Draft Environmental Impact Statement

New Leaf Energy Stark Wind Turbine Project

Location of Project:
489 Sickler Road
Town of Stark, NY 13687
741 County Road 29
Springfield, NY 13468

Lead Agency:
Town of Stark Town Board
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Fort Plain, NY 13339
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Public Hearing Date: XX XX, XXXX
Comment Period: XX XX, XXXX

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Listed Species Habitat Assessment, Avian Survey
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Maynard, MA 01754

GEI Consultants, Inc, P.C.
Wetland and Waterbody Delineation Report
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Ithaca, NY 14850

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Met Mast Installation Proposal
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Historic Resource Survey, SHPO Consultation
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Involved Agencies

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New York State Department of Environmental Conservation
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Watertown, NY 13601
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New York State Office of Parks, Recreation and Historic Preservation
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New York State Department of Transportation
Region 2 Office
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Utica, NY 13501

New York State Department of Transportation
Region 9 Office
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Binghamton, NY 13901

New York State Thruway Authority
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New York State Department of Agriculture and Markets
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Interested Agencies

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Buffalo, NY 14207-3199

Table of Contents

Table of Appendices

1.0 Executive Summary

A. Introduction

This Draft Environmental Impact Statement (DEIS) has been prepared pursuant to 6NYCRR Part 617 for actions associated with the proposed New Leaf Energy Wind Turbine Project (the "Project") in the Town of Stark, New York (the "Town"), proposed by Stark Wind 1, LLC and Stark Wind 2, LLC via New Leaf Energy, Inc. (the "Applicant"). The DEIS fully characterizes the site, the proposed action, and all significant environmental impacts, and recommends mitigation measures where appropriate.

The DEIS has been prepared in accordance with the Final Scope adopted by the Town of Stark Town Board (the "Lead Agency") on May 9, 2023.

The DEIS conforms to requirements for preparation and content of environmental impact statements as stipulated in 6 NYCRR 617.9, which include but are not limited to the following:

- A description of the proposed Project and its environmental setting;
- A statement of the environmental impacts of the proposed Project as identified in the Positive Declaration adopted by the Lead Agency on April 11, 2023, including its short- and long- term effects, and typical associated environmental effects;
- An identification of any significant adverse environmental effects that cannot be avoided if the proposed Project is implemented;
- A description of mitigation measures proposed to minimize or avoid any significant adverse environmental impacts of the proposed Project;
- A discussion of alternatives to the proposed Project; and
- An identification of any irreversible and irretrievable commitments of resources that would be involved with the proposed Project should it be implemented.

B. Proposed Project

Two (2) wind turbines will be installed as well as the associated electrical transmission equipment on the approximately 476.8 acre undeveloped property. Both turbines have a hub height of 394 feet (120 meters) with an overall maximum height of 650 feet (198 meters). Each turbine will generate approximately 5 MW, and energy from the Project will be delivered into the local power grid and made available for purchase locally. Vehicle access to each facility will be provided via gravel access roads with ingress/egress to Sickler Road at the existing residential driveway on the property. The property consists of tax parcels 133.4-1-14, 6.00-1-5.00, and 133.4-2-22. The property is owned by Gregory D. Ortensi. Parcels 133.4-1-14 and 6.00-1-5.00 are under a lease option agreement by Stark Wind 1, LLC and Stark Wind 2, LLC. Once approvals are obtained the Project will be transferred to an operator ("Project Owner") who will construct and operate the wind

turbines in accordance with the conditions of the special permit and all other approvals. The project will include construction of an access road, an electrical collection system to include ground mounted electrical equipment and utility poles, the wind turbines, and a gravel crane pad.

Permanent features of the Project include the two (2) wind turbines, turbine foundations, gravel pad around each of the foundations, two (2) crane pads, gravel access road off Sickler Road, overhead utility lines and utility poles. Temporary features needed during construction include construction staging areas, stockpiles, blade lay down areas and truck routes around the turbines. The staging areas and truck routes will be constructed of gravel, but following the turbine installation, the stone will be removed and the area de-compacted and restored with topsoil and seeding. The remaining areas will remain pervious but will require de-compaction and reseeding following turbine construction.

C. Involved and Interested Agencies

Table 1. Involved Agencies and the Required Approvals

Agency	Required Approvals
Town of Stark Town Board	Special Use Permit
Town of Stark Planning Board	Wind Application Advisory Opinion
Springfield Highway Department	Driveway Permit
Herkimer County Highway Department	Possible Highway Work Permit
Otsego County Highway Department	Possible Highway Work Permit
New York State Department of Environmental Conservation	General SPDES Permit
New York State Office of Parks, Recreation and Historic Preservation	Historical Review
New York State Department of Transportation Region 2	Possible Highway Work Permit
New York State Department of Transportation Region 9	Possible Highway Work Permit
New York State Thruway Authority	Possible Highway Work Permit

Table 2. Interested Agencies

Agency
Town of Warren Supervisor
Herkimer County Planning
Otsego County Planning
Federal Aviation Administration
United States Army Corps of Engineers

D. Purpose and Need

The construction of a wind generating facility will provide community benefits in the form of affordable and sustainable energy to nearby residential and commercial areas. In addition, the project will support the local economy, create jobs, generate revenue, and put the property into productive use.

E. Summary of Significant Adverse Environmental Impacts

Below is a summary of the significant adverse environmental impacts as described in the Positive Declaration issued by the Town of Stark.

1. **Impact on Land and Geological Features**

   The Project may result in moderate impacts to land because the proposed action may involve construction on land within 5 feet of the existing ground surface. According to the USDA Web Soil survey, both turbines appear to be sited on soils where the average depth of bedrock is less than 2.5 feet. Drilling may be required prior to construction activities. A limited geotechnical investigation and report is recommended for both turbine and foundation designs.

   The Project may result in moderate impacts on geological features because the Project site is located in an area which may contain karst-like conditions. Depressions lie adjacent to the site, including a linear depression that borders the site boundary to the north. These closed depressions could represent sinkholes, cave openings, or other features. If karst conditions are found on the Project site at a shallow depth, foundation stability may be impacted. A limited geotechnical investigation is recommended.

2. **Impact on Wildlife**

The Project may have moderate to large impacts on animal species because it may cause a reduction in population or loss of individuals of a state-threatened species. The site may contain potential breeding and/or foraging habitat for state-listed threatened avian species, the northern harrier and upland sandpiper. A habitat survey is recommended to determine the presence or absence of the northern harrier and upland sandpiper species at the project site and any habitat related impacts.

The turbines, when operational, may have a moderate to large impact on migrating birds, including predators. Bat populations would also likely be impacted. Measures that mitigate these impacts need to be investigated and implemented where feasible.

3. **Impact on Aesthetic Resources**

The Project may result in moderate impacts on aesthetic resources because the Project may be visible from the Holy Trinity Monastery, a national historic site, and may interfere with views from the monastery. Once constructed the wind turbines will be the largest standing structures in Herkimer County. They will be visible year round and will not be fully shielded by existing topographical features. The project will be visible during routine travel by residents and may also be visible to visitors during recreational or tourism-based activities.

4. **Impact on Transportation**

The Project may result in a moderate impact on transportation because it may create physical impacts to local roadways during construction and decommissioning phases of the Project. Semi-trucks carrying turbine components could cause significant wear and tear on local roadways near the Project site.

5. **Impact on Noise and Light**

The Project may have a small impact on noise because it may produce sound above noise levels established by local regulation. The Project will create aerodynamic noise from the flow of air over the rotor blades. Existing ambient noise levels, moreover, may be temporarily exceeded during construction and decommissioning activities.

Under certain weather conditions, particularly with icing conditions on turbine blades, turbine noise may temporarily increase to levels that exceed local noise ordinances. Mitigation measures may be implemented to minimize such occurrences and should be considered.

The applicant response does not propose a noise monitoring program to document actual compliance with local noise ordinances during operation. Sound monitoring should be considered.

Additionally, the Project may result in small impacts to light because a light flicker effect will cause light to shine onto adjoining properties at certain times. The proposed action may also result in lighting creating sky-glow brighter than existing area conditions. The Project proposes a red blinking light above the wind turbine hub/nacelle to meet FAA requirements. Shields that may mitigate that red light impact must be considered.

6. Consistency with Community Plans and Character

The Project is not entirely consistent with community plans which may result in a number of moderate to large impacts. First, the proposed action's land use components are different from and in sharp contrast to, current surrounding land use patterns (agricultural, residential, and rural uses). The proposed project would also create the tallest structures in Herkimer County.

Moderate to large impacts may result from the Project's inconsistency with community character. The proposed action is inconsistent with the predominant architectural scale and character of the surrounding community and the character of the existing natural landscape. The wind farm would contrast with surrounding agricultural, residential, rural uses, and it would create the tallest structure in Herkimer County.

F. Summary of Other Environmental Impacts

Any impacts on surface water, flooding, air, agricultural resources, as well as human health were determined to be small. These impacts will be briefly summarized, but will not be thoroughly investigated or discussed as part of this Environmental Impact Statement.

1. Impact on Surface Water

The Project may have a small impact on surface water because the proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies. The proposed action will disturb more than one acre and will create stormwater runoff due to the creation of new impervious surfaces such as the turbine foundations and access roads.

However, these impacts can be mitigated since the project's design includes a drainage swale and stormwater impacts would be managed by the project's stormwater design and erosion and sediment controls.

2. **Impact on Flooding**

   Of note, the project is not located in a designated floodway or the 100 year or 500 year floodplains. The project, however, may impact existing drainage patterns because the project requires stormwater design which is detailed in the SWPPP (Appendix 14).

3. **Impact on Air**

   The project may have small impacts to air quality during construction and decommissioning/site restoration activities. Construction vehicles will emit minor, temporary exhaust during construction and decommissioning/site restoration activities.

4. **Impact on Agricultural Resources**

   The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc…).

   The proposed action may also result in the compaction of the soil profile of active agricultural land due to site grading activities and the use of heavy trucks and construction equipment.

   The proposed action may convert more than 2.5 acres of agricultural land in an agricultural district to non-agricultural uses, but at the end of the project's life, the project sponsor has stated that impacted land will be restored per NYS Agriculture and Markets guidelines for Wind Projects.

   The installation of the wind towers and access roads could make it more difficult to install agricultural land management systems on the project site in the future.

   The proposed action may not entirely align with the goals of the Herkimer and Otsego County Agricultural and Farmland Protection Plans. However, the Agriculture and Farmland Protection Plans for these counties do not prohibit wind farms but encourage responsible planning for these projects to reduce impacts to agricultural land and farming operations.

5. **Impact on Human Health**

   The project may result in a small impact on human health because the proposed action may create an increase in the rate of disposal, or processing, of solid waste. Solid waste disposal activities will take place during construction (less than 1 ton per month). It is anticipated that solid waste disposal will also occur during decommissioning activities. Per the Applicant, care will be taken to minimize material scrap and excess concrete spoils. Solid waste will be collected and transported to a C & D processing facility.

G. Summary of Proposed Mitigation Measures

1. **Impact on Land and Geological Features**

   Impact on land and geological features is expected to be minimal. A Spill Prevention and Countermeasures Plan will be provided prior to construction. In addition, residents near the turbine may request well testing.

2. **Impact on Wildlife**

   New Leaf Energy is in consultation with NYSDEC to obtain the applicable permit due to the presence of Northern Harrier breeding habitat. The permit and associated mitigation will result in a net benefit to the species.

3. **Impact on Aesthetic Resources**

   The wind turbines have been sited to minimize visual impacts. The nearest property line is more than 700 feet away and the nearest house is more than 2,100 feet away. The wind turbines will be painted white to minimize visibility. Tree clearing will be minimized so that intervening vegetation will screen views of the tower to the maximum extent practicable.

4. **Impact on Transportation**

   Any damage incurred to local roadways will be at the expense of the Project Owner. Road use agreements and road bonds will be in place with every jurisdiction whose roads are to be used during Project construction.

5. **Impact on Noise and Light**

   The wind turbines have been sited to minimize any effect on surrounding noise and light. Shadow flicker can be reduced by providing curtains and/or vegetative screening to affected homes. Post-construction noise monitoring may also be considered to ensure compliance with the Town of Stark's wind law. The only lighting on the turbines will be what is required of the Federal Aviation Administration, which is a single red light at the top of the nacelle on each turbine.

6. **Consistency with Community Plans and Character**

   The Project complies with the goals and requirements of the Town of Stark Wind Energy Facilities Law.

H. Alternatives

1. The "No Action" Alternative – The no action alternative would leave the property in its current condition. While visual, site disturbance and temporary transportation impacts would be eliminated, the benefits of the Project such as increased renewable energy contributions to the local grid, would not occur. Additionally, a 'no action' scenario is in direct contrast with the Project goals of siting a renewable energy generating facility within the property, nor does it support the State's renewable energy goals. Under this alternative, the parcel would be left as an underutilized site.
2. Alternative location – There are no other sites under the control of the Applicant that could be used as an alternative location to the Project site. Therefore, this is not a viable alternative as there is no other site to evaluate for the purpose of situating the proposed wind turbine facility.

2.0 Description of the Proposed Project

A. Description of Project Location

1. Identification of Regional and Area Location

The proposed turbine locations are 489 Sickler Road in the Town of Stark, located in Herkimer County, New York and 741 County Road 29 in the Town of Springfield, located in Otsego County, New York. The property is located approximately 3,200 feet northwest of the intersection of Stark Road and Chyle Road. See Appendix 4 for the skeletal survey map of the Project location.

2. Narrative and Mapping of Tax Parcels and Total Parcel Area.

The property is approximately 476.8 acres in total and constitutes the following three (3) contiguous parcels:

1. Parcel I.D. 133.4-1-14 (+/-142.7 acres) located in the Town of Stark, Herkimer County (both wind turbines will be situated on this property)
2. Parcel I.D. 6.00-1-5.00 (+/-244.0 acres) located on the Town of Springfield, Otsego County (the driveway access is on this property)
3. Parcel I.D. 133.4-2-22 (+/-90.1 acres) located in the Town of Warren, Herkimer County (no development will occur on this property)

See the Land Title Survey in Appendix 5 for further details.

3. Description of Present and Historical Ownership and Use

The property is currently owned by Gregory D. Ortensi, who resides at 765 Chyle Road, Richfield Springs, NY 13429. The portion of the Project in the Town of Stark is part of a Rural Agricultural District and the portion of the Project in the Town of

Springfield is within an Agricultural-Residential District. The property is presently comprised of agricultural land and undeveloped woodland. There are currently no manufacturing or industrial operations conducted at the property. Adjacent parcels nearby are of similar use.

No environmentally significant conditions were identified on the property or surrounding properties during the historical review. Aerial photographs from 1959,1985,1998, 2006, 2009, 2013, and 2017 show that the property is comprised of agricultural land on the southern and southwest portions and woodland along the north and east portions of the property. The photos also show that the areas surrounding the property include woodland and agricultural land to the north and west, agricultural land to the south and woodland to the east.

See the Phase 1 Environmental Site Assessment in Appendix 6 for more information.

4. Describe the Nature and Location of Any Know Covenants and Easements on the Project Site

There are no known covenants on the Project site. Easements are recorded as follows:

- "Utility easement granted to New York State Electric & Gas Corporation by instrument recorded in Liber 398 of deeds at page 559."
- "Utility easement granted to New York State Electric & Gas Corporation by instrument recorded in Liber 603 of deeds at page 394."
- "Utility easement granted to New York State Electric & Gas Corporation by instrument recorded in Liber 672 of deeds at page 9."

See the Land Title Survey in Appendix 5 for further details.

5. Narrative and Mapping of Existing Access Routes to and from the Proposed Project on both the Local and Regional Roadway Network

Access to each facility will be via gravel access roads with ingress/egress to Sickler Road at the existing residential driveway location. The southern portion of the main access road will utilize the existing residential drive with surface modifications to accommodate equipment delivery/transportation.

The preferred delivery route begins at Exit 13 on I-88. Vehicles would travel northbound on NY-205/NY-23 until the intersection with NY-80, where the vehicles would turn right, traveling eastbound until turning left on NY-28. Delivery vehicles would continue northbound until reaching the town of Richfield Springs. Passing through Richfield Springs, delivery vehicles would turn onto northbound CR-25A (Honestville Road) and continue until it transitions back into northbound NY-28 at the intersection with US-20/W Main Street. Vehicles would continue northbound

until turning right onto eastbound CR-183/Cullen Road, then continue as it transitions to CR-183/Hogsback Road, then to CR-71/Chyle Road, and finally turning slight left onto Sickler Road and continuing until reaching the project site.

See the Land Title Survey in Appendix 5 and the Wind Turbine Transportation Study in Appendix 8 for specifics and diagrams of delivery and access routes.

6. **Description of On- and Off-Site Utilities Serving the Project Site**

There are no existing on or off site utilities serving the site. As part of the Project, a pole farm consisting of 6 poles will be erected near the entrance to transmit electricity. A pole farm is where the project connects to the utility's electrical distribution lines (called the Point of Interconnection). The poles are needed to bring the project's electrical line (which is underground, and running through the conservation lease area) above ground so that it can connect to the utility's overhead lines. Switches, utility meters, and other utility equipment are also installed on the poles.

7. **Narrative and Graphic Description of Surrounding Land Uses and Zoning**

The surrounding land uses include rural (non-farm), forest, and agriculture. The property is bound to the north, east, and west by undeveloped woodland and agricultural development. The property is bound to the south by agricultural development. See Appendix 4 for more information.

8. **Description of All Existing Uses and Structures Currently on the Project Site**

The property is comprised of agricultural land and undeveloped woodland. There are currently no manufacturing or industrial operations conducted at the property.

There are no existing structures on the segment of the property north of Sickler Road where the proposed turbines are to be constructed.

9. **Description of Topography of Site**

The property is located at an elevation of approximately 1,600 feet above mean sea level (“msl”). The topography of the property is relatively flat and slopes gently to the east. Approximately 84% of the site has slopes between 0-10%, while 8% has slopes between 10-15%, and 8% has slopes greater than 15%. The slopes increase to 10%-14% in the northern corner of the site.

B. Description of the Proposed Project

1. Site Plan at a Scale of 1" = 100' Including Topography, Roadways, Grading and Stormwater Management Facilities.

See Appendix 9 for the site plan including topography, roadways, grading, and stormwater management facilities. A scale of 1" = 400' was used due to the size of the subject property.

2. Description of the Wind Turbines Including Height and Appearance.

Two turbine models are being considered: the Vestas V163-4.5 MW and the GE 3.4 MW-140. The color as well as the turbine dimensions are shown below in Table 2. Per the recommendations of the wind turbine manufacturers, the total height is denoted as 650 ft during permitting. See page C-5.1 in Appendix 10 for wind turbine schematics.

Table 3 (Dimensions and color of proposed turbines)

	Vestas V163-4.5	GE 3.4-140
Color	White	White
Hub Height [ft]	371	384
Blade Length [ft]	268	225
Total Height [ft]	639	609

3. Discussion of Compliance with the Design Requirements of Town of Stark Wind Energy Facilities Law.

The Project is in compliance with the procedure required to apply for the approval of a wind energy facility and with the standards set by the Town of Stark Wind Energy Facilities Law. See 'Impact on Community Plans and Character' for a detailed discussion of compliance with these requirements. The turbine will be operated in accordance with all industry standards and safety requirements.

4. Discussion of Access, Including Construction Access Routes and Methods for Wind Turbine Components.

The gravel access road will be 20' wide in most places except for the base of the turbines, where it is widened to 40'. The depth of gravel shall be 13" at a minimum. The constructed gravel road will have a length of approximately 1.4 miles and will be partially constructed in the location of the existing residential drive. More information on the gravel access roads can be found on page C-5.0 of Appendix 10.

Creighton Manning Engineering was retained by New Leaf Energy to assess road conditions to facilitate construction of the two-turbine wind plant project. This assessment was conducted to develop and recommend a feasible delivery route for oversized turbine blades and other heavy construction components. The delivery route alternatives were developed and selected to prioritize NY State roadways over county and local roads, avoid underpasses and overhead obstructions, avoid weight limited bridges, and minimize acute angle turns. Creighton Manning staff Engineers also conducted a site visit and the observations and data collected were used to further analyze and refine the routing alternatives, confirm vehicle maneuverability, and provide further insight into potential temporary improvements that would be required along the preferred delivery route. More detailed information can be found in the attached transportation memo.

5. **Discussion of Tree Clearing, Landscaping and Screening.**

   The proposed tree clearing limits have an area of approximately 6 acres. This cleared area is needed for the east turbine, part of the access road, and construction activities necessary for installation. See attached site plan set for proposed tree clearing plans. There will be no landscaping or screening for this Project.

6. **Discussion of Electrical Connections.**

   The Project consists of the installation of two wind turbines. The rotors will be connected to the gearbox, and then to the inverters, which converts the mechanical output to power from DC to AC (all equipment located within the turbine). The wind electrical system will be interconnected with the existing site electrical system in accordance with the applicable electrical code and National Grid requirements.

7. **Description of Operations and Maintenance Plan.**

   Each individual wind turbine generator (WTG) typically requires preventive maintenance semi-annually. Each semi-annual maintenance cycle is scheduled to be performed outside of the high-wind season (usually spring or fall). The turbine contractor typically performs two Schedule Services each year at 6-month intervals to replace consumables as well as perform torque checks, equipment testing, and housekeeping. The Project Owner is responsible for monitoring security and safety lighting.

   The maintenance for distribution level equipment required for community wind is less intensive than what is required for transmission level wind farms. Maintenance activities are typically performed once a year.

   Access road maintenance during the warmer months will include vegetation management, preventative maintenance to avoid erosion to roadway or roadbed,

unclogging of roadside ditches, and inspections of the roadway to check for rill erosion at a minimum of once per year. Maintenance during the winter includes plowing of the access road from the site entrance to the turbine. No deicing chemicals shall be used.

Stormwater management maintenance requires monitoring of swales and culverts. The diversion swale must be checked after major storm events for obstructions, erosion, or bank collapse. Maintenance is required on the culverts if too much sediment or debris accumulates and interferes with volume capacity or if erosion is observed at the culvert inlet or outlet.

The full Operation and Maintenance Plan can be found in Appendix 11.

8. Description of Emergency Response Provisions.

The Emergency Action Plan details what to do in the case of field injury (including medical emergencies), a fire, an earthquake, adverse weather (severe thunderstorms, flooding, tornadoes, and cold weather), hazardous materials, and crime/violent behavior/civil disturbance. This document also contains the Emergency Management Hierarchy, key personnel contacts and responsibilities, as well as an emergency contact list.

See Appendix 12 for the full Emergency Response Plan.

9. Description of Construction Process, Including Phasing and Duration and Provisions for Emergency Response During Construction.

The full construction process is expected to take approximately 6 months in total. Each phase is described below.

- Preconstruction. A building permit will be applied for with the local Building Department, the conditions of the Project's Special Permit will be addressed, and the turbine delivery route will be surveyed and inventoried.
- Site Mobilization and Environmental Controls. Prior to any earth disturbances, erosion control measures will be installed on site. In addition, wetlands will be re-flagged as needed and the limits of work will be established.
- Tree Clearing. This phase is expected to be completed within the first month of construction.
- Access Road Construction. Once trees and stumps are cleared, the proposed access road will be installed.
- Site Earthwork. Once trees and stumps are cleared, earthwork will commence including leveling the turbine area, road grading, and shaping/installation of stormwater features. This phase is estimated to take approximately 1 month.

- Foundation Work and Conduit Installation. This phase will commence once the grades of the turbine area and road are complete. It will last approximately 1 month and partially overlap with the previous phase.
    - A temporary dewatering plan will be provided prior to construction.
- Delivery and Installation of Turbines. The components of the turbine will be delivered following the completion of the civil site work. Once the components are delivered it will take approximately 1 month for turbine assembly.
- Electrical Wiring Including Installation of Transformers and Inverters. Final significant construction on site.
- Final Site Seeding and Stabilization. Upon completion of major site work, the site will be seeded with permanent seed mix.

See Appendix 13 for the full Construction Phasing Plan.

10. Project Purpose and Need

a. Project purpose and need

This small-scale wind project will generate locally grown clean energy and the electricity generated will stay within the community for local subscribers. This will give residents access to affordable clean energy and more freedom to choose where their electricity comes from.

b. Objectives of the Applicant.

The Applicant seeks to obtain Special Use Permit approval from the Town of Stark Planning Board to allow this Project to move forward to construction of a clean energy power source.

c. Description of benefits of the proposed Project.

The community will benefit from increased tax revenue from the Project, the creation of several jobs, the purchase of locally sourced materials, the availability of locally sourced clean energy, and the opportunity for a clean energy discount after enrolling in the community wind program. In addition, the small amount of acreage used by these small-scale projects allows farming operations and other agricultural land use to continue alongside the turbines.

d. Discuss future ownership and management.

New Leaf Energy will develop the Project and it will be sold to a future owner prior to construction. The Project Owner will then build and maintain the Project throughout its lifespan. All conditions agreed to between New Leaf Energy and the Town of Stark will transfer to any future owner through legally binding agreements.

11. **Description of Required Permits and Approvals, Including a Description of the Approval Process.**
    - Town of Stark Town Board - Special Use Permit
    - Town of Stark Planning Board - Wind Application Advisory Opinion
    - Town of Springfield Highway Department - Driveway Permit
    - NYS Department of Environmental Conservation - Stormwater Prevention Protection Plan (SWPPP); GP-0-10-001 General SPDES Permit
    - NYSOPRHP Review - Cultural Resources Consistency Determination
    - NYSDAM Review - Notice of Intent
    - FAA - Determination of No Hazard
    - United States Army Corps of Engineers - Jurisdictional Determination

3.0 Existing Conditions, Potential Impacts as a Result of the Proposed Project and Proposed Mitigation

This section will discuss only those impacts identified as potentially significant in the Town's Positive Declaration and those identified in comments received in the Town's review of the draft scoping document.

A. Impact on Land and Geological Features

1. **Existing Conditions**
    a. **Describe the existing soil characteristics, depth to bedrock, and geological features of the site. Include discussion on karst conditions.**

    The site consists of mostly open farmland with some wooded land to the northeast. The predominant soil types present on the project site are Silt Loam (82.5%), Greene-Tuller complex (6.3%), and Farmington-Rock complex (3.6%). The estimated average depth of bedrock at the project site is 2.5 ft. The average depth of the water table on the project site is 2 ft. The percentage of well drained soil on the project site is 40.6%, the percentage of moderately well drained soil is 27.7%, and the percentage of poorly drained soil is 31.7%.

    Depressions, caves, and other geological features associated with Karst rock formations, such as Chyle Hole, are located within about a mile from the proposed development. Local wells depend on the water within the bedrock aquifer that potentially flows through Karst formations. The Town of Springfield has concerns regarding the Site's geology and the potential groundwater impacts to springs and wells from construction of the wind turbine foundations.

2. Potential Impacts as a Result of the Proposed Project

a. Conduct a geotechnical investigation where turbines are proposed to determine actual depth to bedrock and potential karst-like conditions, including impacts to underground water flows.

A geotechnical investigation was conducted by GZA, the full draft geotechnical report can be found in Appendix 16.

Based on a review of bedrock geology maps and other geologic information from the USGS and New York Geologic Survey, regional bedrock geology in the area of the project consists of the Onondaga Limestone in the vicinity of the proposed western turbine and of formations belonging to the Helderberg Group in the vicinity of the proposed eastern turbine, which consists of Devonian period Limestone and Dolostone formations.

The depth of bedrock at the site was determined to be between 4 and 5 feet from the geotechnical study conducted. The rock generally consisted of moderately hard, fresh to moderately weathered, gray, fine to medium grained, fossiliferous limestone.

The depth of ground water was determined to be between 6.8 and 7.6 feet measured from the location of the proposed western turbine. No groundwater was encountered at the location of the proposed eastern turbine.

Although the presence of karst is documented in this area of New York, no evidence of larger voids or karst formation were observed during drilling.

b. Describe suggested turbine foundation based on the geotechnical foundation.

From the geotechnical investigation conducted by GZA, it is recommended that the proposed wind turbines be supported on a combination mat foundation bearing on sound, intact bedrock below the frost depth of 4.5 feet with rock anchors. It is anticipated that the bottom of foundation level will be below the sound rock surface, and that drilling and blasting, or hoe-ramming will be required to complete the excavations in bedrock. Bedrock excavation will require a combination of controlled blasting and hydraulic chipping to remove. Backfill placed between the sides and atop of the new foundations and the excavation limits should consist of compacted Sand-Gravel fill.

Electrical equipment can be supported on conventional spread footing foundations bearing below the frost zone (4.5 feet below proposed grade) on

undisturbed natural Sandy Silt & Clay, weathered Bedrock, or Sound Bedrock subgrades, or on compacted Granular Fill following subgrade preparation.

3. Proposed Mitigation

a. Discuss appropriate mitigation measures for identified impacts.

It is unlikely that the foundations and associated work will have noticeable impact on the area's groundwater. Temporary measures will be utilized during construction to reduce the amount of surface water impacted by construction. In addition, a Spill Prevention and Countermeasures Plan will be provided prior to construction. This plan will identify how the project will manage the fluids that could turn into potential groundwater contaminants (fuel, chemicals) if not handled or disposed of properly during the construction and decommissioning phases of the project. Any landowner within 2,000 feet of the blast site may request pre and post well water testing be performed at the project proponents expense.

All blasting will be performed in compliance with the applicable New York State regulations or local municipal ordinance. Blasters in New York State are required to possess a valid New York State Department of Labor (NYSDOL) issued Blaster Certificate of Competence. In addition, the New York State, Department of Labor (NYSDOL) Regulation 12NYCRR 61 requires a pre-blast survey, blast size restrictions, and vibration monitoring.

The Town of Stark and property owners within 4,000 feet of the blast area shall be notified of blasting activities at least 10 but not more than 30 days prior to commencement of blasting. This notice must contain at minimum:

1) the name, address, and telephone number of the operator,
2) notice of how to sign up for optional pre and post-blasting well water testing,
3) identification of the specific area in which blasting will take place,
4) dates and time periods when explosives are to be detonated,
5) methods to be used to control access to the blasting areas, and
6) types and patterns of audible warning and all-clear signals to be used before and after blasting.

B. Impact on Wildlife

1. Existing Conditions

a. Describe the existing habitat at the site. Provide documentation from the appropriate agencies of endangered and threatened species in the vicinity of the project.

The site reconnaissance conducted during the winter time indicated that the herbaceous vegetation on the site is relatively short (typically below 10 inches). A Listed Species Habitat Assessment was conducted, including a desktop analysis and on-site field review. The full report can be found in Appendix 18. Based on these assessments, the lands currently under consideration for the Project are primarily composed of agricultural land that is actively managed to produce field crops (i.e., alfalfa hay and other hay), pastureland, and deciduous forest. In addition, some row cropland (i.e., corn and soybeans), woody wetlands, and disturbed/developed land (primarily rural single-family houses, farms, and associated yards) are present.

Four state-listed endangered bird species were determined to be potentially present on the Project site including the northern harrier, pied-billed grebe, bald eagle, and upland sandpiper. The habitat studies for each of the four species are summarized below.

- Northern Harriers (Circus hudsonius; aka Circus cyaneus) and Upland Sandpiper. Within the proposed Project site, there are pastureland and open field areas that could potentially be suitable for use by grassland bird species, including northern harriers and upland sandpipers. Specifically, there is an approximately 99-acre area used as pasture and for hay production in the western portion of the Project site, an approximately 49-acre agricultural field in the central/eastern portion of the Project site, an approximately 82-acre agricultural field in the southern portion of the Project site, and an approximately 35-acre pasture area in the southeastern portion of the Project site. On-site open fields were typically bordered by advancing successional shrubland, forestland, and/or wooded hedgerows or “islands.”

  It is likely that on-site pastureland and open field areas would be more suitable for breeding northern harriers due to the apparent short vegetation heights documented during the winter (and the longer vegetation heights that would be expected during the growing season). The shorter vegetation heights in the winter may indicate that these areas would be less suitable for northern harrier foraging or roosting, as short vegetation may not provide sufficient cover for small mammal prey or shelter for northern harrier roosting.

Other smaller and/or isolated fields within or adjacent to the Project site would likely not be suitable for northern harriers or upland sandpipers due to their small size or lack of connection to larger open areas. Beyond the Project site boundaries, an adjacent open field area to the west/southwest may also be suitable for use by northern harriers given its current successional condition and size.

- Pied-Billed Grebe (Podilymbus podiceps). Although the Project site contains some small farm ponds and wetland areas, none of these appeared to represent suitable habitat for this species.
- Bald Eagles (Haliaeetus leucocephalus). Although the proposed Project site contains deciduous forests with oak and beech trees, these areas do not appear to provide suitable breeding or wintering habitat for bald eagles, as there are no nearby or large areas of open water that could serve as primary food sources.

2. Potential Impacts as a Result of the Proposed Project

a. Conduct a habitat survey to determine the presence or absence of the northern harrier and upland sandpiper species at the project site.

New Leaf Energy engaged EDR to conduct breeding bird surveys at the Project site. A total of ten sets of surveys were completed between April 28, 2023 and July 13, 2023. Two state-listed threatened species, the bald eagle and the northern harrier, were observed at the Project site during the 2023 surveys. No presence of the upland sandpiper was found. The complete breeding bird survey can be found in Appendix 19.

b. Discuss potential impact on migrating raptors and other birds, bat populations.

A single bald eagle was observed flying over the Project site, and no probable or confirmed breeding behaviors were documented. In addition, no bald eagle nests were identified within the Project site. Therefore, given the very low number of bald eagle observations and the lack of probable or confirmed breeding behaviors, a bald eagle occupied breeding habitat does not appear to be present within the Project site and no impacts to the species are expected.

Northern harriers were documented 16 times during the survey period. The consistent use and probable breeding behaviors documented indicate that a northern harrier occupied breeding habitat is likely present within portions of the Project site. New Leaf Energy is currently in consultation with the NYSDEC to determine appropriate next steps based on this finding.

The proposed project is not within proximity to a known occurrence (hibernaculum or roost tree) of Northern Long-eared bats (NLEB). Therefore, the NYSDEC has determined there will not be a direct impact on these resources. In addition, based on the IPaC submission for the project, a determination of "No Effect" on the NLEB was reached. This determination means that the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat.

Still, the take of NLEB has been documented at operational wind projects so there is a potential for the proposed project to impact NLEB that are present on the landscape. The species is most susceptible during the period of July 1 – October 1.

Migrating Birds

Wind turbines have the potential to impact migrating birds passing through an area indirectly (e.g., by way of displacement) and/or directly (e.g., as a result of collisions). The turbine size, location, and species present all play a role in the potential impacts to birds (Watson, 2018). However, bird mortality associated with wind turbines often represents a small portion of total anthropogenic mortality, and wind turbines cause significantly fewer deaths than other sources such as outdoor cats, building collisions, and fossil fuel energy projects (Audubon, 2020; MIT, 2023). Although estimates vary, individual wind turbines are typically estimated to kill relatively small numbers of bird per year. For example, a study published in 2009 recorded an average of just 0.08 bird collisions per 1.65-megawatt turbine per day (Krijgsveld et al., 2009). As another example, the National Wind Coordinating Collaborative identified a wind energy fatality rate of less than four birds per megawatt per year for 39 out of 46 projects studied in North America (National Wind Coordinating Collaborative, 2010). Additionally, for 12 post-construction fatality studies conducted in New York State from 2001-2012, the average fatality rate was 3.3 birds per turbine per study period (April-September or November; Jain et al., 2009a, 2009b, 2009c, 2009d, 2011a, 2011b, 2011c; Stantec, 2009, 2011, 2013; Tidhar et al., 2012). Bird fatality can be estimated and reported in multiple ways, but the general consensus is that most wind turbines do not typically result in large numbers of bird fatalities.

Most bird fatalities occur during the spring and fall migration periods when more individuals are moving through an area (Choi et al., 2020), and the risk to migrating birds can vary depending on geographic features that may be present. For example, migrating raptors and songbirds often concentrate at prominent ridgelines (where hawkwatch migration monitoring sites are often

established) and/or near major waterbodies. No established or major hawkwatch sites are located close to the Project , and the closest major water body is Otsego Lake (approximately 5 miles to the south). With no hawkwatch sites or major waterbodies close by, it is reasonable to assume that the Project poses reduced risk to migrating birds including raptors, and that the numbers of migrating birds passing through the area would be relatively low compared to other areas that are known to concentrate migrating birds.

It has also been documented that raptors specifically are less likely than other bird species to be victims of collisions with wind turbines; raptors have been known to alter their migration and flight patterns to avoid wind turbines (Cabrera-Cruz and Villegas-Patraca, 2016). A study published in 2012 found that raptors migrating over flatter terrain were less likely to collide with wind turbines than local raptors or raptors migrating over steep terrain (i.e., mountains, ridgetops) due to higher flight patterns above the rotor-swept zone (Katzner et al., 2012). The general lack of very steep terrain or other unusual geographic features at the Project Site suggests that raptors may be able to readily alter their flight patterns to avoid Project wind turbines. In addition, according to a study published in 2020, raptors accounted for just 5% of 2,039 bird fatalities reported by 44 wind facilities in the northeast United States (Choi et al., 2020), so even if some raptors collide with Project wind turbines, the numbers would likely be very low.

Therefore, as is typically the case for wind energy facilities in the northeast United States, Project-related raptor fatalities would be expected to represent only a small portion of total bird fatalities. Based on spring and fall raptor migration studies completed by EDR for other proposed wind projects in central/eastern New York State, migratory raptor species such as the American kestrel (Falco sparverius), bald eagle (Haliaeetus leucocephalus), broad-winged hawk (Buteo platypterus), red-tailed hawk (Buteo jamaicensis), and turkey vulture (Cathartes aura) would be expected to migrate through the Project Site , potentially at average flight heights of approximately 170 to 400 feet above the ground. These studies found the red-tailed hawk and turkey vulture to be the two most abundant raptor species during migration, and EDR would anticipate these two species would also be the most likely to pass through the Project Site. Other less common raptor species (including those documented by EDR during the 2023 breeding bird study) may also pass through the Project Site during migration. However, as noted previously, published studies typically indicate that raptor morality is generally low at operating wind facilities. Choi et al. (2020) reported a turkey vulture mortality rate of 2.3% for 2,039 bird deaths, so mortality rates for less common raptors would be expected to be lower than this. Project-related

effects on less common species such as the northern harrier (Circus hudsonius) are probably more likely to be in the form of habitat modification rather than collision mortality. The New State Department of Environmental Conservation (NYSDEC) has indicated that the Project construction may affect northern harrier occupied breeding habitat.

Finally, wind turbines are more likely to impact migrating songbirds than raptors. According to the same 2020 study referenced previously, 49% of 2,039 bird fatalities were of lower canopy, foliage-gleaning insectivores. These fatalities were composed of the following eight species, six of which are songbirds: the red-eyed vireo, golden-crowned kinglet (Regulus satrapa), magnolia warbler (Setophaga magnolia), black-throated blue warbler (Setophaga caerulescens), ruffed grouse (Bonasa umbellus), yellow-rumped warbler (Setophaga coronata), common yellowthroat (Geothlypis trichas), and turkey vulture (Cathartes aura) (Choi et al., 2020). Frequently detected songbirds during breeding bird surveys completed by EDR for the Project and other proposed wind projects in central/eastern New York State have included the American goldfinch (Spinus tristis), bobolink (Dolichonyx oryzivorus), eastern towhee (Pipilo erythrophthalmus), common yellowthroat (Geothlypis trichas), gray catbird (Dumetella carolinensis), savannah sparrow (Passerculus sandwichensis), and yellow warbler (Setophaga petechia). Therefore, some of these species may be affected directly and/or indirectly by the Project during migration and/or at other times of the year, and more abundant songbird species would be expected to make up the largest proportion of Project-related bird fatalities. The Project is planning to conduct post-construction monitoring surveys during operation to evaluate and document impacts to birds.

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3. Proposed Mitigation

a. Discuss appropriate mitigation measures for identified impacts. Discuss coordination with the NYSDEC.

New Leaf Energy is in consultation with NYSDEC to obtain the applicable permit due to the presence of a Northern Harrier breeding habitat. The permit will entail obtaining mitigation acreage to maintain as habitat for the species over a period of time determined by the NYSDEC to result in a net conservation benefit.

According to the NYSDEC, to minimize impacts to NLEB to the maximum extent practicable, the facility must curtail operations at wind speeds less than 5.5 m/s between July 1 and October 1 every night from ½ hour before sunset to ½ after sunrise when ambient temperatures are ≥50 degrees Fahrenheit (10 degrees Celsius).

C. Impact on Aesthetic Resources

1. Existing Conditions

a. Document, with photographs and narrative the visual character of the Project Site and the area located within a five-mile radius of the Project Site.

A Visual Impact Study was prepared by Saratoga Associates and can be found in Appendix 21. The following summarizes the results of that study. See the attached document for the complete study.

b. Describe and provide photographs of the appearance of the Project Site from locations specified by the Town.

VP1 - Robinson Road. The top of both turbine hubs as well as the blades are visible above the existing topography Robinson Road north of Holy Trinity Monastery.

VP2 - Holy Trinity Monastery. Both turbines are screened by existing vegetation from the Holy Trinity Monastery.

VP3 - Holy Trinity Monastery. A portion of the turbine blades are visible in the distance above the existing vegetation from Holy Trinity Monastery.

VP4 - NY167. Both turbines are partially screened by the existing topography and vegetation from NY167 near Holy Trinity Monastery.

VP5 - Parmwood Road. A small portion of the turbine towers as well as the turbine blades are visible above the existing vegetation and topography.

VP6 - Richfield Youth Sports Fields. Both turbines are screened by the existing topography from US20 at Richfield Youth Sports Fields.

VP7 - US20. Both turbines are screened by the existing topography and vegetation from US20 east of NY80.

VP8 - CR29. The top half of both turbines are visible above the existing vegetation from CR29 east of McShane Road.

VP9 - CR29 at Sickler Road. The top half of both turbines are visible from CR29 at Sickler Road.

VP10 - Sickler Road. One of the turbine's blades as well as the top portion of the tower are clearly visible from Sickler Road.

VP11 - Jordanville Road. Both turbine blades as well as the top portion of the towers are visible above the existing topography and vegetation from Jordanville Road west of Sickler Road.

VP12 - Jordanville Road. The top portion of one of the turbines as well as a portion of the other turbine blades are visible above the existing topography and vegetation from Jordanville Road east of CR116.

VP13 - CR29 near Van Hornesville Fish Hatchery. Both turbines are screened by the existing vegetation from CR29 near Van Hornesville Fish Hatchery.

VP14 - NY80. Both turbines are partially screened by the existing topography and vegetation from NY80 south of (approaching) Van Hornesville.

VP15 - NY80 at Van Hornesville. Both turbines are screened by the existing vegetation and topography from NY80 at Van Hornesville (near Case House).

VP16 - NY80 at Van Hornesville. Both turbines are screened by the existing topography from NY80 at Van Hornesville (near Case House/Feed Mill).

VP17 - Van Hornesville at Owen D. Young School. Both turbines are screened by the existing topography from Van Hornesville at Owen D. Young School.

VP18 - Van Hornesville at Owen D. Young School. Both turbines are screened by the existing topography from Van Hornesville at Owen D. Young School.

VP19 - NY80. Both turbines are partially screened by existing topography from NY80 east of (approaching) Starkville.

c. **Describe and provide photographs of the appearance of the Project Site from the Holy Trinity Monastery, a national historic site.**

Viewpoints 1 through 4 from the Visual Impact Study show the project site from vantage points at or near the Holy Trinity Monastery. See the above descriptions or the full study in Appendix 21 for the appearance of the project from this national historic site.

2. Potential Impacts as a Result of the Proposed Project

a. **Provide visual simulations of the Project from areas determined through consultation with Town in Section III.C.1. above**.

The visual simulations are included in Appendix 21 and described in narrative form in the previous section.

b. **Discuss proposed lighting.**

The Federal Aviation Administration ("FAA") provides wind turbine lighting standards to increase the visibility of systems for pilots. Systems must consist of aviation red (FAA L-864) obstruction lights that are pulsed. Since this Project consists of two turbines, there will be a singular red light at the top of the nacelle on each turbine to comply with FAA standards. No other lighting is proposed.

c. **Describe the structural design, including materials, colors and dimensions of the proposed turbines.**

The Appendix contains specifications and details for the two turbines under consideration. In either case, the turbines will be constructed of steel and will be painted white to minimize visibility. Dimensions are found in Table 2.

3. Proposed Mitigation

a. **Discuss appropriate mitigation measures for identified impacts.**

Efforts have been made to minimize the visual influence to the surrounding community. The primary way this is achieved is through the use of careful siting of the turbines. The proposed location of the turbines situates them as far from residences as is feasible. The nearest residence to the proposed location is over 2,000 feet away. Additionally, the turbines will be painted white to reduce visibility as much as possible. Tree clearing will also be minimized. Due to the height of the turbines, vegetation is not typically an effective screening measure, however, minimizing vegetation removal will limit the visibility of accessory structures, as well as provide potential turbine screening depending on the viewpoint and topography.

The most appropriate mitigation for visual impacts beyond the siting, including shadow flicker and FAA lighting, would be to provide funds for curtains and/or onsite vegetation screening to minimize these impacts.

D. Impact on Transportation

1. Existing Conditions

Based on the Wind Turbine Transportation Study conducted by Creighton Manning, a number of intersections on the proposed delivery and site access route will need to be improved and/or have physical obstructions that will need to be temporarily or permanently relocated or removed. The changes include widening the road to accommodate the large turning radii of delivery vehicles or moving obstructions such as utility poles, roadway signage, trees, and vegetation. The general roadway condition along each route was also evaluated in order to avoid segments with significant asphalt deterioration, culverts, and other conditions that may be unfavorable to oversized and overweight vehicles.

2. Potential Impacts as a Result of the Proposed Project

a. Discuss road use, necessary improvements, and responsibility of repairs, including documentation of road conditions before and after construction.

The turbine blade delivery vehicles are by far the largest, tallest, and longest of the construction equipment and delivery vehicles required for the Project. Therefore, the dimensions of the turbine blade delivery vehicles were used to determine where roadway widening, temporary removal or relocation of street furniture/other obstructions, and other potential improvements may be needed. It is also important to note that while the other delivery vehicles and component payloads are smaller, they may carry significantly heavier loads. See the Wind Turbine Transportation Study in the Appendix for more information.

Pre- and post- road evaluations, including before and after photographs, to confirm no damages of the traversed roads have occurred are included. Any damages to the roads will be repaired in a timely manner.

b. Identify the entire transportation route and evaluate for potential impacts.

The intersection of I-88 Westbound Off-Ramp and NY-205 will require roadway widening and the temporary removal of highway roadway signs.

The intersection of NY-205 and NY-80 will require minimal roadway widening, the removal or relocation of a utility pole, the modification of the overhead wire from this pole, and the temporary relocation of standard roadway signs.

The intersection of NY-205 and NY-28 will require temporary paving of the grass median, the removal or relocation of a utility pole, and the raising of overhead wires.

The intersection of NY-28 and CR-25A (Honestville Road) will require minor road widening, the removal of several trees, and the temporary raising of overhead wires.

The intersection of CR-25A/NY-28 and US-20/W Main Street will require no roadway widening or clearance, raising the overhead wires, and the temporary raising or removal of the span-wire mounted traffic signal.

The intersection of NY-28 and CR-183(Cullen Road) will require temporary roadway widening, the removal of roadway signs and several trees, the examination and reinforcement of a culvert that runs beneath NY-28, and the temporary raising of an overhead wire.

The intersection of CR-71 (Chyle Road) and CR-29 (Chyle Road) required no temporary roading improvements, the clearance of vertical obstructions, and the potential temporary removal of a guard rail.

The intersection of CR-29 (Chyle Road) and Sickler Road will require no roadway widening or area clearance, and the temporary raising of overhead wires.

Sickler Road is a seasonal road, so roadway widening, roadway stabilization, and/or paving will be required to accommodate overweight and oversized loads.

See the Wind Turbine Transportation Study in Appendix 8 for more information.

c. Impact on seasonal and regional events such as baseball camps that attract large volumes of pedestrian, bicycle and vehicular traffic.

Turbine blade deliveries will be the most disruptive to local traffic, but there should be no appreciable impact on traffic related to baseball tournaments due to the delivery of the turbine blades. The local delivery route commences at Exit 13 on I-88 while the baseball tournaments are primarily held in the Cooperstown area, and most commonly accessed from Exit 21 on I-88. In addition, it is assumed that all turbine blade deliveries will be scheduled to occur outside of traffic peak periods. I-88 will experience no closures as a result of deliveries or construction equipment.

d. Discuss impact on local road usage, and on school bus routes.

Turbine blade deliveries will be the most disruptive to local traffic operations and may necessitate temporary road closures along the route. It is assumed that all turbine blade deliveries will be scheduled to occur outside of traffic peak periods and school opening and closing periods. All oversized loads are assumed to be coordinated with and escorted by the Sheriff's department to facilitate road closure and perform traffic control. This is a two turbine, six turbine-blade project which will require only six round trip oversized load deliveries for the largest vehicles. All other construction vehicles will be performed by typically sized heavy vehicles. As a result of the limited number of oversized deliveries, impact on local traffic and other road users should be minimal. Due to the rural nature of land uses proximate to the preferred delivery route, it is anticipated that these generated trips will result in minimal impacts given the relatively small scope of the project. See the Wind Turbine Transportation Study in Appendix 8, created by Creighton Manning, for more detailed information on the anticipated impact on local traffic.

3. Proposed Mitigation

a. Discuss appropriate mitigation measures for identified impacts.

A road use agreement will be negotiated with the appropriate authorities prior to construction. The road use agreement will include the following:

i. Statement of no adverse impact or expense to the community.
ii. Designated roads to be used over the course of the project.
iii. Pre- and post- road evaluations, including before and after photographs, to confirm no damages of the traversed roads have occurred.
iv. Any damages to the roads will be repaired in a timely manner.

A road bond will be required for each designated road in an amount to be determined prior to signing the final road use agreement.

E. Impact on Noise and Light

1. Existing Conditions

Several of the properties including and surrounding the project site are used for agricultural purposes so existing farming operations currently contribute to the level of noise in the area.

Lights in the area currency include lights from traffic, homes, and nearby communication towers.

2. Potential Impacts as a Result of the Proposed Project

a. Identify the duration of shadow flicker and affected properties.

Shadow flicker modeling was conducted for three different turbine models considering the presence of two (2) turbines. Twenty-five (25) receptors were considered in this report to represent residential buildings in the vicinity of the Project site. Of the receptors, 16 are predicted to experience no shadow flicker, 8 receptors are predicted to experience less than 10 hours of shadow flicker per year, and one receptor is expected to experience over 30 hours of flicker per year. The model results are conservative as the receptors were treated as having windows on all sides and the surrounding area was assumed to be without vegetation or structures. The locations of the affected properties can be found in the Shadow Flicker Report in Appendix 22.

For the Vestas V150-4.3 wind turbine, the maximum expected annual duration of shadow flicker is approximately 36 hours, 40 minutes per year. For the Vestas V163-4.5 wind turbine, the maximum expected annual duration of shadow flicker is approximately 42 hours, 13 minutes per year. For the GE 3.4-140 wind turbine, the maximum expected annual duration of shadow flicker is approximately 33 hours, 7 minutes per year.

b. Identify nearby lands and properties impacted by sound generation.

The maximum sound levels produced by the Project were predicted through modeling. The highest predicted maximum Project Only Leq sound level is 39 dBA with the Vestas V150-4.3 wind turbines, 41 dBA with the Vestas V163-4.5 wind turbines, and 40 dBA with the GE 3.4-140 wind turbines. Therefore, under any wind turbine option, the Project meets the Town of Stark sound limit of 50 dBA. The locations of the affected properties can be found in the Noise Study Report in Appendix 23.

The model was generated using a modeling receptor dataset of 25 receptors representative of residential buildings in the vicinity. The model was conservative, assuming favorable conditions for sound propagation and ignoring the effects of any tree shielding, air turbulence, or wind shadow effects. The predicted sound levels at receptors in the Town of Stark ranged from 23 to 39 dBA assuming a Vestas V150-4.3 wind turbines, 26 to 41 dBA assuming a Vestas V163-4.5 wind turbines, and 24 to 40 dBA assuming a GE 3.4-140 wind turbines.

c. Identify the methods by which conformance with Town of Stark sound ordinance limits will be verified over four seasons.

A sound study to confirm compliance will include an evaluation of post-construction sound levels from the Project wind turbines. The methods and results to be included in this evaluation are described below.

(1) The sound survey will describe the methodology for the sound survey, including specifications for sound instrumentation (type, sound floor, wind screen, temperature and humidity ranges, meter settings), positions that were evaluated, noise descriptors collected, range of sound frequencies measured, weather conditions, testing conditions to be excluded, schedules and timeframes, testing methodologies and procedures.

(2) The evaluation will include A-weighted sounds levels, and full octave band frequencies from 31.5 Hz up to 8,000 Hz at representative potentially impacted locations based on measurements conducted during both winter (leaf-off) and summer (leaf-on) conditions using a suitable and suitably calibrated sound level meter (SLM) and octave band frequency spectrum analyzer.

(3) Sound instrumentation for sound surveys will comply with the following standards:

(i) ANSI S1.43-1997 (R March 16, 2007). Specifications for Integrating – Averaging Sound Level Meters;

(ii) ANSI S1.11-2004 (R June 15, 2009) Specification for Octave-Band Analog and Digital Filters, and

(iii) ANSI S1.40-2006 (R October 27, 2011) (Revision of ANSI 1.40-1984) Specifications and Verification Procedures for Sound Calibrators.

(4) Data collected out of the range of operation of the sound instrumentation will be excluded. Sound data collected at wind speed exceeding 5 meters per second (11 miles-per-hour) at the sound microphone or portable weather station heights will also be excluded. Sound level data collected during periods of rain, thunderstorms and snowstorms will also be excluded.

(5) GPS or GIS coordinates of measurement locations will be reported, along with aerial or satellite photos/maps of all tested locations. The study will include a justification for the location selection and specify whether selected locations are representative of potentially impacted receptors.

(6) Resulting Project-Only wind turbine sound levels will be compared to the Town of Stark fifty (50) dBA one hour average limit, when measured at dwelling units.

d. Identify controls and operating protocols for icing conditions.

In the siting and permitting phase of a project, it should be made sure that the individual turbines are located a safe distance from general public recreational or occupational use areas, roads, buildings, installations, infrastructure, etc., or mitigations are in place to reduce risk under icing conditions to an acceptable level. The current site meets the

recommendations of the manufacturer in this case, with the nearest distance of a residential building being over 2000 feet.

Accessing and working in and around a wind turbine under icing conditions always have to be based on a risk assessment and should be limited to the largest possible extent to minimize risk. Appropriate safety precautions for accessing a wind turbine under icing conditions include shutting down the wind turbine remotely, yawing nacelle to position the rotor opposite the side of the tower where the tower door is placed, observing if and where the ice is built up, taking this into consideration together with the direction of the wind when approaching the turbine, and starting the wind turbine remotely when work is complete.

To reduce the risk of ice throw, the wind turbines can be shutdown remotely when site personnel observe icing conditions and ice formation on the wind turbines. The manufacturer also offers automatic detection and shutdown of a wind turbine. The ice detection system signals the hub controller to shut down the turbines. If the ice detection system is not able to measure ice (for example due to a sensor failure) the turbines will be stopped automatically if the ambient temperature is below 5°C.

3. Proposed Mitigation

a. Discuss appropriate mitigation measures for identified impacts.

The wind turbines have been sited to minimize effect on surrounding noise and light. Shadow flicker can be reduced by providing curtains and/or vegetative screening to affected homes. Post-construction noise monitoring may also be considered to ensure compliance with the Town of Stark's wind law. Noise modeling shows that the turbines will comply with the Town of Stark's wind law. The only lighting on the turbines will be what is required of the FAA, which is a single red light at the top of the nacelle on each turbine.

F. Impact on Community Plans and Character

1. Existing Conditions

a. Discuss the provisions of the Town of Stark Wind Energy Facilities Law as they relate to wind power.

The Town of Stark Wind Energy Facilities Law requires sufficient information from the applicant in order for a wind project to be considered. The standards set forth by the Town of Stark Wind Energy Facilities Law dictate the minimum setbacks of the turbine, the minimum distance between the blades and the ground, the minimum security provisions for turbine access, the appropriate landscaping and screening, the appearance of the turbine,

the maximum permitted sound level of the turbine, the restoration of damaged roads, the set up of transmission lines, and the minimum allowable safety protocols for emergency stopping. The proposed Project is in full compliance with these standards as discussed above in the "Description of the Project" section.

b. Discuss any regional plans relevant to the site.

The Herkimer County Agricultural and Farmland Protection Plan, Adopted July 2020, identifies the use of wind on farms as a source of opportunity for responsible farmland development.

c. Discuss State of New York renewable energy goals.

The Climate Leadership and Community Protection Act goals for New York are to generate 70 percent of the state's electricity from renewables by 2030 and 100 percent zero-emission electricity by 2040. This community wind project contributes to this goal as it would generate clean energy and provide local residents with the opportunity to work towards this goal by giving them the option to switch to using renewable energy.

d. Describe land uses on and in the vicinity of the site, including drainage resources.

The site has been primarily used for agricultural purposes. The surrounding land uses include rural (non-farm), forest, and agriculture.

e. Potential Impacts as a result of the Proposed Project

Impacts from the proposed Project have been avoided to the extent practicable. Unavoidable impacts are discussed in Section 5 and include construction disturbance, visual impacts, and short-term traffic disturbance.

f. Discuss consistency with the Town of Stark Town of Stark Wind Energy Facilities Law.

Consistency with the Town of Stark Wind Energy Facilities Law is as follows:

(A) *Setback of wind turbines from any residential structure existing at the time of application is filed is a minimum of 1200 feet. All measurements are from the center point of the wind turbine.*

The nearest residential structure is more than 2,100 feet away from the turbines measured from the center point of the eastern turbine. This setback is depicted in page C-3.0 of Appendix 10.

(B) *Setback of wind turbines from road centerline is 1.25 times height of the structure or 500 feet, whichever is greater.*

Based on this standard, the turbines should be at least (650 * 1.25 = 812.5') 812.5 feet from the nearest road centerline. The shortest distance between the road centerline and the nearest turbine is over 2200 feet. This setback is depicted on page C-3.0 of Appendix 10.

(C) *Setbacks of wind turbines from side and rear lot is 400 feet.*

The nearest abutting property line is over 700 feet from the turbines. This setback is depicted in page C-3.0 of Appendix 10.

(D) *The 400-foot setback requirement for side and rear lot lines can be waived by the Town Board as part of its review process if (I) abutting parcel(s) owners are participating in the wind project, or (II) in the case of non-participating property owner, said applicant has secured written consent from said property owner.*

Setback requirement is met, therefore there is no need for it to be waived.

(E) *Access: The Vertical distance from ground level to tip of wind turbine blade when blade is at its lowest point must be at least twenty-five (25) feet.*

The distance from ground level to the tip on the wind turbine blade is over 100 feet at its lowest point.

(F) *Clearance: A wind tower, including any climbing aids, must be secured against unauthorized access by means of a locked barrier. No climbing device of any kind shall be attached to the wind turbine closer than fifteen (15) feet from the ground.*

Access to the turbines from the outside is through a door equipped with a lock located at the entrance platform approximately 10 ft above ground level. The tower is fully self-contained and there are no rungs or climbing apparatus on the outside to further limit any security concerns.

(G) *Landscape and Screening: Appropriate landscape and screening is required to keep the site in a neat and orderly fashion. Appropriate screening is required to screen accessory structures from adjacent residences.*

No landscaping or screening is proposed. The turbines have limited accessory structures and the turbines themselves cannot be screened. Tree clearing will be reduced to the extent practicable for the eastern turbine.

(H) *No advertisements are allowed in any form other than the manufacturer's logo of a reasonable size (generally common size of 2 square feet). Also, an emergency number shall be displayed on the sign.*

No advertisements will be displayed anywhere on the turbines. An emergency number will be displayed as required.

(I) *Sound: Audible sound due to wind turbine operation shall not exceed fifty (50) dBA on a one hour average, when measured from adjacent dwelling units.*

All expected sound for each of the two proposed turbines measured from residences in the vicinity of the project is less than 50 dBA. See the Sound Level Modeling Report created by Epsilon Associates, Inc. in Appendix 23 for more information.

(J) *Road: All roads affected by construction and maintenance of structures must be restored to their original condition at the cost of development company and in agreement with the Town Board.*

Pre- and post- road evaluations, including before and after photographs, will be conducted to confirm no damages of the traversed roads have occurred. Any damages to the roads will be repaired in a timely manner. All costs will be paid by the Project Owner.

(K) *Transmission lines (wires): All collection systems wires and transmission lines must be buried in accordance with regulations for burial of wires as set forth by the New York State Department of Agriculture and Markets. Transmission lines following public roads or carrying power to the substation may be overhead or underground.*

The Project's electrical line runs underground and is brought above ground by the pole farm to be constructed as part of the Project so that it can connect to the utility's overhead lines.

(L) *Safety: No wind energy facility shall be permitted that lacks an automatic braking, governing, or feathering system to prevent uncontrolled rotation, over speeding and excessive pressure on the tower structure, rotor blades and turbine components.*

The turbines come equipped with a mechanical brake that is activated with the use of one of the emergency stop buttons and its control system will activate the emergency feathered position in the case of an overspeed situation.

(a) *Decommissioning Estimate*: A Decommissioning Estimate was also prepared in accordance with the Town of Stark Wind Energy Facilities Law. Decommissioning will consist of dismantling of the wind turbine, removal of the wind turbine foundation, removal of the crane pad, removal of the access road, removal of the electrical system and site

restoration, including backfilling, grading, and reseeding. In accordance with the Town bylaws, all below-ground project elements will be removed to a minimum depth of forty (40) inches. Decommissioning of the project may result in some temporary minor impacts. The Project may create temporary traffic on local roadways during decommissioning phases of the Project as trucks carry turbine components away from the site. Existing ambient noise levels, moreover, may be temporarily exceeded during decommissioning activities. It is anticipated that solid waste disposal will also occur during decommissioning activities, but care will be taken to minimize material scrap and excess concrete spoils. The project may have also small impacts to air quality during decommissioning/site restoration activities. Construction vehicles will emit minor, temporary exhaust during construction and decommissioning/site restoration activities.

The estimated decommissioning cost for the two turbines was calculated by New Leaf Energy and presented in the Decommissioning Plan previously submitted to the Town of Stark. This estimate takes into account the cost of labor, construction equipment, and materials required for the removal of the wind energy generating facility and the restoration of the site. The salvage value of the materials from the two turbines and the effect of 25 years of inflation were also factored into the total estimated decommissioning cost. A sum equivalent to the estimated decommissioning cost will be provided to the Town by the Applicant in the event that the turbines are non-operational for a period of time, and need to be decommissioned.

2. Discuss changes to land uses, including any loss of land in agricultural production.

The land use will remain the same. The property owners will continue to use their land for agricultural production with a minimal reduction due to the small footprint of the turbines.

3. Proposed Mitigation

a. Discuss appropriate mitigation measures for identified impacts.

The Project complies with the goals and requirements of the Town of Stark Wind Energy Facilities Law. No mitigation measures are proposed.

4.0 Alternatives

The New York State Environmental Quality Review Act (SEQRA) calls for the evaluation of reasonable alternatives to a proposed action that are feasible, considering the objectives and capabilities of the Applicant. The following alternatives were evaluated.

A. The "No Action" Alternative

The "No Action" alternative would leave the property in its current state. While identified impacts would be avoided, the benefits of the Project, such as increased renewable energy and contributions to the local grid and economy, would not be realized.

B. Alternative Location

The Applicant does not have any other sites under their control to evaluate alternative locations. When evaluating locations initially, New Leaf Energy considers key qualifying factors including wind resource adequacy, proximity to distributed electrical infrastructure, and the existence of reasonable zoning, all of which is required to develop a viable community wind project.

The specific locations of the proposed wind turbines on the site have been optimized to minimize impacts to the surrounding area with a specific focus on the proximity to occupied residences. Wind turbines must be spaced apart from one another adequately to avoid 'wake effect' which can cause long term wear and tear on the equipment. Choosing specific locations requires a balance of many factors such as the Town's zoning code, shadow flicker, acoustic impacts, tree removal, wetlands, and topography. The proposed location of the turbines complies with the Town of Stark's zoning code in regard to setbacks and noise. Shadow flicker has been minimized. The turbines are sited as far from surrounding homes as possible. There are no impacts to wetlands. The topography is suitable. As such, there is not a reasonable location alternative.

5.0 Significant Impacts That Cannot Be Avoided

As identified in Section I, Executive Summary, the proposed Project will have impacts that cannot be avoided. Adverse impacts that cannot be mitigated are as follows:

1. Short term disturbance of the site for grading, tree clearing, and construction, with associated construction noise, dust, and odors.
2. Short term disturbance with vehicle traffic during the delivery of turbine components.
3. Visibility of the wind turbine from some viewpoints throughout the community.
4. Disturbance to wildlife.

A. Growth Inducing Aspects

The Project will result in short term construction jobs and associated spending. No long-term growth inducing aspects are expected.

B. Effects on the Use and Conservation of Energy Resources

The Project will result in the production of renewable energy and provide a net increase in clean energy.

C. Irreversible and Irretrievable Commitment of Resources

The Project will use typical heavy construction materials such as stone, steel, and heavy machinery. It will convert approximately 6.0 acres of land to produce energy.