

December 14, 2006

Richard Jack, Supervisor
Town of Warren
544 Kingdom Road
Mohawk, New York 13407

Re: Comments on the Supplement to the Draft Environmental Impact Statement for the Jordanville Wind Power Project

Dear Supervisor Jack & Town Board Members:

On behalf of Otsego 2000 and Advocates for Stark, we are submitting the following comments on the Supplement to the Draft Environmental Impact Statement (SDEIS) for the Jordanville Wind Power Project.

General Comments:

To date, the procedures in this application have been consistently inadequate to meet the established legal standards. First, the public was illegally barred from scoping. Next, the document accepted as the DEIS was patently inadequate, requiring the preparation of the SDEIS.

Now, the SDEIS is also inadequate. It fails to accurately describe the environment and potential project impacts by

- 1) Omission of information requested of the applicant, and by
- 2) Commission, offering inaccurate, mismatched, and out of date information as if it were adequate.
- 3) Level of Specificity of the Proposed Project- Preliminary nature of the proposal with turbine locations, access roads, and other aspects of the proposed project continue to be represented in a preliminary form; no final project design and clear scope has been provided. This preliminary design is therefore subject to continuing changes that make the specificity of impacts difficult to evaluate.

Key errors here are the failure to follow the directions of the lead agency and the attempt

to rely on performing studies after the SEQRA review ends. Each is patently inadequate.

Waiting until after the SEQRA review to take up the essential studies cannot meet the test for SEQRA that the lead agency take a hard look at the impacts of the project. Of course the look must precede the decision about the project. It is not consistent with the requirements of SEQRA to issue findings first and learn about the impacts thereafter. A lead agency that tried exactly this poorly considered arrangement lost in *In re Town of Red Hook v. Dutchess County Resource Recovery Agency*, 146 M2d 723 (Supreme Ct. Dutchess Co. 1990). As the judge wrote,

"it is the failure to complete the necessary water studies before issuing the FEIS which is objectionable. By this approach the Agency would effectively insulate the results of these studies from the court's review of the Agency's SEQRA process. Later judicial review of the DEC's granting of a landfill permit, if that occurs, does not cure this defect. The Agency has purported to adopt a Final EIS concerning the siting of a landfill without studying the environmental impact of that landfill on groundwater. One must ask what is 'final' about that? Can the Agency have taken a 'hard look' at the environmental impact of a landfill without a hydrogeological study? **Such an EIS cannot be defined as 'final' when it defers such an obvious study.**"

The lead agency cannot meet the requirement that it give this project a hard look by agreeing to postpone that look until after the project is approved and constructed. As the Court of Appeals stated in *In re King v. Saratoga County Board of Supervisors*, 89 N.Y.2d 341 (1996) (emphasis added),

"[t]he mandate that agencies implement SEQRA's procedural mechanisms to the 'fullest extent possible' reflects the Legislature's view that the substance of SEQRA cannot be achieved without its procedure, and that departures from SEQRA's procedural mechanisms thwart the purposes of the statute. Nor is strict compliance with SEQRA a meaningless hurdle. Rather, the requirement of strict compliance and attendant spectre of de novo environmental review insure that agencies will err on the side of meticulous care in their environmental review. **Anything less than strict compliance, moreover, offers an incentive to cut corners and then cure defects only after protracted litigation, all at the ultimate expense of the environment.**"

The Court of Appeals consistently urges this point:

"Strict compliance with SEQRA guarantees that environmental concerns are confronted and resolved prior to agency action and insulates rational agency determinations from judicial second-guessing." *In re New York City Coalition to End Lead Poisoning, Inc., v. Vallone*, 100 N.Y.2d 337(2003)(emphasis added).

Send the applicant back to the drawing board.

The SDEIS fails to sufficiently address the scope of environmental impacts for the

project area. Specifically, the following impacts that have not been adequately addressed in the SDEIS:

- Impacts to cultural resources
- Determination of Eligibility to the National Register of Historic Places for additional cultural landscapes within the 10 mile study area
- Visual Impacts, daytime and nighttime lighting visual impacts of project, and specifically impacts to sensitive receptors (e.g. scenic, historic, cultural resources)
- Socioeconomic impacts
- Roads
- Water resources
- Avian and Chiropteran (bats)
- Noise

Project work that has not been finalized is necessary for an adequate assessment of environmental impacts to address project-related impacts including:

- Preliminary Blasting plan (draft)
- Decommissioning plan (draft)
- Environmental Protection and Construction Control Plan (no draft available)
- FAA lighting plan (draft)
- Groundwater analysis (incomplete)
- Comprehensive delivery route (not finalized)
- Access road construction plan and related mitigation
- Raptor migration study (incomplete)

The applicant has also noted specific mitigation measures that have not yet been completed or finalized for the project including:

- Blasting plan (draft only)
- Raptor survey (incomplete)
- Decommissioning plan (draft only)
- Emergency response plan (not developed)
- PILOT agreement (in negotiations)
- Offset program as mitigation for unavoidable visual impact (sic) on historic resources (not fully developed)

Because these environmental impacts have not been fully disclosed, the discussion of mitigation is frequently limited or undeveloped (see SDEIS Volume I, page xvi). The submission of both the DEIS and the SDEIS were premature. The 'hard look' test cannot be met without completion of the elements above under SEQRA.

The following is a summary of comments on the SDEIS by consultants hired by Otsego 2000 and the Advocates for Stark.

Supplemental Visual Impact Assessment (SVIA), comments prepared by James A. Zack, President, Xtra-Spatial Productions, LLC. Mr. Zack is the author of a new forthcoming treatise on visual impact assessment.

Errors and omissions

Page 1: *“Like the original VIA, this SVIA was prepared under the guidance of a registered landscape architect experienced in the preparation of visual impact assessments. It is also consistent with the policies, procedures, and guidelines contained in established visual impact assessment methodologies...”*

All the literature cited (on page 11 of the original VIA) is at least 10 years old now and, furthermore, all literature referring to Viewshed Analysis and Computer Simulation was written ***over twenty-five years ago!*** Prior to 1980, digital elevation datasets (used as input to computer-generated visualization and viewshed analyses) did not exist; computers capable of performing such analyses were mainframes, typically found in universities and data processing laboratories; and software to perform visualization and viewshed analyses was untested or only under development. Even the NYS DEP-00-2 document (2000)—not referenced here, but introduced later in the document—was still advocating the use of hand-drawn profiles and viewshed maps. To use these documents as a guideline for such analyses in 2006 is to ignore the current state of the technology and innovation.

Page 2: *“Other than the reduced number of total turbines (68 versus 75), the type and dimensions of proposed turbines has remained unchanged...”*

I contend that the models of the turbine as seen in several figures and simulations have no rotor axis tilt (6 degrees) nor do the rotor blades show any coning (2 degrees). While it is not possible to state definitively that such characteristics will change the photosimulations/montages, every effort should be made to ensure that the model conforms to the design clearly presented in the Gamesa G-87 2MW specifications.

Page 5: *“Because the original VIA concluded that project visual impact will be largely concentrated in areas with foreground and midground views of the turbines, landscape similarity zones were not specifically defined or modified for the expanded [10-mile] visual study area.”*

Firstly, the quality of being “largely concentrated” does not equate to being “contained” and represents a subjective characterization of the phenomenon. Secondly, since the original VIA study area and the LSZs contained therein were not exhaustively sampled, the conclusion that LSZs need not be defined or modified for the SVIA study area present an example of inaccurate logic that can be summarized by the wildlife biologist’s axiom: “an absence of evidence is not evidence of absence.” The applicant’s responsibility for examining the visual impacts on LSZs within the expanded study area should not be dismissed solely on the basis of such logic.

Page 6: “As with landscape similarity zones, viewer/user groups impacted by the proposed project will be concentrated within the original 5 mile radius visual study area.”

The same objections from the previous excerpt apply here as well.

Page 7: “In addition, an architectural survey...identified an additional 89 sites within 5 miles of the Project site that could be considered eligible for listing on the National Register...”

Why didn't the architectural study include potentially eligible sites within the full, 10-mile radius SVIA study area?

Page 11: “The locations of mapped visually sensitive resources within the expanded visual study area are illustrated in Figure 5.”

Figure 5 of the SVIA is titled “Visually Sensitive Resources” but the filename is “05009_VIA_Figure 5_Visually Sensitive Sites.pdf” and it needs to show

- All National or State Historic Register places and those eligible for listing (e.g., Richfield sites)
- Historic Districts (e.g., Glimmerglass Historic District)
- National Natural Landmarks (e.g., Moss Island in Little Falls)
- State and National Park System Lands (e.g., Glimmerglass State Park, the Erie Canal National Heritage Corridor)
- Designated Scenic Roads/Byways (e.g., State Road 20)
- State or Federal Designated Trails (e.g., the proposed Canalway Trail extension between the Towns of Ilion and Little Falls)
- Local Scenic Vistas (as identified in the Town of Stark Planning and Reference Guide, Generic Environmental Impact Statement for the Cooperstown Area, Route 20 Scenic Byway Management Strategy)
- All Recreational Areas (e.g., Otsego Lake, Weaver Lake/Maumee Swamp)
- Transportation Corridors (e.g., I-90)

Furthermore, the scale of this figure is too small and the map should be presented at 1:100,000 scale with the same color scheme (legend) as Figure 11 of the original VIA.

Page 11: “The Visual Impact Assessment (VIA) procedures used for this supplemental study are the same as those utilized in the original VIA.”

The description of the procedures and the data contained therein are not elaborated sufficiently to enable the review to deem the analysis as valid or place a level of confidence in its results. This applies to the VIA as well as the SVIA.

Specific omissions (taken from page 12 of the VIA) include:

- Resolution of the USGS DEM datasets which is available in either 1- or 1/3-arc-second form
- Resampling/interpolation method used when projecting the USGS DEM datasets to a real-world coordinate system (e.g., UTM NAD83); projection of unprojected DEMs is a necessary step when producing viewsheds, and

the process of projection includes resampling and interpolation
The parameters used when computing the viewshed, particularly whether a Flat-Earth model or a Curved-Earth model used, and if optical refraction was included (and, if so, the value used for the coefficient of refraction, k)
The parameter value for the observer offset from the terrain surface is missing
Source date and resolution for the USGS National Land Cover Dataset; only the 1992 product (resolution of 1-arc-second) is available for the study area (which was released in 2000) and there is no mention of the degree of alteration of the land use in the study area from 1992 to 2006;
A discussion of errors inherent in USGS DEM data, NLCD data, assumptions of constant height and complete opacity of forested land classes, and the viewshed analysis is completely absent; no sensitivity analysis was performed (*e.g.*, Monte Carlo simulation using random offsets to all cells to create confidence in the visible/not visible values)
Since distance from nearest visible turbine and the amount of turbine that is visible is “not taken consideration [sic]” all locations that fall within the “visible” areas are treated similarly throughout the remainder of the analysis; sophisticated GIS analyses can predict the subtense or apparent size of the most obtrusive turbine at all locations in the study area and facilitate the extraction of photo viewpoints and prevent the potential generalizations for non-point visual resources that are presented later in the conclusions.

Page 11: “*Two 10-mile radius topographic viewsheds were mapped, one to illustrate “worst case” daytime visibility (based on a maximum blade tip height of 400 feet above existing grade)...*”

This “Boolean” (visible/not visible) viewshed doesn’t illustrate the “worst case” daytime visibility, but rather the most liberal (*i.e.*, largest area) estimate of the areas where part of the project is potentially visible. The term “worst case” needs to be applied to specific viewpoints, not to an entire analysis.

Page 11-12: “*A turbine count analysis was performed to better identify how many wind turbines are visible from a given point within the viewshed study area...The results of this process are then classified into ranges of turbines visible...*”

This type of classification has the potential to mislead the map viewer since it is very possible that many turbines will be seen from distant ridges, but have low visual impact whereas a nearby viewer may see a single turbine at a very large apparent size (yielding a higher visual impact). Summation of nominal values (visible/not visible) does not yield a variable that has a ratio scale of measurement. It would be far more informative to present the sum of subtenses afforded by all visible turbines along with the count of how many turbines contribute to that summation.

Page 13: “[*Regarding Viewpoint Selection:*] *These viewpoints were selected to illustrate*

typical views of the proposed project and the range of visual change that will occur with the project in place.”

How were the viewpoints selected and from what set were they selected? As summarized by A.C. Davis of NYS DPS on page 6 of “Comments of NYS DPS On Draft Environmental Impact Statement: Community Energy – Jordanville Project” dated August 4, 2006: “Viewpoint selection is an important matter in devising a representative analysis, and the need for greater attention to this matter in project scoping and in the VIA procedure is apparent.” In the SVIA, several viewpoints were “selected” from large area Visual Resources (*e.g.*, Glimmerglass State Park, Glimmerglass Historic District) which presented no visibility to the project.

Otsego 2000 recommended several viewpoints for the SVIA. However, Otsego 2000 recommended that viewpoints be field checked to confirm project visibility and other site factors that might affect the photo simulations. There is no evidence in the report that field checking was undertaken to ensure that viewpoints addressed Otsego 2000’s concerns.

Viewpoints should not be chosen on the basis of convenience to the applicant or by chance, but rather randomly sampled from all points that meet the criteria outlined on pp. 48-9 of Smardon *et al.*:

It is important to choose viewpoints that are representative of the study area. The viewpoints should be chosen because they represent:

Typical viewer location.

Typical viewer activities or expectations.

Potential project visibility.

--From US Army Corps of Engineers Instruction Report EL-88-1 (1988)

A predictive model of actual turbine visibility would assist in identifying all parts of area or linear Visual Resources from which to generate a finite sample of viewpoints. Looking at the results of the field review on pp. 20-21 of the SVIA, it is apparent that generalizations were made from viewpoints that failed to meet criterion c above. Again, “an absence of evidence is not evidence of absence.”

Page 16: “[*In the nighttime simulations, the*] proposed lights, as well as existing lights visible in the nighttime photos, were digitally altered to reduce the amount of “light-bleed” commonly found in long exposure photographs of lights. The resulting images thus portray more accurately what the human eye perceives in nighttime views.”

Nowhere are the procedures of how the nighttime simulations were “digitally altered” described or defended. In the human retina, light-bleed does indeed occur when highly-sensitive rods are stimulated and sympathetically stimulate adjacent cones or rods. Otherwise it would be impossible to detect an 18” strobe from a distance of one mile. See <http://graphics.cs.ucf.edu/papers/jov.pdf> for more details. Furthermore, the VP87_Nighttime.wmv simulation shows plenty of light-bleed in the foreground, existing lights.

Page 17: “[As part of the Panel Evaluation process,] 11x17-inch digital color prints were used for the elevation[sic]of all photos...”

Since a focal length of 50mm (relative to a 35mm format camera) was used, a horizontal field of view of less than 40 degrees was presented (except for the panorama) to the panel. Such a limited field of view fails to present the full visual context that an observer in the field perceives, which is in the range of 90 to 120 degrees. Such contextual information could alter the perceived visual impact of the project. For example a barn or water feature might lie just outside the photographic field of view from a viewpoint, but be an integral part of the periphery when viewed in the field.

No indication as to the size of the images in pixels is given, nor the dots-per-inch for the printer, thus it is difficult to ascertain whether turbine visibility is limited by actual conditions or the combination of image and printer resolution.

In order to perceive the images as they would appear to the human eye in the field, the 8 by 10-inch images would need to be held at a fixed distance to preserve the visual field of view and a 1:1 scale factor. That distance would be 14.52 inches from the observer’s eye for a simulated 50mm focal length lens on a 35mm format camera. Were it to be held further away, the visual intrusion would be lessened. Nowhere in the VIA or the SVIA is there any indication that such a controlled viewing environment was established. Ideally, the images would be backlit from a diffuse light source and the observer would have a cloak around the image and her/his head to prevent ambient or stray direct light from altering the appearance of the images. This can be achieved more easily through the use of a digital projection system in a dark room with the panelists at the correct distance to preserve the trigonometric relationship between the observer and the scene. Due to the limited resolution of digital projection systems, however, it might be better to create film slides and project them through an optical projector. In all cases the room should be as dark as possible to prevent ambient light from affecting contrast.

Page 18: “*Topographic viewshed analysis...indicates that the proposed project has the potential to be visible in approximately 60% of the expanded visual study...*”

Summary statements of this sort fail to recognize the qualitative differences between the locations that are classified as affording potential visibility to the project. Two projects could afford the same percentage of visibility, yet the magnitude of impact could vary significantly. A statistical measure such as mean predicted cumulative intrusion over the entire study area would be a much more meaningful metric. Such a metric can be derived using modern GIS analysis. The statement at the bottom of page 18, “Areas of potential nighttime visibility...cover approximately 55% of the expanded visual study area, and generally occur in the same areas where potential daytime visibility is indicated” is akin to saying that town hall is found within the boundaries of the town! The

viewshed of lower elevations of a subset of structures is, by definition, going to be a subset of the original viewshed.

Page 19: *“Areas of actual visibility within the expanded study area are anticipated to be much more limited than indicated by the viewshed analyses. This is due to [multiple factors including] screening provided by structures, street trees...”*

However, loss of visibility due to structures and street trees may be offset in villages and towns by residents, workers and visitors who find themselves on the second or higher floors of building that provide unobstructed views to the project not afforded to those at street level. This may introduce issues of social justice where those residing on higher floors may be disproportionately affected by the visual intrusion than their neighbors downstairs.

Pages 20-21: *[Evaluations of Field Review of Project Visibility from “various areas”]*
Many of these “areas” are points and the evaluations apply as they are written. Others are linear or area features and unless they are sampled in such a way that includes locations that have potential views of the project, generalizations should not be made. A better approach would be to derive the median cumulative impact (in terms of summed subtenses), or worst-case cumulative impact and use that/those location(s) as viewpoints for photomontages or simulations.

It would seem that simulation would be an appropriate surrogate for actual field analysis so long as the simulation methodology was deemed valid and verified by a set of control simulations.

Page 21: *“The 20 turbine simulations prepared for this project are well in excess of what has been prepared for other wind power projects in New York.”*

Is this a valid reason to not include additional simulations? Given the size of the project and the number of sensitive receptors in study area, additional simulations are warranted. Prior turbine projects in New York include many with fewer turbines and smaller turbines. As projects increase in scale, the visual impact and the changes the projects bring to human life deserve more thorough analysis.

Page 21: *“As [Table 1] indicates, of the 50 resources of statewide significance...viewshed analysis and field review suggest that 28 of these (56%) will not have views of the proposed project.”*

If the most inclusive viewshed analysis indicates complete non-intervisibility to the project from all parts of the visual resource areas or linear features, that is sufficient to rule out additional analysis. However, if those conditions are not met, a more comprehensive sampling of those portions of the resources is indicated.

Page 21: *“The degree of potential visibility at these [50 resources of statewide significance] is indicated in the large scale viewshed maps included in Appendix B.”*

No “degree of potential visibility” is shown. Only “potential visibility” is shown.

It would be much better to show a quantitative measure (cumulative subtense) of visibility, but this analysis has not been presented.

Page 34: “[Conclusions bullet 1:]...As stated in the original VIA, viewshed mapping, cross section analysis, and field review indicate that most of the aesthetic resources of statewide significance within 5 miles of the project site will be screened from view of the project.”

This statement has been refuted earlier due to the bias introduced in the selection of viewpoints.

Page 34: “[Conclusions bullet 2:]...Most of the sensitive resources between 5 and 10 miles from the turbines will be screened from view...”

This statement has been refuted earlier due to the bias introduced in the selection of viewpoints.

Page 35: “[Conclusions bullet 5:]...Field review and visual simulations indicate that from Otsego Lake and Cooperstown, the project will be distant enough that visual impacts should be insignificant. This is consistent with...published findings which indicate that although turbines can be visible at distances over 10 miles, significant visual effects of wind power projects are generally concentrated within 3.5 miles (6 kilometers) of the project site (Eyre, 1995).”

The EC’s ExternE (Externalities of Energy) Volume 6, Wind & Hydro report was written in 1995 and used 250-300kW Vestas Windane 34 and Mitsubishi MWT250 turbines with a nominal hub height of 30m and a nominal rotor diameter of 30m (total maximum height of 45m) (p. 69). Thus the 3.5 mile (6 kilometer) distances must be scaled upwards to 11.0 miles (16.3 km).

Furthermore, the two EISs referenced in ExternE studied an area to 12.4 miles (20km) from all turbines, “beyond which the turbines are invisible to the naked eye even in very good visibility (p. 70). Extrapolation of this value to the 400-foot (122m) turbines in the Jordanville project suggests the use of a 33.7-mile (54.2km) distance from all turbines. Thus, this statement has been taken out of its original context.

Page 36: “...at their closest, the [Top Notch and Jordanville] projects are 9.4 miles apart. In any views where the Jordanville turbines are in the foreground or midground (i.e., 0-3.5 miles from the viewer [sic, see above]), the nearest Top Notch turbines would be at least 9.5[sic] miles away. At such distances the Top Notch turbines would appear as distant features in the landscape and would likely have limited visual impact...”

Again, the ExternE report is used out of context by ignoring the scale difference between 250kW and 2MW turbines. The midground distance limit for 400-foot Gemesa G87 2MW turbine (assuming full visibility of the turbine) would be 11 miles (see above). Even ignoring this oversight, the difference between the inter-project distance of 9.4 miles and the erroneous 3.5 mile midground distance limit is 5.9 miles, not 9.5 miles. Considering scaling effects it is possible to have a pair of turbines, one from each project, with **both turbines** within the foreground or

midground distance!

The East Hill Project in Cherry Valley was not included in the cumulative impact analysis.

Page 37: *“Results of the rating panel evaluation and a tour of the visual study area by EDR landscape architects determined that the project will have limited adverse visual impact from most locations.”*

It is impractical to conduct a comprehensive/complete field assessment. For this reason an unbiased, objective, and quantitative assessment using cumulative subtense is preferable to an *ad hoc* sampling, especially by personnel who might have a vested interest in the results of said assessment.

Recommendations:

Make locations of and photographs from EDR’s Viewpoints available for independent verification.

From DEP-00-2: Scientific perspective has been ignored and thus the EDR analysis fails to identify “worst-case” conditions. A scientific perspective should be employed.

From DEP-00-2: Atmospheric perspective (haze, attenuation) has been excluded and thus renders the photomontages inconsistent with essential goal of verisimilitude.

Camera matching could be performed within the 3D Studio MAX 6 environment using known locations visible in both terrestrial imagery and orthoimagery.

Review of SDEIS:

Appendix H, Historic Architectural Resources Survey Report (HASR), Jordanville Wind Farm Project, by John Milner & Associates (JMA)

Appendix F, Supplemental Visual Impact Assessment (SVIA), [By EDR Inc.](#)

Comments prepared by Patricia O’Donnell and Carrie Mardorf, Heritage Landscapes, Preservation Landscape Architects & Planners

In reviewing the cultural resources materials presented, it is important to note that the designated and eligible districts and scenic byways are listed, not mapped. The importance of this issue is that mapping would show the concentration and pervasive character of these historically and scenically significant resources. There are, for example, approximately 41,000 acres in three districts (Glimmerglass, Waggoner Patent, and Lindesay Patent) that will be impacted if this turbine project is constructed as proposed. In addition, the Route 20 and County Route 54 scenic byways are linear corridors with views of the proposed project area. Furthermore, JMA has noted in the SDEIS Appendix H that selected cultural resources not previously included in the DEIS are recommended as eligible in the SDEIS further enhancing the concentration of

resources in this region. The impact of this project to these designated, valued resources is significant and is not effectively mitigated.

The SDEIS has sought to respond to previous comments in selected ways in this document. However there remain several issues in terms of completeness and related omissions that fail when you take a hard look at this document.

**Appendix H, Historic Architectural Resources Survey Report (HASR), Jordanville Wind Farm Project
by John Milner & Associates (JMA)**

SDEIS Cultural Resources Omissions

Appendix H, Management Summary for the Historic Architectural Resources Survey Report (HARS) for the Jordanville Wind Power Project notes that "...27 (properties) will not be adversely affected because." Because why? There is no justification given for this statement. Within the Area of Potential Effect (APE) there are 3 listed and 1 eligible historic districts and 92 properties overall, including over 41,000 acres of resources. The summary notes impacts with adverse effect that is significant for 23 properties and that is lesser for 42 properties, this is 65 of 92 or some 70.7%. Together these are staggering impacts on a region rich with heritage yet these impacts are minimized in the language used in Appendix H and are never presented in a comprehensive and regional perspective.

Within 5 miles of the proposed turbines study area, are the Towns of Stark and Warren in Herkimer County, parts of the Towns of Columbia, Danube, German Flats, and Little Falls, Herkimer County, parts of the Towns of Richfield, Springfield and Village of Richfield Springs, Otsego County, and part of the Town of Minden, Montgomery County. However, the APE within five-miles of turbines study area does not match SDEIS Visual Impact study increase to a 10-mile radius. A coordinated review of visual impacts in relationship to cultural resources within this 10-mile radius is needed and would help determine adverse effects created by a change in the visual setting associated with a property. For example, Mount Wellington (a.k.a. the Sleeping Lion) is a dominant landscape feature and is one of several "visual points of reference" in the Glimmerglass Historic District that is not addressed. Views of Mount Wellington from the south looking north have been well documented in paintings and photographs starting in the mid-19th century to the present day. As noted in the Glimmerglass Historic District National Register Nomination:

The Glimmerglass Historic District retains a wealth of features that recall its long history and illustrate its significant themes. First among these is the outstanding scenic environment defined by the relationship between lake and mountains, cleared and forested land, natural and built features. Within this environment, resources include agricultural buildings, and fields, resorts, hotels, camps, golf courses, museums, designed landscapes, conservation areas, and other outdoor recreational features, the extremely intact village of Cooperstown, and the

numerous associative features (both natural and built) that recall and commemorate the intimate connection between the Otsego Lake environs and the work of James Fenimore Cooper. In addition to their relationship to other themes, many of these features are intact representative and distinctive examples of architecture and landscape architecture from the period of significance (GHD National Register of Historic Places Nomination, Section 8, page 3).

Section 3.5 Cultural landscapes are discussed in a generic manner. Farmsteads are discussed from the perspective of architectural integrity not patterns, land uses and other character defining features. Additionally, there is no specific reference to the project area as a potential rural historic district in this document. Our previous comments that the project area may be eligible have not been adequately addressed. At a minimum, the Historic Architectural Resources Survey should have included a historic research and field documentation based Determination of Eligibility (DOE) for the project area.

Suggestions for Additional Analysis and Mitigation

1. The HASR does not provide sufficient evidence that the project area was evaluated as a rural historic district. A Determination of Eligibility (DOE) must be completed before it can be determined that the Project will not have an adverse effect on any potential rural historic district within the project area.
2. The applicant has not fully explored alternatives or mitigation measures that would lessen impacts to historic and cultural sites. These include project relocation, downsizing the project, moving turbines, or lowering turbines heights. Given the documented visibility of the project to sensitive resources and as required under SEQRA, all reasonable mitigation measures must be explored. Justification should be given if a mitigation measure is infeasible. Overall, the mitigation strategies are very limited in the SDEIS and do not adequately address the impacts to documented scenic, cultural and historic resources of local, state, and national significance. Current mitigation strategies pertaining to cultural resources as listed by the applicant include:
 - Identify an existing historic building to use as project office/visitor center (SDEIS, pg 78) While adaptively reusing a historic structure to suit the proposed project needs can effectively rehabilitate and to some degree preserve a historic structure, the large scale and adverse impacts of the proposed project to the cultural landscape and the larger region as a whole are not effectively mitigated by rehabilitating a single building. This is not an effective mitigation alternative for this large-scale project and should be dismissed from consideration
 - Financial support for local historic cemeteries (SDEIS, pg 78). Financial offsets have not yet been finalized for cemeteries or other affected historic and cultural resources.

- Visual mitigation planting fund for owners of affected properties (SDEIS, pg 85). Care should be taken to determine if plantings and vegetative screening are appropriate landscape treatments for individual historic and cultural resources and cultural landscapes. A mitigation plan should outline appropriate treatments for individual properties and historic districts. For example, the Crim Cemetery is a historically significant property less than 1000 feet from turbine, with clear views of the turbine. JMA has determined that the project will have an adverse impact to the cemetery. However, screening the cemetery may in itself have an adverse impact, therefore any landscape treatments must be fully assessed before executed and should be reviewed and approved by OPRHP.

Mitigation strategies that are not addressed in the DEIS are:

- Project relocation
- Downsizing the project
- Moving turbines
- Lowering turbines heights
- Addressing mitigation effects for more than just adjacent properties. There has been an increase in sites within 5-mile radius that could be considered eligible for NR listing. However there is no comprehensive mitigation strategy for properties within the 5-10 mile radius (i.e. visibility from Otsego Lake) (Appendix F, pg 7).

Appendix F, Supplemental Visual Impact Assessment (SVIA),

By EDR Inc.

Comments by Patricia O'Donnell and Carrie Mardorf, Heritage Landscapes, Preservation Landscape Architects & Planners

SDEIS Visual Impacts Omissions

In Section 4.1, visual impacts are noted for affected properties adjacent to the project, within 2 miles, and beyond to the 10 mile study radius. It is noted that for some locations, forest cover helps mitigate project views. However, discussion is narrowly focused on architecture, not properties and broader landscapes in terms of impacts. For example, pp. 16-17 notes potential visual impacts to the National Register-eligible Waggoner Patent Historic District. However, the assessment focuses primarily on the impacts of the project to three individually eligible sites rather than the cultural landscape as a whole. The analysis falls short in addressing the overall impacts to the cultural landscape of this and other listed or eligible properties.

Specifically, there is no analysis of how the proposed turbine project affects the view of Mount Wellington (SVIA, Section 4.1, page 15). As previously stated, Mount Wellington (a.k.a. the Sleeping Lion), is a dominant landscape feature and is one of several “visual points of reference” in the Glimmerglass Historic District that has been

well-documented in paintings and photographs from the mid-19th century to the present day. Likewise there is no assessment of how the Project affects the overall historic integrity of the Glimmerglass Historic District and therefore there is not sufficient justification of the no adverse effect determination stated by JMA in Appendix H. The Supplemental Visual Impact Assessment (SVIA) states that views within the 5-10 mile study area are limited. However, Canadarago Lake and Otsego Lake are noted as exceptions, since both have greater project visibility (see Appendix F, page 19 and the Supplemental Visual Impact Assessment, Figure 7, Sheets 1-5). Given the Project's daytime visibility, nighttime lighting and related visibility, and its significant impact to the view of Mount Wellington, we contend that Project will have an adverse effect on the Glimmerglass Historic District.

The SVIA fails to assess the impacts to the spatial organization of historic districts and focuses only on the footprint of the turbines, "the extent of physical disturbance within the overall footprint of each wind turbine will be relatively small and will not significantly affect the landscape components that shape the existing rural agricultural character in and around Jordanville and Van Hornesville." (Appendix F, pg 36) This focus is misleading. The looming, moving, illuminated presence of the turbines will impact the region far beyond the footprint of the tower bases. The SDEIS fails to acknowledge this.

Misstatements, Contradicting Statements, or Lack of Clarity in Appendix F: SVIA

1. Citing the relocation of turbines proposed for the Holy Trinity Russian Orthodox Monastery as mitigation is misleading. The Monastery leadership decided to withdraw from the project. Therefore this is not mitigation. Likewise, and as noted in the SDEIS, "turbine relocation did not significantly alter the visual impacts of the project as a whole." The Project has an adverse visual impact to the Monastery (SDEIS, Volume I, page 78).
2. No additional local scenic vistas are listed (Appendix F, pg 9).
3. The SVIA lists a number of scenic, historic, and cultural sensitive receptors. The Conclusions Section in the SVIA states, "most of the aesthetic resources of statewide significance within 5 miles of the project site will be screened from view of the project" and "viewshed mapping indicates that the proposed turbines will be visible from many areas within the expanded visual study area" (pg 34 Appendix F). These statements appear to contradict one another. Additionally the SVIA indicates that 77% of the proposed wind towers would be visible (ranging from 1 to 68 turbines) within 5 mile radius, while 59% of the turbines are visible (from 1 to 68 turbines) at 10 mile radius, (Appendix F, pg 18). Due to the concentration of significant cultural and visual resources in the vicinity of the project, a more complete analysis should be undertaken to target areas of greatest impact. This would help determine appropriate mitigation measures.
4. The SVIA uses of generic statements including "majority" and "most". These

statements generally mean greater than 50% but are undefined and used in cases where less than half of the resources are being addressed. These terms need to be used more precisely to the general understanding of them being more than 50% (Appendix F, pg 18 & 34).

5. There are contradicting visibility maps between Appendix F and H, which add to the inability to understand and assess project impacts.
6. Some mapping is difficult to read due to the use of light blues that fade into the light gray background (SVIA, Figure 7, Sheet 4 of 5). This gives the impression that the visual impacts are less than they actually are. The colors should be changed so that the impact is clearly understood.

Suggestions for Additional Analysis and Mitigation

1. The applicant has not fully explored alternatives or mitigation measures that would lessen visual impacts to the surrounding project area and region. These include project relocation, downsizing the project, moving turbines, or lowering turbines heights so that nighttime lighting is not necessary. Given the documented visibility of the project to sensitive resources and as required under SEQRA, all reasonable mitigation measures must be explored. Justification should be given if a mitigation measure is infeasible. Overall, the mitigation strategies are very limited in the SDEIS and do not adequately address the impacts to documented scenic, cultural and historic resources of local, state, and national significance. Current mitigation strategies pertaining to visual impacts are limited. Mitigation alternatives presented in the SDEIS and SVIA include:

- Visual mitigation planting fund for owners of affected properties, (DEIS, pg 85). Plantings and vegetative screenings may or may not be determined appropriate landscape treatments for individual historic and cultural resources and cultural landscapes. Screening properties and turbines with vegetation can have adverse visual impacts, as vegetation can alter, shorten, or completely obstruct significant views. A mitigation plan should outline appropriate treatments for individual properties and historic districts. Any landscape treatments that alter views must be fully assessed before executed and should be reviewed and approved by OPRHP.

Mitigation strategies that are not addressed are:

- Project relocation
- Downsizing the project
- Moving turbines
- Lowering turbines heights
- Mitigation effects for more than just adjacent properties. There has been an increase in sites within 5-mile radius that could be considered eligible

for NR listing. However there is no comprehensive mitigation strategy for visual impacts for properties within the 5-10 mile radius (i.e. visibility from Otsego Lake) (Appendix F, pg 7)

- As proposed, there will be 55% nighttime visibility of the project in the 10-mile study area. There are no recommended mitigation strategies to address nighttime lighting impacts, including limiting the number of lights or downsizing turbines so that nighttime lights are not require.

Appendix F, Supplemental Visual Impact Assessment, comments by David Healy, Vice President, Stone Environmental, Inc.

SDEIS Visual Impacts Omissions

Figure 7:

Sheet 1: The Ten-mile “Non Vegetation” Viewshed Analyses look reasonable compared to our earlier analysis, however there was no reason given for why the analysis should not to go out to 15 miles.

Sheet 2: The “Vegetation” Viewshed analysis criteria are not provided or described so the result is not interpretable nor does it provide information dealing with the seasonality of visibility.

Sheet 3: The FAA Aviation Warning Light Visibility Viewshed: This map is wrong. It was calculated at the wrong height based on review of their figure and the information provided on the Map—399’ Height. Lights would be on nacelle height of 262’.

Sheet 4: Turbine Count Visibility: There is no information on methodology or vegetation provided. The SVIA does not address the issue of what tower can be seen from the critical viewing points/historic districts. This is a major deficiency.

Page 18: “In most areas where potential visibility is indicated, the turbine count analysis of the topographic viewshed suggests that views to multiple turbines could be available (see Figure 7, Sheet 2 of 5). In approximately 22% of the 5-mile radius study area and 15% of the 10-mile radius study area, 1-17 turbines are potentially visible. From 18 to 34 turbines are potentially visible in 16% of the 5-mile radius study area and 10% of the 10-mile radius study area. Between 35 and 51 turbines are potentially visible in 15% of the 5-mile radius area, and 10% of the 10 mile radius study area. From 52 to 68 turbines are potential visible in 24% of the 5-mile radius area, and 24% of the 10-mile radius study area. Sites with potential views of the most turbines are typically concentrated in the central portion of the study area and on higher elevation hilltops and slopes oriented toward the project. Views from many valley bottoms, ravines, and the backsides of hills (40% of the expanded visual study area) are indicated as being fully screened by topography.” These statements are inconclusive, confusing, and impossible to interpret correctly.

The Analysis of Exiting Views (P 22) Figure 9 Viewpoints—this information is important to the Visibility Analysis and was not included on the Figure 7 Sheets.

Recommendations:

- Run all analyses at 15 miles to understand full impact to sensitive receptors.
- Conduct the viewshed analysis under two vegetation conditions: All forest land at a specific agreeable height – we suggest 40 feet subtracting out roads and a second one in which only softwood or conifer forests are included at 40 ft. The second viewshed visibility analysis can then be compared with the full vegetation so that “winter” leaf off analysis can further show the tower impacts on critical areas.
- The FAA Aviation Warning Light Visibility Viewshed must be redone using accurate data and a description of the methodology used must be provided.
- The Turbine Count Visibility Analysis should use a more clear shading pattern; describe criteria used; perform for three scenarios: bare earth, all forested types, and only softwoods. To fully understand their analysis, the details of what land cover classes they chose as forested are needed. Additionally, height adjustments used for the vegetative cover was not given, so comparison is difficult to judge the result.
- The SVIA should provide a tower-by-tower analysis by critical location, so that mitigation of the worst offenders can be made.
- The Project Visibility (p. 18) analysis should be redone with a table that shows the percent of area and number of turbines should be summarized by category.
- The Analysis of Existing Views (P 22) Figure 9: These viewpoints should also be indicated in Figure 7 Map Sheets for ease of interpretation.
- The narrative provided for each viewpoint should be expanded to include additional information. This information would be best summarized in a table and on each photo simulation. For each Viewpoint narrative, the following information should be provided: Viewpoint #, Viewer Coordinates (easting, northing), Viewer Location, Viewer Elevation, Angle of View, Distance to Closest Turbine, Distance to Furthest Turbine, Camera Model, Lens Setting, f-stop, Date & Time. The same information should be included on each photosimulation.

In light of the serious flaws that make the document inaccurate and misleading, the Warren Town Board as lead agency should require the developer to amend it in conformance with our comments. Only then will it be possible to take the “hard look” SEQRA requires. We recommend that the Warren Town Board require the developer to redraft the SDEIS in light of these comments.

Thank you for the opportunity to comment on the Supplement to the Draft Environmental Impact Statement for the Jordanville Wind Power Project.

Sincerely,

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