SUPPLEMENTAL
VISUAL IMPACT ASSESSMENT

Marble River Wind Farm

Towns of Clinton and Ellenburg, Clinton County, New York

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Date: May 2007

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INTRODUCTION

Environmental Design & Research, Landscape Architecture, Planning, Environmental Services, Engineering and Surveying, P.C. (EDR) was retained by Marble River, LLC to prepare a Visual Impact Assessment (VIA) for the proposed Marble River Wind Farm (the project) in the Towns of Clinton and Ellenburg, New York (EDR, 2006). This VIA was included in the Draft Environmental Impact Statement (DEIS) for the project, which was accepted as complete by the lead agencies (Towns of Clinton and Ellenburg) on April 6, 2006. As a result of proposed project changes, the availability of new data, and public/agency comments received on the original VIA, Marble River, LLC retained EDR to prepare this Supplemental Visual Impact Assessment (SVIA).

The purpose of the original VIA was to: 1) describe the appearance of the visible components of the proposed project, 2) define the visual character of the project study area, 3) inventory and evaluate existing visual resources and viewer groups, 4) evaluate potential project visibility within the study area, 5) identify key views for visual assessment, and 6) assess the visual impacts associated with the proposed action. The purpose of the SVIA is to provide supplemental analysis of project visibility, appearance, and visual impact based on 1) the dimensions and arrangement of the wind turbines as currently proposed, 2) the availability of new data regarding visually sensitive resources in the area, and 3) finalization of the design of the proposed overhead transmission line and substation. The SVIA is a supplement to the original VIA, and only addresses project changes and information not presented in the original VIA. It does not reiterate information and findings from the original VIA that remain accurate and unchanged. It is also not a comprehensive response to public/agency comments received on the original VIA. Although it does address several issues raised in these comments, a comprehensive responsiveness summary will be included in the Final Environmental Impact Statement (FEIS) for the Marble River Wind Farm. 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 (see Literature Cited/References section).

PROJECT DESCRIPTION

Project Site

The proposed project site has changed somewhat since preparation of the original VIA. Due to some minor changes in landowner participation, the currently proposed project site now includes approximately 18,500 acres of leased private land (approximately 130 separate parcels with 76 different owners) in the Towns of Clinton and Ellenburg in Clinton County, New York (Figure 1). Other than this, the site is as described in the original VIA.

Proposed Project

The currently proposed project is a 118-megawatt (MW) wind power facility, consisting of 109 2.0-megawatt (MW) Gamesa G-87 wind turbines and associated support facilities. Eighty eight (88) turbines are proposed for the Town of Clinton, and 21 in the Town of Ellenburg. A proposed overhead 34.5 kV collection line runs from the northeastern portion of the project site (north of Clinton Mills Road) to the proposed substation on Patnode Road in the southern portion of the site. The substation will interconnect with an existing New York Power Authority (NYPA) overhead 230 kV transmission line (Figure 2).

The components of the project are generally as described in the original VIA. Changes or additional data regarding the currently proposed project components are outlined below:

<u>Wind Turbines</u>

The turbines evaluated in the original VIA were Gamesa G-90s, with a 78 meter (m) tower and a 90m rotor diameter. Maximum total height of these turbines (including concrete pedestal and any site grading) was assumed to be 125m or 410 feet. The currently proposed turbines are Gamesa G-87s. The only difference between these and the previously proposed turbines is that the rotor diameter is 87m rather than 90m. Consequently, maximum total height is reduced to approximately 399 feet. In addition, the currently proposed Federal Aviation Administration (FAA) lighting plan for the project would result in the lighting of fewer than 50 of the 109 turbines. The appearance and dimensions of all other turbine components are as described in the original VIA.

Electrical System

The project's electrical system includes the same components described in the original VIA. Changes and additional detail regarding these components are outlined below:

Collection System: The total length of the 34.5 kV collection system will be approximately 66 miles. This compares to the previously proposed total length of approximately 55 miles. This change in total length is due to the fact that the collection system now includes a segment of overhead 34.5 kV line. This overhead segment is approximately 13 miles in length, and runs from the northeastern portion of the site to the proposed substation site in the southern portion of the site. The line will be carried on treated wood poles that average 55 feet in height. Average span length between poles is in the range of 225-270 feet.

Substation: As described in the original VIA, the substation will be located off of Patnode Road adjacent to the existing NYPA 230 kV transmission line. However, the proposed location is now closer to Patnode Road, and the size and components of the substation are now known. The substation will be approximately 350 by 430 feet in size and will include circuit breakers, transformers, capacitor banks, a multi-bay structure, take-off structures, and two control buildings. Elevations and plans showing the components and dimensions of this station are included in Appendix A. The substation will be located approximately 325 feet east of Patnode Road, and will be accessed by a new gravel service road. Because design of this facility is now complete, it is addressed in the SVIA.

Meteorological Towers

The three permanent meteorological towers currently proposed as part of the project are anticipated to be galvanized tubular or lattice steel structures that will include wind monitoring instruments. They are proposed to be 80 meters in height. However, the design and location of these towers have not yet been finalized. In addition, permanent meteorological towers typically have limited visibility and visual impact relative to the adjacent turbines. Consequently, they are not addressed in this study.

Service Roads

Current plans call for approximately 48 miles of new or improved access/service roads. This total distance, along with proposed road dimensions and surfacing, are as described in the original VIA. The visual character of the service roads is presented in simulations where they appear (see Viewpoint 217, Figure 31). The visual effects of the proposed 16-foot wide roads are not evaluated further in this study.

The layout of the currently proposed project components on the site is illustrated in Figure 2.

EXISTING VISUAL CHARACTER

The visual study area is a 5-mile radius around the perimeter turbines, as described in the original VIA. The revised project layout has not significantly changed the size or location of this study area, which is illustrated in Figure 3.

Physiographic/Visual Setting

The physiographic/visual setting of the proposed project is as described in the original VIA. Landform, vegetation, land use, and water features within the study area are as described in that document.

Landscape Similarity Zones

Landscape similarity zones (LSZ) within the visual study area are consistent with those described in the original VIA, except that a water/waterfront zone has been added. In addition, the approximate location of these zones within the U.S. portion of the study area (where USGS National Land Cover data are available) has now been mapped, and is presented in Figure 4 (Sheet 1). A description of the water/waterfront zone is presented below:

Zone 4. Water/Waterfront

The water/waterfront LSZ includes Lower Chateaugay Lake, the Chateaugay River, Lake Roxanne, and areas of open water (ponds and wetlands) in the northeastern portion of the project site. This zone includes the shorelines of these waterbodies, as well as the open water itself. The distinguishing characteristic of views from this zone is the dominance of open water in the foreground. The water adds interest to views in this zone, and lack of foreground screening typically allows for open views across the water. Long distance views in this zone are typically limited due to the screening provided by hills and/or trees along the opposite shoreline. Where visible, background features typically include forested hills.

Viewer/User Groups

The three viewer/user groups described in the original VIA (local residents, commuters/through travelers, and tourists/vacationers) are still considered to represent the major groups that will have future views of the project.

Visually Sensitive Resources

The area within the visual study area includes several sites that the New York State Department of Environmental Conservation (NYSDEC) Visual Policy (DEP-00-2) considers scenic resources of statewide significance (NYSDEC, 2000). These sites/resources are described in the original VIA. Visually sensitive resources not described in the original VIA (because they were not known at the time that study was prepared) include the following:

Sites eligible for listing on the National or State Register of Historic Places

Along with the single Register-listed site described in the original VIA (the Adirondack Park), an architectural survey conducted by John Milner Associates (JMA) identified an additional 72 sites within the 5 mile radius topographic viewshed of the project that could be considered eligible for listing on the National Register of Historic Places (Traum and Klein, 2007). One of these is the railroad berm of the former Ogdensburg & Lake Champlain Railroad. Of the remaining 71 properties, 22 are part of concentrations that are, in the opinion of JMA, potential historic districts. These concentrations occur in the hamlets of Frontier and Ellenburg Depot, and in small potential rural historic districts along Sancomb Road in the Town of Chateugay and Green Valley Road in the Town of Mooers. The locations of these sites are shown in Figure 6 of the Architectural Survey Report (SDEIS Appendix J).

The locations of other mapped visually sensitive resources within the visual study area are illustrated in Figure 5. The locations of these sites are also indicated on the large-scale viewshed maps included in Appendix B.

VISUAL IMPACT ASSESSMENT METHODOLOGY

The Visual Impact Assessment (VIA) procedures used for this supplemental study are the same as those utilized in the original VIA. The specific techniques that differ from those utilized in the original VIA are described in the following section.

Project Visibility

Viewshed Analysis

Revised viewshed maps for the study area were prepared based on the revised turbine dimensions and layout. In all other regards, the analysis was as described in the original VIA. Two 10-mile radius topographic viewsheds were mapped, one to illustrate "worst case" daytime visibility (based on a maximum blade tip height of 399 feet above existing grade) and the other to illustrate potential visibility of turbine lights (based on a nacelle height of 262 feet above existing grade).

To illustrate the potential screening effect of forest vegetation, a 10-mile radius vegetation viewshed analysis was also performed. The vegetation viewshed utilized a base vegetation layer created with USGS National Land Cover Data (forests) with an assumed elevation of 40 feet. This layer (available for the U.S. portion of the study are only) was added to the digital elevation model to produce a base layer for the viewshed analysis, as described above (using the blade tip height as input data). Once the viewshed analysis was completed, the areas covered by the forest vegetation layer were designed as "not visible" on the resulting data layer to reflect the fact that views from within forested areas will be screened by the overhead tree canopy.

A turbine count analysis was performed to better identify how many wind turbines are visible from a given point within the viewshed study area. This analysis utilizes the same topographic USGS DEM base mapping as a regular viewshed analysis and the same maximum turbine height used in the blade tip viewshed analysis. The results of this process are then classified into ranges of turbines visible. The number of classes used and class range values relate to the total number of turbines within the proposed project. Four classes were created with turbines distributed as evenly as possible (approximately 25 turbines each), which results in a data distribution that is easy to interpret once the values are mapped in a figure.

To address agency and public concerns regarding the potential cumulative visual impact of multiple wind power projects in the area, a cumulative viewshed analysis was prepared. To accomplish this,

the 10-mile radius Marble River vegetation viewshed analysis was overlaid on the same viewshed analysis prepared for the proposed Noble Clinton and Ellenburg Projects. The specific methodology used to create each of these viewsheds is as described above. The two viewsheds were then plotted on a hillshade topographic base map and areas of viewshed overlap identified.

One-mile radius topographic and vegetation viewshed maps were also prepared for the proposed 34.5 kV overhead collection line structures. These poles will range in height from 50 to 75 feet, with an average height of 55 feet above existing grade. Because design of the entire line has not been finalized, the average pole height of 55 feet was used for the viewshed analysis. The location of these structures was based on data provided by the project developer. Viewshed methodology is as described in the original VIA.

Cross Section Analysis

As a result of the turbine shifts have occurred since preparation of the VIA, revised cross sections were prepared as part of the supplemental visibility analysis. Cross section methodology is as described in the original VIA.

Field Review

Supplemental field review was conducted on March 21, 2007. The day featured clear skies and bright sunshine, offering excellent visibility. The purpose of this field review was to obtain photographs and GPS coordinates from areas with potential views of the overhead transmission line and substation, as well as from additional visually sensitive sites identified in the Phase 1B Cultural Resources Study and during the public comment period. These sites included Lyon Mountain, the Gulf State Unique Area, the former Ogdensburg & Lake Champlain Railroad, the Clinton Mills area, the community of Frontier, the hamlets of Ellenburg Center and Ellenburg Deport, and various historic structures in these areas. The purpose of this exercise was to evaluate potential project visibility, and obtain data necessary for the subsequent development of photo simulations. The techniques utilized to obtain these data were as described in the original VIA, except no ballooning was performed. Existing identifiable features in the landscape (buildings, silos, roads and fence lines) were used as locational reference points.

Project Visual Impact

Beyond evaluating changes to potential project visibility, the SVIA also examined the visual impact of the currently proposed wind power facilities on the aesthetic resources and viewers within the visual

study area. This assessment involved creating computer models of the revised turbine layout, along with the 34.5 kV overhead collection line and substation. These models were used to prepare computer-assisted simulations of the proposed project. These images were then evaluated by the same in-house panel of landscape architects involved in the original VIA. The purpose of this evaluation was 1) to determine if the revised turbine layout changed their previous assessment of impact from viewpoints evaluated in the VIA, 2) describe the type and extent of visual impact likely to result from construction of the proposed transmission line and substation, and 3) evaluate the type and extent of visual impact that will occur at newly identified sensitive sites within the study area. Details of the visual impact assessment procedures utilized in the SVIA are described below.

Viewpoint Selection

In the original VIA, EDR selected a total of 10 viewpoints for development of simulations. 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. Locational details and the reasons for selection of each viewpoint were described in the original VIA. As indicated in that document, viewpoints were selected based on the following criteria:

1. They provide clear, unobstructed views of the project (as indicated by balloon visibility).
2. They illustrate project visibility from sensitive sites/resources within the visual study area.
3. They illustrate typical views from landscape similarity zones where views of the project will be available.
4. They illustrate typical views of the proposed project that will be available to representative viewer/user groups within the visual study area.
5. They illustrate typical views of different numbers of turbines, from a variety of viewer distances, and under different lighting conditions, to illustrate the range of visual change that will occur with the project in place.

Because proposed changes in the project layout could possibly be perceived in these views, all of the original photo simulations were re-modeled based on the currently proposed turbine model and layout. In addition, nine additional viewpoints were selected to illustrate views from sensitive locations within the visual study area, as well as from locations with potential views of the proposed transmission line and substation. Supplemental viewpoints for use in the development of additional simulations were selected based on potential project visibility, site sensitivity, and/or because viewpoint location/character were not fully addressed in the original VIA. Views from the newly-defined water/waterfront LSZ were not simulated because views of the project from publicly-

accessible sites within this zone are extremely limited. Locational information for the new viewpoints addressed in the SVIA, and the specific reasons for their selection, are described below.

Viewpoint 26 - View from the intersection of Carlson Road and Hill Road in the hamlet of Ellenburg Center. Closest open view in the vicinity of the historic Ellenburg Town Hall (see Viewpoint 215).

Viewpoint 36 - View from Ryan Road near the intersection with State Route 190 (Star Road). In the vicinity of three identified historic properties in the Town of Ellenburg. An open view that will include foreground and background turbines.

Viewpoint 196 - View to the north from the fire tower on Lyon Mountain in the Adirondack Park. Replaces the "virtual view" included in the original VIA and responds to requests from the NYS Department of Environmental Conservation and NYS Department of Public service to include an open view from the Park, and Lyon Mountain in particular.

Viewpoint 203 - View of the proposed overhead collection line from Clinton Mills Road. The Clinton Mills area has been identified as a potentially Register-eligible historic district by JMA.

Viewpoint 205 - Former Ogdensburg & Lake Champlain (O&LC) Railroad, where it intersects Clinton Mills Road. Register-eligible historic site in the Clinton Mills area.

Viewpoint 207 - View from Frontier Road in the Town of Clinton. Typical view toward the project site from the historic hamlet of Frontier.

Viewpoint 210 - View from Route 189 in the Town of Clinton. View will include foreground views of a turbine and the overhead collection line.

Viewpoint 212 - Proposed location of the overhead collection line crossing of Route 11. Foreground view from the Military Trail Scenic Byway.

Viewpoint 217 - View toward the proposed substation site from Patnode Road in the Town of Ellenburg. Closest, most open publicly available view of the substation. View will also include foreground and background turbines.

As in the original VIA, Viewpoints 8, 34, and 74 were chosen for development of cumulative simulations, because they will have views of turbines from both the Marble River project and the proposed Noble wind power projects in the Towns of Clinton and Ellenburg. Revised cumulative

simulations were prepared for each of these viewpoints. In addition, the view from Lyon Mountain (Viewpoint 196) was used for development of a long-distance cumulative simulation from the Adirondack Park, in accordance with agency requests.

Location of the selected viewpoints is indicated in Figure 9. Locational details and the criteria for selection of each simulation viewpoint are summarized in Table 1, below:

Table 1. Viewpoints Selected for Simulation and Evaluation

Viewpoint Number	Visually Sensitive Resource	LSZ Represented	Viewer Group Represented	Viewing Distance[1]	View Orientation[2]
3		Rural/Agricultural	Residents	M	N
8		Rural/Agricultural	Residents	F	S
15	Route 190	Village/Hamlet	Residents	B	W
26	Ellenburg Center	Village/Hamlet	Residents	M	W
34	Adirondack Park	Rural/Agricultural	Travelers/Tourists	M	N
36	Historical Sites	Rural/Agricultural	Residents	F	NNE
38		Rural/Agricultural	Residents	F	NE
74	Churubusco, Immaculate Heart of Mary Church	Village/Hamlet	Residents	M	SSW
81		Forestland	Residents	M	WSW
165	St. Antoine-Abbé	Village/Hamlet	Residents/Travelers	B	SSW
170		Forestland	Residents	M	SE
179	Military Trail Scenic Byway	Rural/Agricultural	Travelers	M	ESE
196	Lyon Mountain, Adirondack Park	Forestland	Tourists	B	N
203	Clinton Mills	Rural/Agricultural	Residents	F	ENE
205	Clinton Mills/ O&LC Railroad	Forestland	Residents	M	E
207	Frontier	Rural/Agricultural		M	E
210	Route 189	Rural/Agricultural	Travelers/Residents	F	SW
212	Military Trail Scenic Byway	Forestland	Travelers	F	SW
217		Forestland	Residents	F	NE

[1] F = Foreground (0-0.5 miles), M = Mid-ground (0.5-3.5 miles), B = Background (>3.5 miles)

[2] N = North, S = South, E = East, W = West

Simulations

To show anticipated visual changes associated with the proposed project, high-resolution computer-enhanced image processing was used to create realistic simulations of the completed project from each of the viewpoints described above. The simulations of the turbines were developed as described in the original VIA. Cumulative visual simulations were prepared for four viewpoints (8, 34, 74, and 196). These viewpoints include a historic site (Viewpoint 74) and two sites within the

Adirondack Park (Viewpoints 34 and 196). Simulations were based on the currently proposed dimensions and configuration of the Marble River Wind Farm and the Noble Clinton and Ellenburg projects.

Photo simulations of other project components that have been defined since completion of the original VIA (i.e., overhead collection line and substation), were also prepared as part of the SVIA. These new simulations were prepared using photographs and GPS coordinates collected in the field, along with locational and dimensional data/specifications provided by the project developer and electrical engineer. Specific assumptions, techniques and computer software used, are as described in the original VIA. Computer models of the project components utilized in this SVIA are shown in Appendix A.

Animation was added to the simulations from Viewpoints 3 and 36 to illustrate the motion of the turning rotor (see digital images in Appendix D).

Panel Evaluation

The same in-house panel of three landscape architects that evaluated the project in the original VIA was asked to evaluate the revised and supplemental simulations/photo renderings prepared for the SVIA (see resumes in Appendix F). For the 10 viewpoints that were evaluated in the original VIA, the panel was asked to compare the revised simulations/photo renderings with those prepared for the VIA to determine if project changes altered their previous conclusions. For new viewpoints that were not addressed in the original VIA, the panel compared simulations of the currently proposed facilities (turbines, transmission line and substation) with photos showing the existing view for each viewpoint. As in the original VIA, 11 x 17-inch digital color prints were used for the elevation of all photos, with the exception of the animated view from Viewpoints 3 and 36. For these views, the images were viewed on a computer monitor to allow movement (turning rotors) in the view. These animated images are included in Appendix D. Evaluation methodology was as described in the original VIA. This simplified version of the U.S. Army Corps of Engineers Visual Resources Assessment Procedure (VRAP) (Smardon, et al., 1988) was developed by EDR in 1999 for use on wind power projects, and as stated in the original VIA, has proven accurate in predicting public reaction to completed projects in New York State. The use of a rating panel, a short evaluation form, and a simple numerical rating process 1) prevents individual bias (either for or against the project) from significantly skewing results, 2) provides understanding of the basis for conclusions regarding visual impact, 3) allows for independent review and replication of the evaluation, and 4) allows a large

number of viewpoints to be evaluated in a reasonable amount of time without “burn-out” of the panel members.

VISUAL IMPACT ASSESSMENT RESULTS

Project Visibility

Topographic viewshed analysis (Figure 6, Sheet 1 of 6) indicates that the revised project has the potential to be visible in approximately 89% of the 5-mile radius study area (as compare to 90% in the original VIA), and 81% of the 10-mile radius visual study area, disregarding the screening effect of vegetation and structures. As with the viewshed analysis included in the original VIA, areas completely screened by topography alone include the northeastern portion of the study area and valley areas around the Chateaugay River and Lower Chateaugay Lake. Visually sensitive sites indicated as having potential views of the project are essentially the same as those identified in the original VIA (see large-scale topographic viewshed map in Appendix B).

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 6, Sheet 2 of 6). In approximately 46% of the 5-mile radius study area and 40% of the 10-mile radius study area, between 76 and 109 turbines are potentially visible. From 1 to 25 turbines are potentially visible in 14% of the 5-mile radius study area and 15% of the 10-mile radius study area. Between 26 and 50 turbines are potentially visible in 14% of the 5-mile radius area, and 13% of the 10-mile radius study area. From 51 to 75 turbines are potential visible in 14% of the 5-mile radius area, and 13% of the 10-mile radius study area. Sites with potential views of the most turbines are typically concentrated in the central portion of the 5-mile radius study area and in two broad northeast-southwest oriented bands within the 5-10 mile ring. Views from valley bottoms, ravines, and the backsides of hills and ridges (11% of the 5-mile radius area and 19% of the 10-mile radius visual study area) are indicated as being fully screened by topography (i.e., no turbines are visible).

Areas of potential nighttime visibility (assuming all turbines are lighted) cover approximately 86% of the 5-mile radius study area (as compared to 85% in the original VIA), and 77% of the 10-mile radius visual study area (Figure 6, Sheet 3 of 6). Potential nighttime visibility occurs in the same general areas where potential daytime visibility is indicated. New FAA guidelines effective February 1, 2007 do not require that all turbines within a wind farm be lighted. The project sponsor anticipates that the FAA will require less than 50 of the 109 turbine to be lighted. This being the case, and because the screening effect of trees and structures has not been considered, nighttime visibility of the project is anticipated to be significantly less than indicated in the topographic viewshed anlaysis.

Factoring vegetation into the viewshed analysis significantly reduces potential project visibility (Figure 6, Sheet 4 of 6). Within the 5-mile radius study area (excluding Canada), vegetation, in combination with topography, will serve to screen the project from approximately 69% of the area (i.e., potential visibility is limited to 31% of the area). Within the 10-mile radius study area vegetation and topography will block views from 83% of the area (17% potentially visible). Visibility will essentially be restricted to open field and wetland areas, which are concentrated in the immediate vicinity of the turbines, as well as a northeast-southwest oriented band on the east side of the study area (from south of Ellenburg Center to north of Ellenburg Deport) and some sizeable areas east of Route 374 in the western portion of the study area. Almost the entire 5 to 10 mile ring (95%) is shown as being screened from view of the Project by vegetation and topography. Most of the sensitive sites within 5 miles of the project are indicated as being screened from view by vegetation and topography, except the hamlets of Churubusco, Ellenburg Corners, and Ellenburg Center, Roxanne Lake, isolated State Forest Preserve parcels, and significant portions of Routes 11 and 189. Sensitive sites within 10 miles, including all Forest Preserve land in the Adirondack Park are indicated as being fully screened from view by vegetation and topography (see large-scale vegetation viewshed map in Appendix B).

The cumulative topographic viewshed analysis of the proposed Marble River and Noble projects (Figure 6, Sheet 5 of 6) indicates that within the area of overlapping 10-mile radius viewsheds, approximately 69% of the area has the potential to see one or more turbines from each project. Areas completely screened from views of all turbines by topography alone are limited to the valleys and backside of hills in the southwestern portion of the overlapping study areas (in the Adirondack Park) and the backside of the ridge in the Canadian portion of the study area to the northeast. Steep ravines and river valleys in the western portion of the study area are also idicated as being fully screened from view by topography. Factoring vegetation into this analysis (Figure 6, Sheet 6 of 6) reduces potential cumulative visibility (i.e., areas where at least one turbine from each project can be seen) to 9% of the overlapping 10-mile study areas. These areas of potential cumulative visibility are concentrated in open fields and wetlands in close proximity to the projects, and in some broader open areas to the northwest and southeast (similar to the results of the vegetation viewshed for the Marble River project alone).

Areas of actual visibility within the visual study area are anticipated to be much more limited than indicated by the viewshed analyses. This is due to the slender profile of the turbines (especially the blades, which make up the top 139 feet of the turbine), their light color, and screening provided by structures, street trees, and hedgerows, which are not considered in the viewshed analyses.

Topographic viewshed analysis of the overhead collection line poles (Figure 7, Sheet 1) indicates that almost the entire area within one-mile of the line (i.e., 97%) could have views of one or more of the proposed poles. The only areas excluded from this viewshed are the back side of some hills/ridges along the Canadian border. Vegetation viewshed analysis of the overhead collection line poles (Figure 7, Sheet 2) indicates that forest vegetation will decrease areas of potential visibility to approximately 38% of the area within a mile of the proposed line (2-mile wide study corridor). These areas are typically open agricultural fields and wetlands that are interspersed with forest throughout the entire corridor.

Revised cross section analysis is generally consistent with the results presented in the original VIA (see Figure 8). Section A-A' is the most different, due to the loss of two turbines along this line. The result is that potential visibility from Jones Road and the hamlet of Churubusco is somewhat reduced. Slight turbine shifts along cross sections B-B' and C-C' do not significantly change visibility as described in the original VIA, and cross section D-D' is completely unchanged. Between 67% (Section C-C') and 94% (Section D-D') of each section shows ground level views being screened by topography, vegetation or structures. Potential project visibility from sensitive sites along the section lines are as described in the original VIA.

Historic sites, Lyon Mountain, and the Gulf State Unique Area were mentioned by several commenters (i.e., NYS Department of Public Service and NYS Department of Environmental Conservation) as requiring supplemental evaluation of project-related visual impacts. Based on the results of supplemental field review it appears the views of the project from these sites will be highly variable. Field review of the Gulf State Unique Area confirmed that views of the proposed project will almost always be screened by topography and/or forest vegetation (see Viewpoints 220-221 in Appendix C). The only exception would be from the very edge of this area where it borders the project site. However, even in this location trees provide partial screening, and lack of public trails or roads limit viewing opportunities.

Views from several locations in the historic Clinton Mills area were also essentially restricted to the open Clinton Mills Road corridor. The same was the case for views from the historic communities of Frontier, Ellenburg Depot, and the potential rural historic districts in the Towns of Mooers and Belmont (see Viewpoints 50, 197-199, and 201-207 in Appendix C). Views from several historic structures identified by JMA (including MR054, MR024-MR028, MR065, MR047, and MR014) were found to be significantly screened.

Sensitive sites with clear views of the project include Lyon Mountain, portions of the Clinton Mills area (including the Ogdensburg and Lake Champlain Railroad), and portions of Ellenburg Center. It is worth noting that unobscured views toward the project site from Lyon Mountain are only available from elevated areas such as the fire tower and large boulder outcrops. The majority of the views to the north from this site are screened by dense conifers (see Viewpoint 196 in Appendix C). As indicated previously, simulations of the project from several of these locations were prepared as part of this SVIA. Simulations were not prepared from sensitive viewpoints where the turbines would not be visible, or where existing simulations better illustrate "worst-case" visual impact from these areas.

Field review also indicated that views of the proposed overhead collection line will generally be limited to sections of Clinton Mills Road, Route 189, Route 11, LaFrancis Road, and Gagnier Road. Screening provided by adjacent trees typically limits views to relatively short sections of the line. Views from Route 11 are essentially restricted to the immediate crossing location. The area of greatest potential visibility appears most likely to occur along Clinton Mills Road (see Viewpoints 201-203 in Appendix C). Publicly accessible views of the proposed substation will essentially be limited to a single location where the existing NYPA transmission line crosses Patnode Road. The existing cleared ROW offers the only view that is not screened by surrounding forest vegetation.

Table 2 summarizes the results of the visibility analyses described above, in regard to aesthetic resources of statewide and local significance. As this table indicates, of the six resources of statewide significance (as defined by NYSDEC Visual Policy) within 5 miles of the proposed project, viewshed analysis, cross sections and field review suggest that three of these (50%) will not have views of the proposed project. The majority of visually sensitive sites with potential project visibility will only have partial views and/or views from limited areas. The degree of potential visibility at these sites is indicated in the large-scale viewshed maps included in Appendix B.

Table 2. Project Visibility From Sensitive Sites

Visually Sensitive Resource[1]	Location	View Point Number[2]	Distance (miles) from Nearest Turbine[3]	Project Visibility[4]			
				Viewshed[5]		Cross Section[7]	Field Review (Simulation View Points)[8]
				Topography	Vegetation[6]		
AESTHETIC RESOURCES OF STATEWIDE SIGNIFICANCE							
National or State Register of Historic Places							
Adironack Forest Preserve	Town of Ellenburg	2, 18, 21-34, 49-51, 56, 153-156, 194-196, 215-216	0.4	PV	PV	PV	PV (VP 34 & 196)
State Parks							
None	-	-	-	-	-	-	-
Urban Cultural Parks							
None	-	-	-	-	-	-	-
State Forest Preserve							
Isolated Forest Preserve Parcels	Towns of Clinton and Mooers	-	0.2	PV	PV	U	U
National Wildlife Refuges							
None	-	-	-	-	-	-	-
State Wildlife Management Areas							
None	-	-	-	-	-	-	-
National Natural Landmarks							
None	-	-	-	-	-	-	-
National Park System Lands							
None	-	-	-	-	-	-	-
National or State Wild, Scenic, or Recreational Rivers							
None	-	-	-	-	-	-	-
Designated Scenic Roads/Byways							
Military Trail Scenic Byway	State Route 37 and U.S. Route 11 between Masena and Rouses Point	11-12, 175-193, 197-198, 208, 211-213	0.2	V	PV	V	PV (VP 179 & 212)

Visually Sensitive Resource[1]	Location	View Point Number[2]	Distance (miles) from Nearest Turbine[3]	Project Visibility[4]			
Designated Scenic Sites/Overlooks							
*Listed below under Adirondack Park Lands and Scenic Vistas	-	-	-	-	-	-	-
State or Federal Designated Trails							
None	-	-	-	-	-	-	-
Adirondack Park Lands and Scenic Vistas							
Adirondack Park	31,000 acres within the southern portion of the Study Area	2, 18, 21-34, 49-51, 56, 153-156, 194-196, 215-216	0.4	PV	PV	PV	PV (VP 34 & 196)
Potential Adirondack Park scenic overlook on County Route 54	Near the Hamlet of Harrington in the Town of Ellenburg	34	1.1	V	V	NV	NV (VP 34)
Adirondack Park Travel Corridors	State Route 190 from the northern park boundary to State Route 374	50	2.2	V	NV	-	-
	State Route 374 from the northern park boundary to Dannemora	50, 51	2.5	PV	NV	-	-
State Nature and Historic Preserve Areas							
None	-	-	-	-	-	-	-
Palisades Park Land							
None	-	-	-	-	-	-	-
Bond Act Properties for Exceptional Beauty or Open Space							
None	-	-	-	-	-	-	-
LOCAL/REGIONAL RESOURCES							
State Forests and Unique Areas							
Gulf State Unique Area	Rock Road, Town of Mooers, adjacent to U.S./Canadian Border	220, 221	0.3	V	PV	U	NV
Parks and Recreational Areas							
Lake Roxanne	Town of Ellenburg	13	4.5	V	PV	U	U
North Branch Great Chazy River	Town of Ellenburg	26, 27, 32, 192, 193, 197, 215	1.2	PV	PV	NV	PV (VP 26)
Blue Haven Campsite	Town of Ellenburg	178	3.9	V	PV	U	NV
Ranch Side Park	Town of Ellenburg	178	3.9	V	PV	U	NV
Chateaugay Fish Hatchery	Town of Chateaugay, Franklin County	-	4	V	NV	-	-

Visually Sensitive Resource[1]	Location	View Point Number[2]	Distance (miles) from Nearest Turbine[3]	Project Visibility[4]			
Lower Chateaugay Lake	Town of Bellmont, Franklin County	51	3.5	NV	-	-	-
Historic Sites[9]							
Clinton Mills	Clinton Mills Road, Clinton County	203-205	0.3	V	V	U	PV (VP 203 & 205)
Frontier	Frontier Road, Clinton County	206, 207	1.0	V	PV	U	PV (VP 207)
O&LC Railroad	Clinton County	205	0.3	V	PV	U	PV (VP 205)
Immaculate Heart of Mary Catholic Church	Churubusco, Clinton County	74	0.5	V	V	V	PV (VP 74)
Churubusco former school house	Churubusco, Clinton County	74	0.5	V	V	V	PV (VP 74)
Churubusco Town Hall	Churubusco, Clinton County	74	0.5	V	V	V	PV (VP 74)
Areas of Intensive Land Use (City, Town, Village, Hamlet)							
Hamlet of Churubusco	Clinton County	74	0.5	V	V	V	PV (VP 74)
Hamlet of Ellenburg	Clinton County	192-193	3.2	V	PV	U	NV
Hamlet of Ellenburg Center	Clinton County	27, 26, 215	1.2	V	PV	PV	PV (VP 26)
Hamlet of Ellenburg Depot	Clinton County	12, 87, 177, 198	4.1	PV	PV	U	NV
Village of Chateaugay	Franklin County	180-183	4.8	PV	PV	U	NV
Hamlet of Brainardsville	Franklin County	50	2.3	PV	PV	U	NV
Hamlet of Rockburn	Quebec Province, Canada	171	3.6	V	U	U	NV
Hamlet of Franklin	Quebec Province, Canada	167	2.0	PV	U	U	NV
Hamlet of Covey Hill	Quebec Province, Canada	160	3.4	PV	U	U	NV
Hamlet of Havelock	Quebec Province, Canada	161	4.4	NV	-	-	-
Village of Saint-Antoine-Abbé	Quebec Province, Canada	164, 165	3.7	V	U	U	PV (VP 165)

Visually Sensitive Resource[1]	Location	View Point Number[2]	Distance (miles) from Nearest Turbine[3]	Project Visibility[4]			
Transportation Corridors							
U.S. Route 11	From State Route 374 in the Village of Chateaugay through the Hamlets of Ellenberg and Ellenburg Depot, to Plank Road.	11-12, 175-193, 197-198, 208, 211-213	0.2	V	PV	V	PV (VP 179 & 212)
State Route 189	From the U.S./Canadian Border through the Hamlet of Churubusco to the junction of U.S. Highway 11, northwest of the Town of Ellenburg.	74-79, 82-86, 209-212	0.15	V	PV	V	PV (VP 210)
State Route 190	From Plank Road through the Hamlet of Ellenburg to the Clinton and Franklin County Line, to State Route 374 outside the Hamlet of Brainardsville.	4, 10, 14-16, 48, 50, 153	0.15	PV	PV	V	PV (VP 15)
State Route 374	From the U.S./Canadian Border through the Village of Chateaugay and junction of U.S. Route 11, to the Hamlet of Brainardsville, along Lower Chateaugay Lake to the Town of Bellmont at the Clinton and Franklin County Line.	50-52, 55, 180, 181	2.4	PV	PV	NV	NV
Le Circuit du Paysan	Southwest portion of the Montérégie Region in the Province of Quebec, Canada between the Richelieu River and Lake Saint-Francis	161-163, 171	1.5	PV	U	U	PV

[1] All resources listed are located within 5 miles of the nearest turbine.

[2] If no viewpoint (VP) number is indicated, no photo was obtained within ¼ mile during fieldwork.

[3] For large areas and linear sites, approximate distance to the nearest turbine was measured from the respective areas closest point.

[4] Project visibility is indicated as follows: V=Visible, PV=Partially Visible, NV=Not Visible, U=Undetermined. A "-" is indicated when previous analysis eliminated potential visibility.

[5] Does not take into account screening provided by structures and street trees.

[6] Vegetation viewshed visibility is undetermined (U) for the portion of the study area located in Canada because the type of vegetation data required are not available.

[7] When cross section visibility is indicated as "NV" and simulation visibility as "V", that is because cross section is determined from a single point, whereas simulation visibility may be from a different location within the resources and accounts for field of view.

[8] Simulation viewpoint is from the nearest open view, not necessarily view from the Sensitive Site itself.

[9] For a complete discussion of historic sites, see Historical Architectural Resources Survey (Traum and Klein, 2007)

Analysis of Existing and Proposed Views

Simulations of the completed project facilities from each of the 19 viewpoints indicated in Figure 9 were used to evaluate project appearance and visual impact. The results of rating panel review of these images in comparison to simulations of the project as originally proposed (for viewpoints previously evaluated in the original VIA), or in comparison to photos of the existing view (for new viewpoints) are presented below. Digital images of the simulations, including animations from Viewpoints 3 and 36 showing the turbine rotors in motion, are included in Appendix D (see attached CD).

PREVIOUS VIEWPOINTS

Viewpoint 3 (Figure 10)

This viewpoint is from Moore Road near the intersection of Route 190 in the Town of Ellenburg, looking north. It is approximately 1.2 miles from the nearest turbine that will be visible in this view. Comparison of the revised simulation to the original simulation from this viewpoint did not result in significant change to the evaluation of visual impact as described in the original VIA. Two panel members indicated no change. However, due to a perceived increase in scale and more noticeable contrast in texture, one panel member indicated an increase in overall contrast. Consequently, the composite score for this viewpoint rose from 3.08 to 3.33. This indicates an overall increase in visual contrast from “moderate” to “moderate to strong” in the revised simulation.

Viewpoint 8 (Figure 11)

This viewpoint is from Gagnier Road near the intersection of Patnode Road in the Town of Clinton, looking south. It is approximately 0.25 mile from the nearest visible turbine. Comparison of the revised visual simulation with the original indicated an increase in perceived scale and density of turbines. Two panel members indicated that the turbines had become a more dominant visual presence, but their scoring did not significantly change the overall evaluation of visual impact from this viewpoint as described in the original VIA. Although the composite score increased from 2.58 to 2.91, it remains in the moderate contrast range.

In their consideration of cumulative simulations of the Marble River project and the two Noble wind power projects from this viewpoint (Figure 20), two of the panel members felt that the incremental

impact was minor. The third panel member noted increasing contrast with land form and viewer activity due to increased turbine concentration or density in this remote view.

Viewpoint 15 (Figure 12)

This viewpoint is from State Route 190 near the hamlet of Ellenburg Corners, looking west. It is approximately 3.8 miles from the nearest visible turbine. Comparison rating of the revised simulation from this viewpoint did not alter the panel's evaluation of visual impact as described in the original VIA.

Viewpoint 34 (Figure 13)

This viewpoint is from Tacey Road near the Adirondack Park boundary and the intersection with County Route 54, outside the hamlet of Harrigan. The view is to the north, approximately 1.1 miles from the nearest turbine that would be visible. Although one rating panel member indicated a minor decrease in contrast with existing vegetation, comparison rating of the revised simulation with the original did not significantly alter the panel's evaluation of visual impact as described in the original VIA.

The rating of the cumulative simulation from this viewpoint (Figure 21) indicates strong project contrast with all landscape elements. Turbines from the two projects dominate the existing view and in the opinion of the rating panel, change the perceived land use. This is consistent with the findings of the original VIA. The revised cumulative simulation from Viewpoint 34 received the highest composite contrast rating in this SVIA.

Viewpoint 38 (Figure 14)

This viewpoint is from the intersection of Campbell Road and Gagnier Road in the Town of Clinton, looking northeast. It is located approximately 0.5 mile from the nearest turbine that would be visible in this view. Aside from noting the presence of a few additional background turbines in the view, comparison rating of the revised simulation did not alter the panel's evaluation of visual impact from this viewpoint as described in the original VIA.

Viewpoint 74 (Figure 15)

This viewpoint is from the intersection of State Route 189 and Clinton Mills Road in the hamlet of Churubusco, looking south-southwest. It is located near the historic Immaculate Heart of Mary Catholic Church, and is approximately 1.6 miles from the nearest turbine that would be visible in this view. Comparison rating of the revised simulation did not significantly alter the panel's evaluation of visual impact from this viewpoint as described in the original VIA.

In their review of the revised cumulative simulation from this viewpoint (Figure 22) the rating panel generally noted minimal contrast with the existing landscape, due to the limited number of visible turbines and their distance from the viewer. Distance and tree screening help to reduce scale contrast. Revision of this simulation did not alter the panels conclusion of minimal visual impact from this viewpoint, as described in the original VIA.

Viewpoint 81 (Figure 16)

This viewpoint is from Liberty Pole Road near the US/Canadian border, looking west-southwest. It is approximately 0.9 mile from the nearest turbine that would be visible in this view. Comparison rating of the revised simulation with the original resulted in a reduction of overall visual contrast from "moderate" (2.92) to "minimal to moderate" (1.75). This is largely attributable to fewer turbines being visible, and the increased distance between the viewer and the closest proposed turbines (0.9 mile versus 0.4 mile in the original VIA). This distance serves to reduce scale and form contrast with all elements of the landscape.

Viewpoint 165 (Figure 17)

This viewpoint is from the intersection of Provincial Route 201 near the Village of St. Antoine-Abbé in the Province of Quebec, Canada, looking south-southwest. It is approximately 4.1 miles from the nearest visible turbine. Although a few turbines appear slightly closer to the viewer in the revised simulation, comparison rating from this viewpoint did not alter the panel's evaluation of visual impact as described in the original VIA.

Viewpoint 170 (Figure 18)

This viewpoint is from the intersection of Clinton Road and Pollica Road near the hamlet of Rockburn, Quebec, looking southeast. It is approximately 2.3 miles from the nearest visible turbine.

Comparison rating of the revised simulation from this viewpoint did not alter the panel's evaluation of visual impact as described in the original VIA.

Viewpoint 179 (Figure 19)

This viewpoint is from U.S. Highway 11 (Military Trail Scenic Byway) near the intersection of State Route 189 in the Town of Clinton, looking east-southeast. It is approximately 1.5 miles from the nearest visible turbine. Comparison rating of the revised simulation with the original resulted in a significant reduction in overall visual contrast from "moderate to strong" (3.25) to "insignificant" (1.0). This can be directly attributed to the removal of a foreground turbine from the view. The increased distance of the closest turbine (1.5 miles versus 0.3 mile in the original simulation) significantly reduces perceived scale contrast with existing landscape features. The rating panel member indicating the greatest decrease in impact noted that the remaining visible turbine has no noticeable impact because its scale is overpowered by the foreground structures, and it is almost totally concealed by vegetative screening.

NEW VIEWPOINTS

Viewpoint 26 (Figure 23)

Existing View

This new viewpoint is from the intersection of Carlson and Hill Road in the hamlet of Ellenburg Center, looking west. It is approximately 2.1 miles from the nearest visible turbine, and is in the vicinity of structures considered by the project cultural resources consultants to be possibly eligible for listing on the National Register of Historic Places. The foreground of this view includes a semi-rural residential area dominated by houses, a paved road edge, and flat mowed lawns. The background consists of a dense band of medium-textured vegetation that straddles the horizon, allowing an ample view of the sky. The landscape recedes from a developed to an undeveloped character but the view is spotted with structures.

Proposed Project

With the proposed project in place, the upper portion of a small number of turbines can be seen above the background tree line. The turbines are generally compatible with the line, texture and scale of existing landscape elements, and are subordinate to the existing structures in the view. This is primarily due to the small number of visible turbines and their distance from the viewer, which results in limited scale contrast in this simulation. The rating panel considered overall contrast to be

minimal from this viewpoint. However, according to JMA, views from this area that include both the project and a historic structure would likely be considered to have an adverse visual effect due to the change in the visual setting of the structure.

Viewpoint 36 (Figure 24)

Existing View

This new viewpoint is from Ryan Road near State Route 190 (Star Road) in the Town of Ellenburg. The view is to the north-northeast from an area that includes several Register-eligible historic structures (including Structure MR033). It is approximately 0.7 mile from the nearest turbine that will be visible in the view. The view in this direction features a large, flat landscape of open farm fields interrupted by spotty hedgerow vegetation. The horizon is banded by forest that appears fine in scale at this distance. The trees partially conceal gentle hills that form an edge with the vast expanse of sky. The sky and the land in this view are characterized by strong horizontal lines.

Proposed Project

With the proposed project in place two turbines appear prominently in the foreground, with numerous additional turbines visible in the mid-ground and background. The foreground turbines in particular present strong contrast with the existing landscape in scale, form, line, color and texture. Turbines visible in the background have a more moderate visual impact, due to their distance from the viewer and atmospheric/sky conditions (gathering clouds low on the horizon) that serve to reduce turbine visibility and contrast. Due to their size and number, the turbines become the dominant elements in this view. Overall contrast was rated as moderate to strong from this viewpoint. According to JMA, this type of view, if it is available from a historic structure, would likely be considered an adverse visual effect due to the significant change in the visual setting of the structure.

Viewpoint 196 (Figure 25)

Existing View

This viewpoint is from Lyon Mountain fire tower, looking north. It is in the Adirondack Park, approximately 11.5 miles from the nearest turbine that would be visible in this view. The photograph of the existing view replaces the “virtual image” included in the original VIA. This viewpoint offers an expansive panoramic view with dark, coarse-textured conifer forest in the foreground. The landscape descends away from the viewer in atmospheric perspective and creates an effect similar to a seascape. Beyond the foreground, the uninterrupted vista includes a smooth textured, undulating plain of forest and fields.

Proposed Project

As in the original VIA, the revised simulation shows the turbines of the proposed Marble River project, along with the proposed turbines from the Noble Clinton and Ellenburg projects. With these three projects in place, this view is not significantly altered. Despite the considerable number of visible turbines, their distance from the viewer, narrow profile, and white color limit visual impact. The presence of the turbines does not alter the openness of this landscape, and their contrast in scale, line, color, form and texture is minimal. Overall, the presence of the turbines does not significantly change the character of the view from Lyon Mountain.

Viewpoint 203 (Figure 26)

Existing View

This new viewpoint is from Clinton Mills Road in the Town of Clinton, looking east. It is approximately 0.1 mile from the nearest portion of the proposed overhead collection line. The view is down a paved rural road in an agricultural landscape. Farm buildings, wire-and-post fences, hedgerows (parallel/perpendicular to the road), and existing utility poles are existing vertical features in this otherwise flat landscape. A mature hedgerow on the viewer's left separates the foreground and mid-ground space and partially screens the mid-ground. A broad expanse of sky is visible, and the line of the roadway draws the viewer's eye away from the center of the view.

Proposed Project

With the proposed project in place, a new level of vertical hierarchy is introduced. The closest pole bisects the sky in the center of the view at a height that surpasses the existing trees and structures. Height contrast and structure visibility are accentuated by ROW clearing that has removed a significant portion of the existing hedgerow. Although the color, line and form of the new structures are consistent with the existing roadside utility poles, the extent of the transmission line that is visible makes it a new focal point in the view. The scale of the foreground poles and addition of the overhead lines contribute most to perceived contrast in this view. However, this contrast was still rated as only low to moderate by the panel.

Viewpoint 205 (Figure 27)

Existing View

This new viewpoint is from the abandoned O&LC Railroad on Clinton Mills Road in the Town of Clinton, looking east. It is approximately 1.05 miles from the nearest turbine that would be visible in

this view. As indicated previously, the hamlet of Clinton Mills and the former railroad appear to have historic significance and may be eligible for listing on the National Register of Historic Places. The landscape in this view is open, flat and relatively uninteresting. A mantle of brushy vegetation is parted by the narrow former railroad grade (at the time of the photo, a snow-covered snowmobile trail) that leads the viewer's eye to the horizon. The level topography and uniform vegetation height create a strong horizontal line, while utility poles, gate posts and a flag add vertical elements to the view.

Proposed Project

An appreciable degree of contrast is apparent with the proposed project in place. The two turbines visible in this view rise above the treetops and extend well into the sky. They contrast with the existing landscape in line, color and form, and indicate a clear change in land use. Their prominence and contrast are accentuated by the open trail, which leads the viewer's eye toward one of the turbines, which becomes the focal point of the view. However, in general the panel did not find the turbines to have a significant adverse visual impact. This can be attributed to the limited interest/aesthetic quality of the existing view as well as the presence of the foreground utility poles which are consistent with the vertical line and perceived scale of the turbines. However, according to JMA, views from this area that include both the project and a historic structure, would likely be considered to have an adverse visual effect due to the change in the visual setting of the structure.

Viewpoint 207 (Figure 28)

Existing View

This new viewpoint is from Frontier Road in the Town of Clinton, looking east-southeast. It is in an area (former settlement of Frontier) that could qualify as a Register-eligible historic district. This viewpoint is approximately 2.4 miles from the nearest turbine that would be visible in this view. The existing view includes a flat, snow-covered open field in the foreground that slopes gently upward to a mid-ground woodlot. Due to their proximity to the viewer, the trees present more of a vertical than horizontal line. They also enclose the view along the entire horizon line and block views of more distant landscape features.

Proposed Project

There is no appreciable visual impact to this view with the proposed project in place. Although the rotor blades of a few turbines are visible among the treetops, the turbines are very well screened, and do not alter the visual character of the landscape in this context.

Viewpoint 210 (Figure 29)

Existing View

This new viewpoint is from State Route 189 in the Town of Clinton, looking southeast. It is approximately 0.16 mile from the nearest portion of the proposed overhead collection line. The view is dominated by a roadside agricultural field in the foreground, with a small cabin-like building sited against the mid-ground backdrop of dense forest. The forest obscures the background and accentuates the feeling of emptiness in this landscape. The broad, clear sky mirrors the flat, horizontal terrain in the foreground.

Proposed Project

With the project in place, the new overhead collection line and a foreground turbine are introduced into the view. The high contrast rating received by the proposed project from this viewpoint is attributable primarily to the wind turbine rather than the overhead collection line. Although the new poles, overhead lines, and cleared ROW are clearly visible, the form, line and color of the overhead collection line present a minimal to moderate contrast with the mid-ground forest. In the open field, their color, vertical line, and man-made form present greater contrast, but impact is limited due to their modest height and slender profile. On the other hand, the scale, color, line and form of the new wind turbine present strong contrast with existing elements of the landscape, and its juxtaposition with the small building appears incongruent.

Viewpoint 212 (Figure 30)

Existing View

This new viewpoint is from the intersection of State Route 11 and State Route 189 in the Town of Clinton, looking southeast. It is approximately 0.05 mile from the proposed transmission line crossing of Route 11. This view features a curved segment of paved rural road accompanied by existing roadside utility lines. A strong edge defined by a wall of thick vegetation on the left creates the feeling of an enclosed corridor. The existing utility lines compete with a centrally-located group of conifers whose color, texture and position provide a focal point in this view.

Proposed Project

With the proposed project in place two tall and complex transmission line structures, and accompanying overhead lines, are added to the view. These new elements are consistent with the character of the existing roadside utility lines, but add visual clutter to the sky. The cleared ROW is perceivable, but due to the angle of the view does not appear to be a significant change. The conifer

trees that used to serve as focal points have been removed, but the sense of an enclosed corridor remains. Although visibility and visual impact would be much greater looking straight down the cleared ROW, from this viewpoint the low to moderate contrast rating did not indicate a significant adverse visual effect.

Viewpoint 217 (Figure 31)

Existing View

This new viewpoint is from Patnode Road in the Town of Ellenburg, looking east-northeast. It is approximately 0.05 mile from the proposed substation, and is really the only location from which open views of this facility will be available to the public. The view is of an open ROW dominated by dormant old field vegetation and patches of snow. The ROW is enclosed by a dark forested backdrop which creates a strong horizontal line and blocks views of more distant features. Existing transmission lines follow the forest edge. The overhead conductors are visible against the sky and add horizontal lines to this view.

Proposed Project

A strong degree of contrast is created with the proposed project in place due to the addition of the substation and two turbines to the view. Despite the prior existence of the transmission lines, the new substation in the foreground introduces an intricate complex of structures that completely transforms the character of the view. The sky, formerly dissected by horizontal lines, is now punctuated by vertical elements as well. The metallic color and mechanical form of the substation components contrast strongly with the natural materials and earth tone colors (including the wooden transmission poles) that dominate the existing view. The new foreground turbine also appears out of character and scale with existing elements of the landscape. The extent of contrast for both the turbine and substation is accentuated by the proximity of these new structures to the viewer and the lack of foreground screening. The overall result is a significant change in landscape character, from rural to industrial, in this view. This simulation received the second highest contrast rating of all those evaluated in this SVIA. However, this impact is reduced by the limited number of open views to the substation and the small number of potential viewers using the seasonal road where these views will be available.

Visual Impact Assessment Rating

An in-house panel of three registered landscape architects (LA) evaluated the visual impact of the revised project, as described in the Methodology section of this report and the original VIA. Utilizing

11 x 17-inch digital color prints of the selected daytime viewpoints (along with digital animations of the simulations from Viewpoints 3 and 36) the rating panel members evaluated the revised and supplemental simulations, assigning each view quantitative visual contrast ratings on a scale of 1 (completely compatible) to 5 (strong contrast). Each panel member's ratings were averaged to get an overall score for each viewpoint, and these scores were then compiled to obtain a composite average for each viewpoint. Copies of the completed rating forms are included in Appendix D, and the results of this process are summarized below.

Table 3. Visual Contrast Rating – Wind Turbines

Viewpoint #	Individual Overall Scores[1] LA 1	LA 2	LA 3	Composite Score
VP 3	3.50	3.50	3.00	3.33
VP 8	2.00	3.25	3.50	2.91
VP 15	1.00	2.75	1.25	1.67
VP 26	1.63	2.00	1.25	1.63
VP 34	3.62	3.25	3.50	3.45
VP 36	4.63	2.75	4.00	3.79
VP 38	3.25	3.25	3.75	3.42
VP 74	1.00	1.75	1.00	1.25
VP 81	1.00	2.00	2.25	1.75
VP 165	1.00	2.50	1.00	1.50
VP 170	1.75	2.50	1.75	2.00
VP 179	1.00	1.00	1.00	1.00
VP 205	3.63	2.50	2.00	2.71
VP 207	1.00	1.00	1.00	1.00
Average	**2.14**	**2.43**	**2.16**	**2.24**

[1]On a scale of 1 (completely compatible) to 5 (strong visual contrast).

Table 4. Visual Contrast Rating – Cumulative Turbine Simulations

Viewpoint #	Individual Overall Scores[1] LA 1	LA 2	LA 3	Composite Score
VP 8	2.00	3.25	4.25	3.16
VP 34	4.50	3.75	5.00	4.42
VP 74	1.00	1.75	1.00	1.25
VP 196	1.00	2.00	1.25	1.42
Average	**2.13**	**1.75**	**2.88**	**2.57**

Table 5. Visual Contrast Rating – Transmission Line and Substation

Viewpoint #	Individual Overall Scores[1] LA 1	LA 2	LA 3	Composite Score
VP 203	2.75	1.75	2.75	2.42
VP 210	4.75	2.50	3.50	3.58
VP 212	1.00	1.50	2.25	1.58
VP 217	4.00	3.50	5.00	4.16
Average	**3.13**	**2.31**	**3.38**	**2.94**

As Table 3 indicates, individual contrast ratings for the revised simulations from the original viewpoints (i.e., Viewpoints 3, 8, 15, 34, 38, 74, 81, 165, 170 and 179) were generally very similar to those reported in the original VIA. Individual scores from the revised simulations ranged from 1.0 (completely compatible) to 4.6 (strong visual contrast). Composite scores for these simulations (i.e., the average of individual rating panel member's scores) ranged from 1.0 to 3.79, with 8 of the 10 original viewpoints (80%) having a composite score below the midpoint of 3.0 on the scale of 1 to 5. These scores are very similar to those from the original VIA, and generally indicate a continued low to moderate level of visual contrast. The lowest contrast ratings (under 2.0) were received by the revised simulations from Viewpoints 15, 74, 81, 165, and 179. The highest composite contrast ratings were received by revised simulations from Viewpoints 3, 34, and 38. The basis for these scores is as described in the original VIA (i.e., revisions to the original simulations did not significantly change the scores or the basis for scoring in these viewpoints). Contrast ratings for two of the revised simulations (Viewpoints 81 and 179) came down significantly (i.e., over one full point). This was directly attributable to relocation of visible foreground turbines farther away from the viewer which decreased scale contrast/turbine dominance in both of these viewpoints.

The new turbine simulations prepared for this SVIA (Viewpoints 26, 36, 205 and 207) also indicate a high degree of variability in potential visual contrast/impact. Individual contrast ratings ranged from 1.0 o 4.63, while composite ratings for these viewpoints ranged from 1.0 to 3.79. The lowest rating was received by Viewpoint 207, and is attributable to the significant tree screening that almost fully blocked views of turbines from this location. The highest rating was received by Viewpoint 36. In this view, the combination of foreground turbines, numerous turbines across the full field of view, lack of other vertical or man-made elements in the view, and lack of any foreground screening resulted in the highest contrast ratings received by any simulation of the Marble River project alone.

Revised and new cumulative simulations (Viewpoints 8, 34, 74, and 196) showed a similarly high degree of variability (see Table 4). Views with a limited number of visible turbines (Viewpoint 74) or

where the turbines were viewed at great distance (Viewpoint 196) received low contrast ratings. Conversely, viewpoints that included numerous turbines at foreground and mid-ground distances (Viewpoints 8 and 34) received high contrast ratings. The cumulative simulation from Viewpoint 34 received the highest score of any simulation evaluated in the SVIA. This is attributable to the number of turbines visible, their relative proximity and expanse across the view, in combination with superior viewer perspective and complete lack of foreground screening. Under these “worst case” conditions, cumulative visual impact will be significant. However, this impact is limited by the relatively few viewpoints within the study area that will offer this combination of factors, and the limited use these sites receive by potential viewers.

Contrast ratings for the overhead collection line and substation views (Viewpoints 203, 210, 212, and 217) indicate that the overhead collection line, on its own, will have low to moderate visual impact. The higher contrast rating received by Viewpoint 210 (see Table 5) relates primarily to the presence of a new foreground turbine in the view. The relatively modest height of the poles and their natural color minimize contrast with existing landform, vegetation, and roadside utility lines. The patchwork of fields, woodlots and hedgerows that characterize the study area minimize the impact of ROW clearing. Forest vegetation and level topography also limit the availability of long distance views of the line or the cleared ROW corridor. The substation, on the other hand, represents a significant visual change. It presents strong contrast in line, color, texture, form and scale with existing features of the landscape, including even the existing 230 kV transmission line. The extent of the visual impact directly relates to the proximity of the proposed substation to the viewer and the lack of foreground screening to block the view. However, this impact is limited by the fact that Viewpoint 217 represents essentially the only open, publicly available view of the substation, and is located on a lightly used seasonal Town road.

The panel's review of the animated simulations from Viewpoints 3 and 36 indicate that movement of the rotor blades did not significantly change the contrast rating received by these simulations. However, their motion, in combination with their scale, did increase the visual impact of foreground turbines in these views.

MITIGATION MEASURES

As described in the original VIA, mitigation options are limited, given the nature of the project and its siting criteria. In accordance with DEC Program Policy, (NYSDEC, 2000) various mitigation measures were evaluated in the original VIA. Beyond those, other potential mitigation measures include the following:

A. Color. The use of naturally weathering Corten steel structures should be considered for the substation. These would match the proposed treated wood collection line poles and blend better with the forest vegetation that provides a backdrop in views of the substation.

B. Screening. Based on rating panel review of the substation simulation, the feasibility of installing screen plantings to minimize the visibility and visual impact of this component of the project should be evaluated. Although the existing ROW may limit the placement and height of any vegetative screening, plantings along the road edge, rather than around the substation perimeter would be most effective in screening views.

C. Relocation. As indicated by the rating panel's overall reaction to the revised simulations, turbine relocation did not significantly alter the visual impact of the project as a whole.

D. Nonspecular Materials. Non-specular conductor will be used on the overhead collection line. Galvanized steel utilized for the meteorological towers and substation equipment will rapidly weather to a non-reflective gray color.

E. Lighting. A proposed turbine lighting plan that proposes to install FAA obstruction warning lights on fewer than 50 of the turbines will help mitigate nighttime visual impacts. In addition, the feasibility of a shading device for the FAA warning lights on the turbines should be evaluated. Lights at the substation should only be turned on when needed (i.e., by switch and/or motion detector).

F. Off-sets. The project cultural resources consultant has recommended some off-set type mitigation for potential visual impacts on historic sites, including the following:

- Identify an existing historic building within the study area which does not presently meet National Register eligibility because it has lost integrity, restore it in accordance with the Secretary of the Interior's Standards, and use it as a project office and/or visitor center.
- Directly undertake or provide financial support for the restoration/maintenance of local historic cemeteries.

CONCLUSIONS

The SVIA for the Marble River Wind Farm largely confirms the conclusions drawn in the original VIA. Revised and additional conclusions are presented below:

1. As in the original VIA, topographic viewshed mapping indicates that the proposed turbines have the potential to be visible from many areas within the visual study area. However, the vegetation viewshed analysis included in the SVIA indicates that only 31% of the 5-mile radius study area, and 5% of the area between 5 and 10 miles from the project site will (excluding Canada) have potential views of the turbines. Within this area, viewshed mapping, cross section analysis, and field review indicate that sites screened by vegetation, structures, and/or topography include forested areas, the backsides of hills, narrow valleys and gorges, and the interior portions of hamlets and villages. Consistent with the findings of the original VIA, most of the sensitive resources within 5 miles from the turbines will be fully or significantly screened from view.

2. The cumulative viewshed analysis for the Marble River and Noble Clinton and Ellenburg projects show that simultaneous views of turbines from these projects will potentially be available in many areas. Areas screened from the projects by topography alone include ravines, valleys, and the back side of hills in the southwestern and western portion of the area (including much of the Adirondack Park). Areas fully screened by vegetation and topography include forested areas as well as valleys and the backsides of hills throughout the study area. Vegetation in combination with topography will screen cumulative views in approximately 91% of the overlapping study areas.

3. Evaluation by the in-house panel of landscape architects indicated that from previously-evaluated viewpoints, the revised project's overall contrast with the visual/aesthetic character of the area will be similar to that reported in the original VIA, and generally low to moderate. The only significant changes (reduction in contrast) were noted in viewpoints where the revised project layout resulted in the removal of a foreground turbine from the view.

4. Of the new turbine simulations prepared for this SVIA, two (Viewpoints 36 and 205) received a contrast score over 2 on the scale of 1 to 5. These simulations received composite scores of 3.79 and 2.71, respectively. Most of the impact from these viewpoints relates to the proximity, number, and/or density of visible turbines, and their contrast with the existing

landscape in terms of line, form, scale, and land use. This is consistent with the findings of the original VIA.

5. Simulations from areas with structures that may be eligible for listing on the National Register of Historic Places (Viewpoints 26, 35, 74, 205 and 207) indicated a wide range of visual contrast, for generally the same reasons described above. According to JMA, these types of views, if available from a historic structure, would likely be considered an adverse effect due to the change in visual setting. However, actual impact on historic sites in these areas are likely to be less than indicated in this evaluation because the viewpoints selected for the development of simulations were the most open and unobstructed in the area. Views to or from the structures themselves typically are at least partially screened by foreground structures or trees.

6. The cumulative simulations from Viewpoints 8, 34, 74, and 196 indicate that cumulative visual impact will be highly variable based on the number of turbines visible and their proximity to the viewer. This is consistent with the findings of the original VIA.

7. Field review and a visual simulation (Viewpoint 196) indicate that from Lyon Mountain, the project will be distant enough that visual impacts should not be significant. This is consistent with findings of the original VIA. It is also consistent with anecdotal observations and 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).

8. Based upon review of overhead collection line and substation simulations, the panel felt that the overhead line, on its own, would have a low to moderate visual impact, while the substation would present strong contrast with the existing landscape. Most of the substation's impact relates to the contrast of the scale, color, and form of the facility components with the existing natural vegetation, the proximity of the viewer, and the lack of foreground screening. This impact is limited by the relatively small number and frequency of viewers along Patnode Road where views of the substation will be available.

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Tables & Figures

Appendix A

Project Components

Appendix B

Large Scale Viewshed Maps

Appendix C

Expanded Photo Log – See Enclosed CD

Appendix D

Digital Simulations – See Enclosed CD

Appendix E

Visual Impact Assessment Rating Forms – See Enclosed CD

Appendix F

Resumes of Involved Landscape Architects