper on September 19, 2024 confirmed that no rare plant occurrences or significant natural communities from the NYNHP database are present within the Study Area. In addition, the Office of Renewable Energy Siting and Electric Transmission (ORES) did not identify state listed plants or significant natural communities within the Study Area during pre-application consultations related to endangered, threatened, and special concern species. Exhibit 12 provides a detailed discussion of endangered, threatened, and special concern wildlife species within the vicinity of the Facility.

(2) Plant Community Descriptions

Descriptions of the upland ecological communities within the Study Area are provided herein. Ecological community types are grouped into the applicable subsystems defined in *Ecological Communities of New York State* (Edinger et al., 2014). Detailed descriptions of wetland and stream community types encountered during on-site wetland delineations, including Open Wetlands (i.e., emergent, open water, and scrub-shrub wetlands), Forested Wetlands, and Riverine (i.e., perennial, intermittent, and ephemeral streams) are provided in Exhibits 13 and 14 and Appendix 14-A.

Open Uplands

Open uplands include "open communities with less than 25% canopy cover of trees; the dominant species are shrubs, herbs, or cryptogamic plants (mosses, lichens, etc.)" (Edinger et al., 2014). Open upland communities are found across 2% of the Study Area (80.0 acres) and include successional old fields and successional shrubland community types that have been historically disturbed and are reverting to a more natural state.

Successional Old Field

Although no native grassland communities exist within the Study Area, successional old fields across the Study Area exhibit the characteristics of grassland habitats. Successional old fields comprise approximately 1% of the Study Area (44.0 acres). As defined by Edinger et al. (2014), a successional old field is a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed for farming and/or development. This includes fields that are mowed at infrequent intervals (typically less than once per year), which promotes the reproduction of characteristic successional old field species, such as goldenrods (*Solidago* spp.), ryegrass (*Lolium* sp.), woolgrass (*Scirpus cyperinus*), raspberry (*Rubus* spp.), blackberry (*Rubus* spp.), and several other upland grasses and forbs.

Successional Shrubland

Successional shrublands comprise approximately <1% of the Study Area (34.9 acres) and generally occur in areas previously cleared for farming (Edinger et. al., 2014). Species within this community include raspberries, chokecherry (*Prunus virginiana*), dogwoods (*Cornus* spp.), wild grape (*Vitus* sp.), staghorn sumac (*Rhus typhina*), invasive shrubs such as multiflora rose (*Rosa multiflora*), autumn olive (*Elaeagnus umbellata*), bush honeysuckles (*Lonicera* spp.), and saplings of common early successional tree species (e.g., aspen [*Populus* spp.], eastern white pine [*Pinus strobus*], and red maple [*Acer rubrum*]) (Edinger et. al., 2014).

Many of the successional shrublands within the Study Area verge on woodlands, having sparse canopies of trees with a ground layer that is predominantly shrubby (Edinger et al., 2014). These successional shrubland/woodland communities occur in areas previously cleared for farming or logging, and which have not yet reverted to a forested state.

Forested Uplands

Forested uplands include "communities with more than 60% canopy cover of trees; substrates are deep to shallow soils that include less than 50% rock outcrop or very shallow soil over bedrock" (Edinger et al., 2014). Forests make up 16% of the Study Area (641.9 acres) and occur primary in areas where the soil is not suitable for farming due to topography or near surface bedrock. The Study Area includes a variety of deciduous and mixed forest communities. Specific upland forest types identified within the Study Area include successional northern hardwood, beech-maple mesic forest, and maple-basswood rich mesic forest.

Common species in the successional northern hardwood community within the Study Area include quaking aspen (*Populus tremuloides*), black cherry (*Prunus serotina*), red maple, eastern white pine, white ash (*Fraxinus americana*), and green ash (*Fraxinus pennsylvanica*). Common species in the beech-maple mesic forest cover type include sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), and American hophornbeam (*Ostrya virginiana*). Common species in the maple-basswood rich mesic forest cover type include sugar maple, basswood (*Tilia americana*), and white ash.

The understory of forested communities in the Study Area is typically comprised of saplings of the species listed previously, but also include dogwoods, multiflora rose, wild grape, sedges (*Carex* spp.), and various ferns, along with other woody and herbaceous plants.

Terrestrial Cultural

Terrestrial cultural communities are created or maintained by human activities and are substantively different in character from the communities that existed prior to human influence. Terrestrial cultural communities are found across 76% of the Study Area (3,079.5 acres) and include cropland, pastureland, spruce/fir plantations, and disturbed/developed community types that have been or are currently being modified by human activities.

Cropland

Cropland represents approximately 71% (2,888.0 acres) of all land within the Study Area. Specific cover types in this class include active row cropland (e.g., corn and soybeans) and field cropland (e.g., alfalfa and hay). Many of the croplands within the Study Area are regularly rotated between field crops and row crops. In some locations, emergent wetlands were observed within small portions of cropland. Shallow emergent wetlands were characterized by the dominance of erect, rooted herbaceous wetland plants and evidence of persistent inundation or saturation.

Pastureland

Agricultural lands maintained as pasture areas for livestock—generally dairy farming operations—are found across 1% (42.8 acres) of the Study Area. Pasturelands within the Study Area are somewhat dynamic, with areas switching from pastureland to cropland intermittently.

Spruce/Fir Plantation

A small portion of the terrestrial cultural communities within the Study Area make up spruce/fir plantations <1% (10.9 acres). The largest stands are principally composed of Norway spruce (*Picea abies*) and white spruce (*Picea glauca*). Where these communities have been partially logged, species common to the successional shrubland and successional northern hardwood communities are common.

Disturbed/Developed

This community type consists of a grouping of several cultural communities, as defined in the *Ecological Communities of New York State* (Edinger et. al., 2014), including paved and unpaved roads, mowed lawns, and quarries. Developed/disturbed lands comprise approximately 3% of the Study Area (137.9 acres). Vegetation in these areas is generally either lacking or highly managed (e.g., mowed lawns), and volunteer vegetation that naturally reestablishes in these areas is typically comprised of old field, often non-native, herbaceous species such as bull thistle (*Cirsium vulgare*), curly dock (*Rumex crispus*), spotted knapweed (*Centaurea maculosa*), and various upland grasses.

(b) Impact to Plant Communities

Construction and operation of the Facility will result in impacts to plant communities. To estimate impacts to ecological communities, the Applicant has developed the following potential impact classifications, all of which are presented on Figure 11-1:

- Limit of Disturbance (LOD): This limit encompasses 370.1 acres or 9% of the Study Area and includes the anticipated outer bounds of where construction and related impacts may occur. This boundary includes defined work corridors along Facility components and incorporates areas where construction vehicles and/or personnel may need extra room to construct the Facility. Within the LOD, existing vegetation will be cleared or mowed to an appropriate height prior to installation of Facility components. The use of machinery to install Facility components within the LOD may also result in temporary soil impacts, further described in Exhibit 10. The LOD is presented in the Design Drawings in Appendix 5-A and Appendix 5-B, and in select figures (e.g., Figures 11-1 and 14-1).

- Limit of Vegetation Management (LOVM): This limit encompasses 99.4 acres or 2% of the Study Area and represents all areas within the LOD that will have maintained vegetation for the life of the Facility. This generally includes the collection line corridors, maintained access road shoulders, areas adjacent to the collection substation and point of interconnection (POI), areas maintained for stormwater purposes, and forested areas around the wind turbines that will be cleared to facilitate wind turbine delivery, erection, and maintenance activities. The LOVM is presented in Figure 11-1.

- Limit of Impervious Surface (LOIS): This limit encompasses 25.2 acres or <1% of the Study Area and represents all areas that will host built components of the Facility and will be maintained in an unvegetated state for the life of the Facility. The LOIS includes wind turbine foundation pedestals and associated gravel rings and crane pads, aboveground components associated with the meteorological (MET) and aircraft detection lighting system (ADLS) towers, access roads, and the collection substation, POI, and operations and maintenance (O&M) facility. These areas will be

cleared of all vegetation, grubbed, and graded prior to installation, as needed. The LOIS represents permanent impacts to existing plant communities during the construction and operation of the Facility. The LOIS is presented in Figure 11-1.

A total of 27.8 acres of forested uplands will be cleared during the construction of the Facility.[1] Forested upland clearing impacts associated with the Facility can be characterized as one of three types: permanent impact, permanent conversion, or temporary impact (i.e., reforestation/natural regeneration). Permanent upland forest impacts will occur within the LOIS; 1.3 acres or approximately 0.2% of all forested uplands within the Study Area will be permanently impacted. Permanent forest conversion will occur within the LOVM; 19.2 acres or 3% of forested uplands within the Study Area will be permanently converted. Natural regeneration will occur in areas outside the LOVM but within the LOD where forests are initially cleared during construction but are allowed to naturally regenerate during operations (e.g., temporary wind turbine workspaces); 7.3 acres or 1% of forested uplands within the Study Area that are cleared during construction will be allowed to regenerate naturally.

Facility-related impacts to vegetation were calculated using the LOD, LOVM, and LOIS. These potential impact areas were generated based on the actual proposed locations of components and grading limits necessary for construction, as identified in the Design Drawings (Appendices 5-A and 5-B). Table 11-1 summarizes the anticipated temporary and permanent impacts to plant communities due to construction and operation of the Facility. Figure 11-1 presents the community types identified by EDR within the Study Area relative to the LOD. Impacts associated with agricultural plant community types (i.e., Field Cropland, Row Cropland, and Pastureland) in Table 11-1 reflect the Facility's direct impacts to these plant communities. See Exhibit 15 for a more detailed discussion of the Facility's direct and indirect agricultural impacts.

Table 11-1. Estimated Temporary and Permanent Impacts to Plant Communities

Plant Community Type	Study Area (acres)	Temporary Impacts (acres)[1]	Permanent Conversion in LOVM (acres)[2]	Permanent Impacts in LOIS (acres)
Open Uplands	**78.9**	**3.5**	**2.3**	**0.3**
Successional Shrubland	34.9	0.5	<0.1	-
Successional Old Field	44.0	3.0	2.3	0.3
Terrestrial Cultural	**3,079.5**	**258.1**	**51.1**	**23.5**
Field Cropland	153.2	20.9	3.6	1.4
Row Cropland	2,734.8	208.7	42.7	20.4
Pastureland	42.8	3.8	<0.1	-
Spruce/Fir Plantation	10.9	0.2	1.0	-
Disturbed/Developed	137.9	24.5	3.8	1.7
Forested Uplands	**641.9**	**7.3**	**19.2**	**1.3**
Beech-maple Mesic	328.4	3.8	11.2	0.7
Maple-basswood Rich Mesic	26.6	<0.1	0.4	-
Successional Northern Hardwood	286.9	3.5	7.6	0.6
Open Wetlands	**58.0**	**1.2**	**0.4**	**<0.1**

[1] Note: Per Edinger et al. 2014, spruce/fir plantations are characterized as terrestrial/cultural communities, not forested uplands.

Plant Community Type	Study Area (acres)	Temporary Impacts (acres)[1]	Permanent Conversion in LOVM (acres)[2]	Permanent Impacts in LOIS (acres)
Emergent (PEM)	36.5	1.2	0.4	<0.1
Shrub Scrub (PSS)	8.7	<0.1	<0.1	-
Open Water (POW)	12.8	-	-	-
Forested Wetlands	**202.3**	**0.5**	**0.9**	**-**
Forested (PFO)	202.3	0.5	0.9	-
Riverine	**13.1**	**0.2**	**<0.1**	**<0.1**
Perennial (R3)	3.1	<0.1	<0.1	-
Intermittent (R4)	1.6	0.2	<0.1	<0.1
Ephemeral (R6)	<0.1	-	-	-
Natural Stream[4]	8.4	-	-	-
TOTAL	**4,073.7[5]**	**270.7**	**74.2**	**25.2**

[1] Impacts that will occur only during construction. Temporarily impacted areas will be restored following construction and will be allowed to revegetate naturally (i.e., will not be further disturbed during Facility operation). As discussed in this Exhibit, this type of impact is considered a permanent impact in forested communities because regrowth of a forest canopy takes many years.
[2] Areas that will be cleared during Facility construction and maintained as early successional communities for the life of the Facility. Conversion of row croplands to perennial early successional communities, such as those that will be maintained adjacent to access roads, is expected to result in no impact or a positive impact, respectively, to vegetation and soil resources.
[3] Surface water features within the LOVM will not be permanently converted, however lands adjacent to these features will be maintained within the LOVM throughout the life of the Facility.
[4] Natural streams include streams that are located more than 100 feet from the limits of disturbance within the Study Area and were approximated based on publicly available aerial imagery and topography data.
[5] Note: the sum of the rows in this table do not always match the totals, due to rounding.

Areas that have been temporarily impacted will be replanted and restored in accordance with the Applicant's Vegetation Management Plan, which will be submitted as a pre-construction compliance filing. Consistent with Title 16 New York Codes, Rules and Regulations (NYCRR) Section 1100-10.2(e)(4) requirements. The Vegetation Management Plan will ensure that any proposed plantings consist of plant material and seeds appropriate for the Study Area and disturbed areas, ruts, and rills are restored to original grades and conditions with permanent re-vegetation and erosion controls appropriate for those locations. In addition, an Invasive Species Control and Management Plan will be developed for the Facility in accordance with 16 NYCRR Section 1100-10.2 (Pre-Construction Compliance Filings) that will include prescribed measures to control, remove, and dispose of invasive species during construction, and control contingency measures to be implemented for the duration of the Facility's adaptive management and monitoring period, within the LOD.

Temporary and permanent impacts to plant communities will not result in the extirpation or significant reduction of any natural ecological community type, or in the significant reduction of any cultural community type (e.g., agricultural land, disturbed/developed) within the Study Area. At the end of the Facility lifespan, Facility components will be decommissioned, and the land restored, consistent with 16 NYCRR Section 1100-6.6 (a) requirements, as described in Exhibit 23 of this Application. Following completion of decommissioning and restoration, impacted lands within the Facility Site are expected to be allowed to return to pre-construction conditions.

(c) Measures to Avoid or Mitigate Plant Community Impacts

Avoidance, minimization, and mitigation of impacts to plant communities have been and will be accomplished primarily through careful site planning. As quantified and discussed in this exhibit and in Exhibit 15, Facility components have been primarily sited within terrestrial cultural communities and open uplands, while still minimizing impacts to active agricultural land to the maximum extent practicable. Impacts to forested uplands and wetlands within the Study Area account for only 8% of all impacts to plant communities resulting from construction and operation of the Facility. In comparison, impacts to terrestrial cultural communities account for 90% of all proposed impacts. Although the Facility has been largely sited within terrestrial cultural communities, the Facility's overall impacts to this community type represent only a small portion of all terrestrial cultural communities within the Study Area (332.7 acres or 11%). Whenever possible, the Applicant designed the facility to minimize impacts to active agricultural lands to the greatest extent practicable (refer to Exhibit 15 for a further discussion on avoidance, minimization, and mitigation measures for impacts to active agriculture).

To protect adjacent undisturbed vegetation and other ecological resources, a comprehensive Erosion and Sediment Control Plan will be developed and implemented prior to Facility construction (Appendix 13-C). Other mitigation measures to avoid or minimize impacts to vegetation include marking sensitive areas (such as wetlands) where no disturbance or vehicular activities will be allowed, consistent with 16 NYCRR Section 1100-6.4 (e), educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas, employing best management practices during construction, and maintaining a clean work area within the designated construction sites. The Applicant will hire an independent environmental monitor to conduct inspections of all areas requiring environmental compliance during construction activities, with an emphasis on those activities that are occurring within sensitive areas consistent with 16 NYCRR Section 1100-6.4 (b).

Alternative technologies that will be employed during construction to minimize impacts to communities within and adjacent to streams and wetlands includes the use of trenchless technologies to install collection lines under sensitive resources and selective tree removal methods that minimize soil disturbance and retain the existing root biomass and seed bank.

As previously discussed in Exhibit 11(a), all plant communities identified within the Study Area are common to New York State. Therefore, no impacts to unique or rare natural communities will result from Facility construction. Following construction activities, temporarily disturbed areas will be seeded (and stabilized with mulch and/or straw, if necessary) to reestablish vegetative cover in these areas. Except in active agricultural fields, native/naturalized species will be allowed to revegetate temporarily disturbed areas.

At the end of the Facility's operational life, the Applicant will remove Facility components and restore the land, as described in Exhibit 23, consistent with 16 NYCRR Section 1100-6.6(a) requirements. Following completion of decommissioning and restoration, lands within the Study Area are expected to return to pre-construction conditions.

(d) Species List

A Wildlife Species List is included in Appendix 11-A. The Wildlife Species List identifies species that may occur within the Facility Site at some time during the year. It is also based on site-specific field survey results, such as the avian surveys conducted within the Facility Site (refer to Exhibit 12), as well as assessments of habitat availability and existing publicly available data, summarized in the Wildlife Site Characterization Report (WSC) (Appendix 12-A).

(e) Impacts Wildlife, Wildlife Habitats, and Wildlife Travel Corridors

As outlined in Exhibit 11(d), the Applicant compiled a list of wildlife species, including federally and state listed species, based on site-specific correspondence, review of publicly available database queries, and direct observations made on-site. A description of potential impacts to state listed endangered, threatened, and special concern species is provided in Exhibit 12. As discussed in Exhibit 11(b) and shown in Figure 11-1, the majority of the potential impacts to wildlife and wildlife habitat associated with the construction and operation of the Facility (90%) will occur in terrestrial cultural communities (e.g., agricultural, plantation, and disturbed/developed communities). Impacts to other plant communities within the Study Area represent 10% of total anticipated impacts.

Terrestrial cultural communities generally provide limited, marginal, and/or seasonal habitat for wildlife due to the regular modification of land by human activities, such as tilling, applying agrochemicals, planting, cultivating, mowing, harvesting, and logging. Active fields of row crops, such as corn and soybeans, typically provide marginal habitat for wildlife species, as these habitats are often too disturbed for nesting and breeding to be successful. Depending on the extent and frequency of site disturbance, hay fields and pastureland can provide habitat for wildlife such as grassland birds and small mammals. However, practices such as cutting hay earlier, mowing more frequently, and using high-speed disk mowers often result in wildlife mortality and/or nest loss (Hyde and Campbell, 2012). Spruce/fir plantations are generally composed of introduced softwood monocultures with limited wildlife habitat value. Understory habitat in these communities is typically limited by high canopy densities. Where these plantations have been partially or fully harvested, successional processes can improve the diversity and therefore the habitat value of these plantations.

Forests provide important breeding, migratory stopover, and wintering habitat for a wide variety of species. Research has demonstrated that larger forest tracts typically support more species than smaller forest stands. The amount of forest cover, size of individual forest patches, forest type, and linkages to other patches in a landscape determine their ability to support wildlife species which depend on them, including area-sensitive and edge intolerant species. This is particularly true for mammals and forest birds that require extensive forests (Environment Canada, 2004). Large, contiguous forested upland and/or wetland patches are generally lacking within the Study Area: only three core forest blocks (i.e., patches of forest greater than 150 acres as defined by 16 NYCRR Section 1100-1.3(g)(1)(iii)) are present within the more than 4,000-acre Study Area. As shown in Table 11-1 and Figure 11-1, the Facility will have only limited impacts on forested uplands and core forest blocks; these impacts have been minimized to the furthest extent practicable.

The construction and operation of the Facility may result in some habitat loss or species displacement. A total of up to approximately 25.2 acres of vegetation (<1% of the Study Area) will be removed and converted to impervious surfaces associated with Facility components (e.g., wind turbine foundations, access roads, substation) and up to 27.8 acres of forested uplands (<1% of the Study Area) will be cleared. However, construction and operation will not result in extirpation, significant reduction, or fragmentation of plant communities or wildlife habitat. The majority of the Study Area is comprised of terrestrial cultural communities and open uplands that are actively farmed, were farmed recently, or which are otherwise subjected to regular disturbance (e.g., spruce/fir plantations). Therefore, impacts to wildlife are expected to be limited. Additional discussion regarding impacts to state or federally listed threatened or endangered species, or species of concern, are discussed in Exhibit 12.

(1) Construction-Related Impacts to Wildlife and Wildlife Habitats

Construction-related impacts to wildlife are anticipated to be limited to incidental injury and mortality due to construction activity and vehicular movement, habitat disturbance/loss associated with clearing and earth-moving activities, and displacement of wildlife due to increased noise and human activities. Each of these potential impacts is described herein.

Incidental Injury or Mortality

Direct impacts from construction equipment may include incidental injury or mortality due to construction activities, such as clearing of vegetation, grading, excavation activities, driving of vehicles and equipment, as well as construction crew foot traffic. Vehicle-related mortality may increase temporarily due to the increased traffic during construction and operation. However, potential mortality is expected to be low, as equipment used in wind energy facility construction generally moves at slow rates or is stationary for long periods (e.g., earth moving equipment, erection cranes). In addition, most of the land within the Study Area is actively farmed. Such areas typically provide limited food and cover for most wildlife species and are routinely subject to disturbance-related farming activities (e.g., plowing, mowing, pesticide application). Incidental injury and mortality are expected to be limited to juvenile and sedentary/slow-moving species that are unable to move out of the area that is being disturbed by construction, such as small mammals, ground-nesting bird eggs and hatchlings, reptiles, amphibians, and invertebrates. More mobile species and mature individuals should be able to vacate the disturbed areas. Vehicle-related mortality may increase temporarily due to the increased traffic during construction; however, as traffic decreases upon the completion of construction, so will the potential for wildlife-vehicle collisions.

For most of the wildlife species potentially present, overall populations are stable and any adverse impacts would be localized and not significant. For instance, impacts to species nesting in active farm fields should not differ greatly from existing impacts resulting from normal agricultural management of these fields for farming purposes. Thus, any direct impacts associated with disturbance and displacement from construction areas would be a temporary impact and individuals would be able to return to disturbed areas following completion of construction activities.

Habitat Disturbance and Loss Due to Clearing and Earth-moving Activities

Facility components have been sited to minimize impacts to wildlife habitat. This includes preferentially siting wind turbines in terrestrial cultural communities (e.g., agricultural land and disturbed/developed communities) and open uplands to avoid or minimize impacts to forested uplands and wetland communities. Only 4% of forested uplands within the Study Area (27.8 acres) will be impacted by the construction of the Facility. In comparison, 11% of terrestrial cultural communities within the Study Area (332.7 acres), and 8% of open uplands within the Study Area (6.1 acres) will be impacted by the construction and operation of the Facility.

It is anticipated that approximately 332.7 acres of terrestrial cultural communities and 6.1 acres of open uplands will be directly impacted by construction-related disturbance. On a landscape scale, an abundance of these habitats occurs within the Study Area, in nearby areas, and in the broader region. Of the total impacts, 258.1 acres of terrestrial cultural communities and 3.5 acres of open uplands will be only temporarily impacted during construction and will be allowed to return to their previous condition post-construction. As the Study Area is surrounded by similar habitats within the disturbance areas and most of the wildlife species that may be impacted by the Facility currently have stable populations within New York State and the region, any indirect impacts are not anticipated to be significant. The indirect impacts would be short term in duration, and various wildlife species would be expected to return to the temporarily disturbed areas following construction.

During the construction of aboveground Facility components (e.g., the substation, access roads, wind turbine foundations), grading will occur in association with leveling areas for Facility component installation. In these areas, existing vegetation will be cleared, and structures and/or impervious surfaces will be installed. Non-impervious areas will be maintained in an early successional state for the life of the Facility. Where these early successional communities are established in former row cropland, these maintained communities will likely provide improved habitat value for many wildlife species, including pollinators and other invertebrates, small mammals, reptiles and amphibians, and some avian species. A total of approximately 51.1 acres of terrestrial cultural communities will be maintained in a successional state.

Changes in vegetation have the potential to influence the behavior of wildlife species by changing the quality of habitat for foraging, nesting, or roosting, although significant adverse impacts on wildlife are not expected. As indicated previously, the row crop fields that will be disturbed by Facility construction provide habitat for relatively few wildlife species and conversion to an early successional community may benefit some species.

Displacement of Wildlife

Some wildlife displacement may occur due to increased noise and human activity associated with Facility construction. The significance of this impact will vary by species and the seasonal timing of construction activities. These impacts are not expected to be significant due to the limited habitat value of the areas being impacted because a sizeable amount of suitable habitat will remain undisturbed by

Facility construction within and adjacent to the Study Area. As mentioned previously, the majority of land proposed to host Facility components is subject to frequent mechanical disturbance associated with farming activities. Consequently, it is anticipated that many of the wildlife species within the Study Area are accustomed to disturbances such as those that will occur during Facility construction. Outside of localized displacement due to construction disturbance in the immediate vicinity of Facility components, no significant displacement impacts on wildlife species are anticipated during construction.

(2) Operation-Related Impacts to Wildlife and Wildlife Habitats

Operation-related impacts to wildlife include direct habitat loss, habitat degradation through fragmentation, disturbance/displacement of wildlife due to the presence of wind turbines, and mortality as a result of collisions with operating turbines.

Habitat Loss

A total of 25.2 acres of wildlife habitat will be permanently lost from the Study Area (i.e., converted to roads or built facilities) (Table 11-1). This habitat loss represents less than <1% of the 4,073.7-acre Study Area. Facility construction will result in a temporary loss of approximately 270.7 acres of habitat. An additional 74.2 acres, including 27.8 acres of upland forest, will be cleared and converted to a successional community that may remain in an early successional state (e.g., mowed lawn or old field) or transition to a shrubland or young forest, depending on Facility maintenance activities. This will result in an increase in habitat for early successional species, many of which are in decline (Swanson et al., 2010; Litvaitis, 1993). In addition, habitat conversion from forest to maintained successional communities may contribute to advancing the NYSDEC Young Forests Initiative, as outlined in the New York State Forest Action Plan, by replacing more mature forest with young forest, providing desirable early successional habitat for a variety of migrant songbirds, native gamebirds, and other wildlife (NYSDEC, 2020). In particular, the Forest Action Plan and the New York State Wildlife Action Plan both cite the importance of young forests to wildlife diversity and the threat posed by forest succession to SGCN (NYSDEC, 2015a).

Forest clearing or conversion will reduce available habitat and could result in impacts to forest avian species, which are sensitive to edge effects and habitat fragmentation. Fragmentation impacts can degrade habitat quality by impacting the movements and breeding, roosting, or foraging behaviors of birds and bats, and may ultimately impact reproductive success or survival. Impacts are taxa/species-specific, can occur at different spatial scales, and will vary depending on the configuration and extent of impacted areas, previous land uses or quality of previous habitat, as well as new land uses in the impacted areas. Forest nesting species, such as the ovenbird (*Seiurus aurocapilla*), the scarlet tanager (*Piranga olivacea*), and the wood thrush (*Hylocichla mustelina*) may experience a loss of habitat and effects associated with fragmentation. In addition, forest loss and fragmentation could result in adverse impacts to bat species, depending on preferred prey, foraging habitats, roosting needs, and flight morphology, among other factors. Suitable roosting areas for some bat species may be lost as a result of Facility construction; however, the creation of open areas and forest edge habitat may benefit some

species such as the little brown bat (*Myotis lucifugus*) and the big brown bat (*Eptesicus fuscus*) by increasing foraging opportunities.

Publicly available data from the National Land Cover Database (NLCD; USGS, 2021) indicate that forestlands are prevalent throughout Cayuga County with core forest blocks (i.e., contiguous areas one 150 acres or larger) comprising nearly a substantial acreage within Cayuga County. Forest clearing during the construction of the Facility will impact only 4% of all forested uplands in the Study Area, so forest losses are *de minimis* relative to habitat availability. Effects associated with conversion of habitat and fragmentation due to the Facility are expected to be minimal and comparable to existing conditions. The areas that will have some forest clearing are in proximity to similar forested habitats. Since the amount of habitat fragmentation will be low and there will not be a regional landscape-level change in habitat, the impacts to wildlife species from forest fragmentation are expected to be limited. In addition, the habitat conversion that is expected to occur will provide an increase in habitat for early successional species.

Fragmentation of grassland habitats may also occur as a result of Facility operation, though to a lesser extent, as the Study Area is dominated by annual row cropland and perennial grassland communities are largely lacking. Past and current agricultural practices have largely shaped the nature of existing grassland habitats. Lands used for active cultivation and most fields in the Study Area are considered marginal grassland habitat due to existing landowner management disturbances. Although marginal, the proposed Facility may fragment the annual and perennial grassland habitats located within the Study Area through the creation of permanent access roads, turbine pads, and other infrastructure. Buried collection lines would have minimal, short-term, temporary impacts on habitat during construction and are not likely to result in long-term fragmentation effects. Fragmentation of the marginal grassland habitats located within the Study Area is not expected to have significant impacts on wildlife. Impacts to occupied habitat identified for threatened and endangered grassland bird species will be mitigated through implementation of the Net Conservation Benefit Plan (NCBP; refer to Exhibit 12 and Appendix 12-H).

Disturbance/Displacement of Wildlife

Habitat alteration and disturbance resulting from the operation of turbines and other wind energy facility infrastructure may render some areas within the Study Area unsuitable or less suitable for nesting, foraging, roosting, or other wildlife use. The Facility is sited primarily in an agricultural landscape that is subject to frequent disturbances associated with farming activities such as tilling, plowing, pesticide application, mowing/harvesting, and livestock grazing. Wind turbines have been sited in open uplands and terrestrial cultural communities to the greatest extent practicable to avoid the need to impact other valuable wildlife habitats. For example, 23 of the 24 wind turbines, the collector substation and POI switchyard, the O&M facility, the MET and ADLS towers, and the construction laydown yards have been largely sited in terrestrial cultural communities to minimize tree and vegetation clearing in the surrounding area, as shown in the Exhibit 5 (Design Drawings) Appendix 5-A. As further discussed in Exhibit 14, Facility components have also been set back to avoid permanent impacts to state regulated wetlands and streams, to the greatest extent practicable.

The presence of turbines in terrestrial cultural, open upland, and forested upland communities within the Study Area will likely render these habitats less desirable for certain species that would otherwise utilize these areas for foraging, roosting, and breeding habitat. This may be particularly true for avian species that generally require large, open grassland areas or for forest avian species that generally require large stands of intact, undisturbed forests for foraging activities and establishing breeding territories. Similar forest and grassland habitats are available in the Study Area and surrounding landscape for birds which may be displaced due to the Facility. The creation of edge habitats and early successional habitats will benefit other species of birds and wildlife species which thrive in more open and regenerating habitats. Permanent impacts to the wintering and breeding habitat of grassland bird species are anticipated to occur due to the construction of the Facility Site. The Applicant will implement avoidance, minimization, and mitigation measures as presented in Exhibit 11(c).

Disturbances associated with the operation and maintenance of a wind energy facility, such as noise produced by operating turbines and the substation, vehicle traffic, maintenance of turbines or other project components (e.g., roads and buried collection lines), can impact breeding, foraging, resting, or other wildlife behaviors. Maintenance activities and vehicle traffic during operations may result in disturbances such as noise effects, damage to the nests of ground nesting birds, other disturbances to nesting activities, or potential vehicular collisions of wildlife. However, maintenance activities will be relatively infrequent, temporary, and are not expected to result in long-term or adverse impacts. Operations and maintenance effects on wildlife are expected to be comparable to, or less than, other land uses including regular road traffic and agricultural practices (e.g., operation of farm machinery). Further, as specified in the Facility's NCBP (Appendix 12-H), if an active nest of a federally or state listed endangered or threatened bird species is discovered incidentally within the Facility Site during the life of the Facility, measures will be implemented to avoid disturbance to the nest.

Avian Collision Risk

Wind turbines (including towers and operating or stationary blades) pose a collision risk for birds, and every wind energy facility in the U.S. likely results in some bird mortality. Evaluation of studies conducted at wind energy facilities across North America has indicated that fatality rates for all bird species can vary considerably, ranging from 0.0 birds/Megawatt (MW)/year to 77.0 birds/MW/year (Smallwood, 2013). However, most wind energy facilities have reported bird fatality rates closer to the low end of this range. For example, based on an analysis of 42 post-construction monitoring studies conducted for wind energy facilities in the eastern U.S. (including New York), the American Wind Wildlife Institute (AWWI; now known as the Renewable Energy Wildlife Institute [REWI]) reported an overall median bird fatality rate of 1.43 birds/MW/year, and an overall mean bird fatality rate of 2 birds/MW/year. The median fatality rates for small birds, large birds, and raptors were 1.64 birds/MW/year, 0.19 birds/MW/year, and 0.01 birds/MW/year, respectively. The mean fatality rates for these same groups were 2.09 birds/MW/year, 0.48 birds/MW/year, and 0.05 birds/MW/year, respectively (AWWI, 2020a). Approximately 60% of birds found during carcass searches consist of small passerines (i.e., songbirds; AWWI, 2021). Passerines are the most abundant group of birds in the world, and their abundance combined with nocturnal migratory behavior likely contributes to their increased risk. Peak periods of

collision mortality typically coincide with spring and fall migration, particularly during periods of fog or inclement weather.

It is important to note that wind energy facilities represent a very small contribution to overall avian fatalities compared to other anthropogenic sources. Of the main anthropogenic sources of avian fatalities regularly identified in scientific reviews, six account for an overwhelming majority of bird deaths in the U.S. and Canada: (1) domestic cats; (2) windows and buildings; (3) highways and vehicles; (4) pesticides; (5) legal and illegal hunting; and (6) electric transmission line structures. Together, these anthropogenic sources result in more than four billion (4,000,000,000) estimated avian fatalities per year. Compared to this estimate, the operation of wind turbines in the U.S. and Canada results in only 368,000 estimated avian fatalities per year—approximately 0.009% of avian fatalities from anthropogenic sources (Erickson et al., 2014).

To date, there has been no significant population impact documented for any one species of bird due to wind energy development. This is largely because nocturnal migrant passerines, the bird group most frequently known to collide with tall, artificial structures, are relatively abundant (Johnson et al., 2002; NRC, 2007; Arnold and Zink, 2011; Erickson et al., 2014). Significant adverse effects associated with operating wind turbines are not expected.

As identified in the WSC Report (Appendix 12-A), the Facility is located in the general vicinity of Owasco Lake, an intermediate-sized lake within the group of lakes referred to as the Finger Lakes. Owasco Lake is 11.1 miles long, with a maximum width of 1.3 miles, and a mean depth of approximately 97 feet (NYSDEC, 2024a). The NYSDEC and the NYNHP have designated a Waterfowl Winter Concentration Area (i.e., a Significant Waterfowl Winter Concentration Area) associated with Owasco Lake (Appendix 12-A). Although there are no formal regulatory definitions or specific protections for Waterfowl Winter Concentration Areas in New York State, it is assumed that this designation was assigned to Owasco Lake because it is known to support a variety of waterfowl species during the spring migratory, fall migratory, and winter seasons. The term 'waterfowl' typically refers to ducks, geese, and swans in the biological family Anatidae (Winkler et al., 2020), although the term sometimes includes other waterbirds such as loons, grebes, cormorants, coots, gallinules, and moorhens. Given their aquatic habitat requirements, most species of waterfowl rely heavily on water features for foraging, breeding, wintering, and stopping over during migration. No Facility components are proposed within or adjacent to Owasco Lake. The presence of Facility components is not anticipated to interfere with the ability of waterfowl to use the waterbody itself, or the forested and wetland communities adjacent to the lake.

Even if the operating wind turbines do result in impacts to waterfowl, as noted previously, wind energy facilities typically have relatively low avian fatality rates (e.g., 2 birds/MW/year), represent a very small contribution to overall avian fatalities compared to other anthropogenic sources, and are not generally known to have significant population-level impacts for any one species of bird. Moreover, in a summary of research results and priority questions pertaining to wind energy interactions with wildlife and their habitats, the AWWI noted that "[f]atalities of waterbirds, waterfowl, and other species characteristic of freshwater, shorelines, open water, and coastal areas (e.g., ducks, gulls and terns, shorebirds, loons and grebes) are reported infrequently at land-based wind facilities" (AWWI, 2021). Scientific studies (e.g.,

Loesch et al., 2012; Marques et al., 2021; Tolvanen et al., 2023) have demonstrated that wind turbines can result in displacement or reduced breeding productivity for certain bird species; however, the Facility's wind turbines are not proposed in the types of habitats that waterfowl specifically prefer to use for breeding or nesting (e.g., marshes, ponds, rivers, prairie potholes). Rather, as discussed in the previous sections, most Facility components are proposed in upland agricultural areas that are subject to significant levels of disturbance under existing conditions.

Furthermore, the waterfowl species that may be most likely to use Owasco Lake in substantial numbers, such as the Canada goose (*Branta canadensis*), snow goose (*Anser caerulescens*), mallard (*Anas platyrhynchos*), and bufflehead (*Bucephala albeola*), are abundant, globally secure (i.e., designated as 'Least Concern'; BirdLife, 2024a, 2024b, 2024c, 2024d), and not listed by the NYSDEC as endangered, threatened, or special concern species (NYSDEC, 2015b). In part because most waterfowl species have robust population sizes, many waterfowl and other migratory game bird species occurring in New York State may be hunted, with daily bag limits for individual hunters set by the NYSDEC. Many of the daily and possession limits for waterfowl species are likely substantially higher than the number of birds that may be taken by operating Facility wind turbines. For example, the 2024-2025 daily limit for most duck species totals six individuals, with a possession limit of 18 individuals. In most parts of New York State, hunters may take up to three Canada geese over a period of 30 days, and up to four mallards per day. Hunters are also permitted to take up to 25 snow geese per day, with no possession limit for this species during the 2024-2025 hunting season (NYSDEC, 2024b). In addition, the NYSDEC and the USFWS issue permits for the take of Canada geese determined to be a nuisance (NYSDEC, 2014).

The Facility's closest proposed wind turbine (Wind Turbine #12) is located approximately 1.2 miles from the nearest edge of Owasco Lake. The next closest proposed wind turbines are located approximately 1.3 miles (Wind Turbine #18), approximately 1.6 miles (Wind Turbine #6), and approximately 1.8 miles (Wind Turbine #4 and #10) from the nearest lakeshore boundary. The remaining proposed wind turbines and other Facility components are located between approximately 1.9 and 4.3 miles from Owasco Lake. Thus, the Facility layout maintains a substantial distance buffer between proposed components and this waterbody. The lands between the nearest proposed Facility wind turbines and the lakeshore primarily include forested, agricultural, and disturbed/developed communities. Many existing lakeshore developments (e.g., residences, docks) are present directly adjacent to Owasco Lake, and represent existing forms of disturbance and potential impacts to birds. Moving west and southwest away from the lake, a relatively narrow band of forestland transitions to farm fields with interspersed, more fragmented woodlots and hedgerows. Although wildlife species, particularly migratory birds, may concentrate at and adjacent to Owasco Lake during certain times of the year, it is anticipated that the greatest use and concentrations would be found within the lake itself (given the presence of open, or partially open, water, depending on the season), and in less heavily disturbed forested and wetland communities directly adjacent to the waterbody.

Migratory birds are known to concentrate along lakeshores (Buler and Dawson, 2014; Smith et al., 2007), and one study of the distribution of migratory landbirds along the northern Lake Huron shoreline in Michigan determined that both long- and short-distance migrants were concentrated within 0.4 kilometers (approximately 0.25 miles) of the shoreline (Ewert et al., 2011). However, it is important to

note the vast difference in size and significance between relatively small waterbodies such as Owasco Lake and much larger freshwater features present in the northeastern region, most notably the Great Lakes. A relatively narrow waterbody such as Owasco Lake likely represents a much less significant barrier for migrating birds to cross, and may be expected to attract a much reduced concentration of migrants along and near the shoreline compared to the much larger Great Lakes. Furthermore, the lake itself and the relatively intact band of forested habitat adjacent to the southwestern shore of Owasco Lake would be expected to attract more migratory birds than the disturbed, agricultural areas located farther away (including the Study Area).

The potential avian collision risk posed by proposed Facility wind turbines relative to Owasco Lake and the associated Waterfowl Winter Concentration Area must be balanced against the environmental threats to bird species and their habitats posed by a failure to address and mitigate climate change. Climate change represents one of the most significant threats to a wide variety of wildlife species, potentially threatening two-thirds of North American bird species with extinction, including high-vulnerability waterfowl species such as the common goldeneye (*Bucephala clangula*) and the lesser scaup (*Aythya affinis*) (National Audubon Society, 2019). Wind energy facilities can reduce carbon emissions and, therefore, represent one means of ameliorating the effects of climate change. Science-based organizations dedicated to the conservation of birds and their habitats, such as the National Audubon Society, strongly support the development of wind energy facilities (National Audubon Society, 2020).

Bat Collision Risk

Wind energy development has shown to result in higher direct impacts to bats than birds, and hundreds of thousands of bats are likely killed annually by wind turbines across the U.S. and Canada (Arnett and Baerwald, 2013; Hayes, 2013; Smallwood, 2013). Evaluation of studies conducted at wind energy facilities across the U.S. has indicated that fatality rates for all bat species can vary, ranging from less than one bat/MW/year to 50 bats/MW/year (AWWI, 2018), with 75% of wind energy facilities reporting fatality estimates of less than 5 bats/MW/year. Based on a more recent analysis of 59 post-construction monitoring studies conducted for wind energy facilities in the northeastern U.S. (including New York), the AWWI reported an overall median fatality rate of 3.99 bats/MW/year, and an overall mean fatality rate of 8.65 bats/MW/year (AWWI, 2020b). Collision risk is highest for three migratory, tree-roosting bat species (i.e., the hoary bat [*Lasiurus cinereus*], the silver-haired bat [*Lasionycteris noctivagans*], and the eastern red bat [*Lasiurus borealis*]), which account for approximately 70% of all bat fatalities at wind energy facilities in the U.S. (AWWI, 2021). Therefore, these three migratory tree-roosting bat species would likely be those most affected during Facility operation. None of these bat species are currently listed as endangered, threatened, or special concern species in New York State.

Because limited information is available on tree-roosting bat species' populations, the significance of mortality due to collisions with wind turbines is not well understood. In addition, the reasons for these species' increased vulnerability to collision are also uncertain (AWWI, 2021). Other species of bats are also known to collide with wind turbines, including cave-hibernating *Myotis* species. *Myotis* bats have suffered significant population declines due to white-nose syndrome. White-nose syndrome is a fungal

disease affecting cave-hibernating bats, and it represents the most significant source of bat fatalities in the U.S. and Canada since it was first documented in New York in 2006 (WNSRT, 2024). In the following years, this disease has spread to more than 16 states and four Canadian provinces, resulting in at least 5.7 million to 6.7 million bat fatalities (USFWS, 2012). Therefore, *Myotis* bats may also be vulnerable to impacts associated with wind turbine collisions where they are still present in the post-white-nose syndrome era.

Collision risk for bats in the U.S. peaks in the late summer and early fall, which overlaps with the time of year when tree-roosting bat species migrate (AWWI, 2021). Collision risk also coincides with periods of low wind speeds and warm temperatures. With minimization measures implemented at Facility Site during peak periods of bat risk, significant adverse impacts due to collision are not anticipated. Namely, in accordance with 16 NYCRR Section 1100-6.4(o)(4)(v), the Applicant will implement operational curtailment from July 1 to October 1 when wind speeds are at or below 5.5 meters per second and temperatures are at or above 10° Celsius (50° Fahrenheit) from 30 minutes before sunset to 30 minutes after sunrise. This curtailment schedule will be followed on an individual turbine basis and will be determined by weather conditions as measured by individual weather stations on each wind turbine nacelle.

Impacts to Wildlife Travel Corridors and Concentration Areas

As discussed in the WSC Report (Appendix 12-A), the Applicant conducted research to identify documented wildlife travel/migration corridors and concentration areas within or adjacent to the proposed Facility. No documented wildlife travel corridors or migration stopover sites were identified within the Study Area based on consultations with the USFWS and the NYNHP. In addition, there are no national wildlife refuges, high elevation mountaintops, known bat hibernacula, Great Lakes shorelines, large river corridors, or other documented significant habitat areas within 5 miles of the Facility Study Area (as defined in the WSC Report) (Appendix 12-A).

Landscape features and other resources within 5 miles of the Facility Study Area that could support wildlife travel or function to concentrate wildlife include: (1) the Owasco Flats Management Area (WMA), which is located approximately 3.2 miles southeast of the nearest proposed wind turbine (Wind Turbine #18) at its closest point; (2) Grassland Focus Area 5, which encompasses approximately 877,000 acres in the Finger Lakes region; (3) core forest blocks, which comprise approximately 13.6% of the total land area within 5 miles of the Facility Study Area boundaries defined in the WSC Report (Appendix 12-A); (4) The Greater Summerhill Audubon Important Bird Area (IBA), which is located approximately 0.8 miles east of the nearest proposed wind turbine at its closest point; (5) Owasco Lake, which is located approximately 1.2 miles from the nearest wind turbine at its closest point (as discussed previously); and (6) forested riparian areas located along streams.

Migratory and resident wildlife would be expected to use these resources, and some impacts to wildlife may result due to construction and operation of the Facility, as discussed in this Exhibit. However, impacts to wildlife travel corridors and concentration areas would be limited, as the Facility has avoided more significant wildlife resources of particular regional, state, and national importance (e.g., Great Lake

shorelines, national wildlife refuges) and has largely sited Facility components within habitats that provide limited value to most wildlife species. Therefore, the Facility is not anticipated to have significant adverse impacts to wildlife travel corridors or concentration areas. Smaller-scale wildlife travel corridors used for local movement between resource patches are present within the Study Area. Examples may include riparian corridors, hedgerows, forest patches, deer trails, and areas between wetlands and uplands. Due to the relatively small area of disturbance and permanent facilities proposed for the Facility, and the abundance of similar habitat features surrounding these impacted areas, the Facility is anticipated to have a minimal impact on local wildlife travel corridors.

Cumulative Impacts to Birds, Bats, and Wildlife Habitat

No existing or proposed utility-scale wind or solar energy generating facilities have been identified within the 5-mile Study Area. Therefore, the Facility will not contribute to cumulative impacts to wildlife or wildlife habitat due to utility-scale renewable energy development in the immediate region.

Avian Mortality Estimates

As noted previously in this Exhibit, the AWWI conducted an analysis of 42 post-construction monitoring studies completed for wind energy facilities in the eastern U.S. (including New York) and reported an overall mean bird fatality rate of 2 birds/MW/year (AWWI, 2020a). Based on this mean bird fatality rate for the eastern U.S. and a maximum generating capacity of 99 MW, the Facility could potentially result in the loss of approximately 198 birds/year. The Facility's addition of 24 new wind turbines in New York State will increase the potential numbers of bird fatalities. However, these impacts would not be expected to have effects on the populations for any one bird species (Arnold and Zink, 2011), and the Facility's contribution to the impacts of these wind energy facilities to birds will represent a very small proportion of overall bird mortality from anthropogenic sources, which also include domestic cats, windows and buildings, highways and vehicles, pesticides, hunting, and electric transmission line structures (Erickson et al., 2014). Furthermore, as noted previously, the Facility's impacts to birds must be balanced against the environmental threats to bird species and their habitats posed by a failure to address and mitigate climate change.

Bat Mortality Estimates

As noted previously in this Exhibit, the AWWI conducted an analysis of 59 post-construction monitoring studies completed for wind energy facilities in the northeastern U.S. (including New York) and reported an overall mean bat fatality rate of 8.65 bats/MW/year (AWWI, 2020b). Based on this mean bat fatality rate for the northeastern U.S. and a maximum generating capacity of 99 MW, the Facility could potentially result in the loss of approximately 856 bats/year. The Facility's addition of 24 new wind turbines in New York State will increase the potential numbers of bat fatalities. However, it is important to note that this estimate does not fully account for the fatality reductions that will be achieved by implementing operational curtailment. During pre-application consultations, ORES provided a bat fatality rate of 7.2 bats/MW/year for wind energy facilities in

New York State (which is lower than the mean bat fatality rate reported by the AWWI) and indicated that curtailment would be expected to reduce bat fatalities substantially for certain species (i.e., up to 85%, or a minimization factor of 0.15).

Based on the ORES-provided bat fatality rate for New York State and a maximum generating capacity of 99 MW, the estimated bat fatality rate for the Facility (without curtailment applied) would be approximately 713 bats/year. Depending on the species, curtailment would then be expected to substantially reduce bat fatalities for most species. For example, a study conducted for two wind energy facilities in northeast Illinois demonstrated that curtailment alone reduced overall bat mortality by 42.5%, and curtailment combined with the use of acoustic deterrents reduced overall bat mortality by 66.9%, with species-specific reductions ranging from 58.1% to 94.4% (Good et al., 2022). The Facility's planned curtailment schedule would also be anticipated to substantially reduce the annual and total numbers of bat fatalities. In addition, the Facility may also employ ultrasonic acoustic bat deterrent systems and/or other similar technologies during operation to further reduce bat fatalities and the Facility's contribution to bat mortality.

(f) Measures to Avoid or Mitigate Impacts to Wildlife and Wildlife Habitats

Avoidance and minimization of impacts related to construction and operation of the Facility were accomplished through careful site design (e.g., utilizing existing roads, previously disturbed corridors, and row cropland, avoiding sensitive habitat such as wetlands and riparian corridors, and minimizing disturbance to the maximum extent practicable), adherence to designated construction limits, and implementation of an Erosion and Sediment Control Plan in the Stormwater Pollution Prevention Plan (SWPPP) (refer to Exhibit 13 for more information regarding the SWPPP). As described and quantified in Exhibit 11(b), Facility components have been sited in terrestrial cultural communities (e.g., agricultural land) to the maximum extent practicable to avoid significant impacts to forested uplands and wetlands. As evidence of this, only 4% of forested uplands within the Study Area (27.8 acres) will be impacted by the construction of the Facility. In comparison, 11% of terrestrial cultural communities within the Study Area (332.7 acres) will be impacted by the construction and operation of the Facility.

Cleared forestland at the periphery of some wind turbines and access roads will be allowed to regenerate in areas that are not required for Facility maintenance, providing habitat for early successional species over the short-term and supporting forest species in the long-term. In areas of natural regeneration, grubbing and grading will be limited to the minimum required to install Facility components. Furthermore, during the compliance filing phase, the Applicant will develop a Traffic Control Plan to ensure safe and efficient traffic flow during construction and operations, thus minimizing risk of wildlife injury or mortality due to traffic collision. The Applicant will hire an Environmental Monitor to conduct regular inspections of construction activities, ensuring that sensitive habitats are flagged and avoided, and observations of any threatened and endangered species are recorded in accordance with the final Article VIII Siting Permit conditions.

Exhibit 12 provides information regarding the Facility's potential impacts on state listed endangered, threatened, and special concern species.

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