WATKINS GLEN SOLAR ENERGY CENTER

Case No. 19-F-0595

1001.24 Exhibit 24

Visual Impacts

Contents

Tables

Appendices

Exhibit 24: Visual Impacts

24(a) Visual Impact Assessment

This Exhibit will track the requirements of proposed Stipulation 24, February 21, 2020, and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) §1001.24.

In order to determine the extent and assess the significance of the visibility of the Project, a Visual Impact Assessment (VIA) has been conducted (see Appendix 24-1). The VIA includes both quantitative and qualitative identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), and proposed visual impact mitigation. Exhibit 24 provides an abbreviated version of the VIA and addresses the issues presented herein. Please refer to the full VIA in Appendix 24-1 of the Article 10 Application for greater detail.

The Watkins Glen Solar Energy Center (Project) will have a generating capacity of 50 MW and will be located on land leased from an owner of private property in the Town of Dix, Schuyler County, New York. Proposed Project Components include commercial-scale solar arrays, access roads, inverters, fencing, buried electric collection lines, and electrical interconnection facilities.

The proposed collection substation and interconnection facilities within the Project Area is in relative proximity to New York State Electric and Gas' (NYSEG) existing Bath-Montour Falls 115 kilovolt (kV) transmission line. The proposed interconnection facilities will include a 115-kV switchyard, which will be transferred to NYSEG to own and operate.

Solar Arrays: The Applicant intends to utilize a solar module similar to the Jinko Solar Eagle 72HM G2 380–400-Watt Mono Perc Diamond Cell. The Project will utilize a solar tracking array racking system such as the Gamechange Solar Genius Tracker™ System. Technical data sheets for this module and racking system have been included in Exhibit 2 Appendices 2-1 and 2-2, respectively.

Project Collection Substation: The 34.5-kV collection lines within the Project Area will collect electricity from the solar arrays and transport it to a new collection substation. The collection substation, located on the southeastern portion of the Project Area on Kuhl-Winner Way, will step up the voltage to 115 kV.

(1) Character and Visual Quality of the Existing Landscape

The Project is in the Town of Dix, New York. The Visual Study Area (VSA) is a 5-mile radius around the fence line of the solar arrays and includes Schuyler County while the southern portion of the VSA includes Chemung and Steuben Counties. As a result of the larger Study Area under consideration, a number of additional towns are included over that of the Project location in Dix, New York.

Distance Zones are assigned within the VSA as required by Article 10. Currently, Distance Zones of 0.5 miles, 2 miles, and 5 miles are proposed. The towns within the VSA include:

- *Towns Within 0.5-Distance Zone*: Dix.
- *Towns within 2-Mile Distance Zone*: Dix and Orange.
- *Towns within 5-Mile Distance Zone*: Catlin, Dix, Hector, Hornby, Montour, Orange, Reading, and Tyrone.

The Project is within the glaciated Allegheny Plateau. Landform at the site consists of gentle hills and valley toe slopes. The Project is approximately 4.4 miles southwest of Seneca Lake. Ground elevation at the array locations range from 1,530 to 1,690 feet above mean sea level (amsl). Terrain within the VSA trends higher from east to west. In the eastern portion of the VSA in the towns of Dix and Montour is the Seneca Lake and Barge Canal valley location near Route 14 where elevations are 450 to 680 feet amsl. Terrain is highest in the western portion of the VSA within Sugar Hill and Coon Valley State Forests, mainly in the town of Orange where there are steep-sided hills with elevations ranging 1,740 to 2,022 feet amsl.

The landscape in the eastern part of the VSA and in the central portion where the project is located is primarily a rural mix of open farmland mostly consisting of hay-pastureland with several small intermittent blocks of forest groups. However, approximately 0.2 miles east of the Project embedded in the open agricultural section is Watkins Glen International Raceway that provides a commercial recreational activity in the immediate vicinity.

The landscape in the western portion of the VSA is mostly heavily forested consisting of Sugar Hill, Coon Valley, Beaver Dams, and Cinnamon Lake State Forests.

Approximately 1.25 miles to the north is Watkins Glen State Park, which is mostly forested and stretches from the Village of Watkins Glen in an east-west linear fashion, generally following Glen Creek.

North of the Village of Watkins Glen is Seneca Lake, the largest of the Finger Lakes. The southernmost part of the lake is 4.4 miles from the Project. Just south of the lake is Catherine Creek Marsh State Wildlife Management Area. Other than Seneca Lake as the largest water resource in the VSA, there are several creeks in the vicinity that drain to the lake; Glen Creek 1.5 miles to the north and Townsend Creek about 1.3 miles to the north and 0.5 miles to the west. Shequaga Creek meanders 0.5 miles west, 0.8 miles south, and approximately 2 miles east of the site. Catherine Creek runs south-north and is 4.5 miles to the east.

The 2010 populations of the Towns of Dix (3,864), Orange (1,609), and Montour (2,307) that comprise the majority of the VSA reflect the rural nature of the area. The Villages of Watkins Glen and Montour Falls respectively to the northeast are communities with a higher population density but still do not generally exceed 2,000 people.

Landscape Similarity Zones

Landscape Similarity Zones (LSZs) are areas of similar landscape and aesthetic character based on patterns of landform, vegetation, water resources, land use, and user activity. These zones provide additional context for evaluating viewer circumstances and visual experiences. Land cover classification datasets from the 2016 USGS National Land Cover Dataset (NLCD) is available for GIS analysis and was used for an initial establishment of LSZs as they provide distinct and usable landscape categories. These NLCD land cover groupings were then refined based on aerial photo interpretation and general field review. This effort resulted in the definition of four final LSZs within the VSA as depicted in Table 24-1 below, and within Appendix 24-1 (Figure 2 in Attachment 2), and include the following:

Zone 1: Agricultural – Agricultural and open field consists of cultivated crops, hay, or pasture lands. Views from this zone are typically from larger open areas along roadsides and can include homes offset farther from the road that are not included in the Zone 3 Developed category. Frequently there are hedgerows or small tree groups that provide intermittent screening.

Zone 2: Forested – This zone includes mature deciduous and coniferous tree groups. Views from inside the Forested Zone are highly limited since it is assumed that tree canopy precludes outward

views unless there are intermittent gaps in trees. Forested areas may include roadway segments where there are permanent residents.

Zone 3: Developed – This zone includes villages, towns, cities, rural residential abutting roadways, and transportation corridors. The Developed Zone includes the local roadways where rural residential development is intermittently established adjacent and along the existing road network as well as accounting for roadway travelers. Often adjacent buildings in this zone are visual impediments for views as well as roadside vegetation. However, there may be open road corridors with less screening that could afford longer distant views.

Zone 4: Open – This zone includes miscellaneous other open parcels not used for agriculture that may have minor development with less visually obstructive features such as playgrounds, ballfields, or cemeteries as well as other open lands with few visual obstructions such as minor expanses of open water, barren land, land with short scrub shrub vegetation, and emergent wetlands.

Table 24-1 shows the distribution of LSZs at various distances within the VSA: Distance Zone 1 (0–0.5 miles), Distance Zone 2 (0.5–2.0 miles), and Distance Zone 3 (2.0–5.0 miles).

Table 24-1. Percentage of LSZs within 5-Mile VSA

LSZ	Distance Zone 1 0.5 Miles		Distance Zone 2 0.5–2.0 Miles		Distance Zone 3 2.0–5.0 Miles			
	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ w/in VSA	Square Miles	% of LSZ w/in VSA	Total Square Miles of LSZ	Total Percent of LSZ in VSA
Zone 1 Agricultural	1.33	1.38%	4.77	4.93%	18.49	19.10%	24.60	**25.41%**
Zone 2 Forested	1.60	1.65%	10.92	11.28%	49.51	51.14%	62.03	**64.07%**
Zone 3 Developed	0.13	0.14%	0.20	0.21%	1.60	1.66%	1.94	**2.00%**
Zone 4 Open	0.26	0.27%	1.14	1.18%	6.85	7.07%	8.25	**8.52%**
Totals	**3.32**	**3.43%**	**17.03**	**17.59%**	**76.46**	**78.98%**	**96.81**	**100.00%**

Zone 2 Forested is the dominant LSZ found within the VSA, comprising 64.1% of the land area and is the dominant LSZ within all three Distance Zones. Zone 1 Agricultural/Open Land accounts for 25.4% of the total VSA land area. The percentages of Zone 1 and Zone 2 appear similarly distributed within a half mile of the Project. Disparate percentage differences between these two zones begin to occur outside of 0.5 miles from the Project Area. As illustrated on Figure 2 in Attachment 2, LSZs within the Project VSA of 5 miles primarily consists of Zone 2 Forested interspersed with Zone 1 Agricultural areas to the east. The dominant forest lands to the west occur within large tracts of state forest, mainly, Sugar Hill State Forest and Coon Hollow State Forest. Zone 1 Agricultural lands generally exist as smaller parcels consisting of hay, alfalfa, and pasture. Predominant cropland includes corn and minor amounts of soybean. The proposed site itself is mostly open hay pasture with some corn. Forested areas or open road exist adjacent to site boundaries.

There are few Zone 3 Developed areas with few town centers or hamlets within the VSA. Table 1 notes this zone comprises 2.0% of the VSA and is indicative of the rural nature of the study area. The nearest developed parcel is the recreational Watkins Glen International Raceway 0.2 mile to the east, the participating landowner whose land will be utilized for the siting of the Project. The nearest village or hamlet is the Village of Montour Falls which is 3.4 miles to the east, and the Village of Watkins Glen is 3.8 miles to the northeast.

Zone 4 Open category comprises 8.5% of the land area within the VSA and as noted above consists of smaller areas such as playgrounds, ballfields, or cemeteries as well as other open lands with few visual obstructions. Other Zone 4 lands consist of other miscellaneous parcels that include Watkins Glen Golf Course and a few scattered parcels of emergent wetland, or scrubland.

Distance Zones

Distance Zones are based on Project distances to an observer. Three distance zones are applied to the Project: foreground, middleground, and background. Each of these areas will determine the level of detail and acuity of objects. Distance Zones are often identified by the definitions in The US Forest Service *Landscape Aesthetics – A Handbook for Scenery Management* (1995). The effects of distance are highly dependent on the characteristics of the landscape however, size, level of visibility perceived for this particular type of project (solar panels), and panel position in the landscape should also be considered in determining zones. Distance Zones for this Project have been reasonably modified from the US Forest Service Handbook to accommodate the VSA

radius, limitations of human vision and perceptible detail of the low profile of the Project Components, and how much of the Project can actually be seen. Solar panels are not wind turbines or tall buildings; they are of a different character with a low vertical height profile in comparison to other larger objects found in the landscape such as houses, barns, and trees. In addition, the rolling topography in the area could easily act as a visual obstruction for locations farther out. Solar projects typically have lateral breadth but as such, visibility of solar projects in the northeast, because of frequent and highly vegetated narrow ridge and valleys, and dense forest areas surrounding agricultural lands, often do not offer substantial far reaching vistas of many miles. Distance Zones for this project is as follows:

- Distance Zone 1: Foreground (up to 0.5 mile from the viewer). This is the closest distance at which details of the landscape and the solar panels can be seen. Individual landscape forms are typically dominant and individual panel strings and racking system detail may be seen. The concentration of predicted visible areas lies within this zone.

- Distance Zone 2: Middleground (0.5 to 2 miles from the viewer). At this distance individual tree forms and building detail can still be distinguished at for example, 1 mile. The outer boundary of this distance zone however is defined as the point where the texture and form of individual plants are no longer as visibly acute in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distance normally covered by each zone. Solar panels lose their level of detail and are seen as a continuous mass of form and/or color.

- Distance Zone 3: Background (2 to 5 miles from the viewer to the horizon). At the extent of background distances, texture disappears, and color flattens but large light and dark patterns of vegetation or open land due to shape or color are distinguishable; ridgelines and horizon lines are the dominant visual characteristics. Landscapes are simplified and are viewed in groups or patterns. Solar panels can be detected as a distant form and color change but are not as discernible.

Further discussion on the percentages of visibility for each Distance Zone can be found in Appendix 24-1 and in Exhibit 24(a)(2) below.

(2) Visibility of the Project

To understand the locations from which the Project may be visible, a viewshed analysis out to the 5-mile VSA extents was performed to show areas of predicted visibility (see description of methodology in Exhibit 24(b)(2)).

Much of the visibility that is expected occurs within the Project parcels themselves, as the areas within the Project boundary consist of open agricultural land. The panels are set on slightly rolling topography that exists at the site where some are positioned on small hills that then follow contours to lower elevations as well. Although the panels are sited in open areas, the low-profile panels are set against existing tree groups framing portions of the site, which are enough to obscure many views. Because of a 13-foot panel maximum height in relation to mature tree vegetation, views to the west are nearly non-existent as are views to the east, save for a section of Kuhl-Winner Way in the vicinity of the Project between County Road 16 and Heddon Road. Partial views of the Project are expected at Kuhl-Winner Way as well as discrete areas at nearby Watkins Glen International Raceway 0.2 miles to the east. There will be partial and transient views from short segments of County Road 16 to the north as one passes in proximity to the Project. There are some partial views expected at a higher elevation location to the north along Vanzandt Hollow Road. It should be noted that many of these views along County Road 16 and Vanzandt Hollow Road are likely to occur from adjacent open fields not accessible to the public.

Visual changes with respect to the visual resources listed in Table 3 are minimal to none. Within the half-mile Distance Zone 1, Watkins Glen International Raceway, which is 0.2 miles east of the Project may have partial views while Coon Hollow State Forest 0.2 miles to the southwest is heavily forested with no likely views of the Project. Between 0.5 and 2 miles within the Distance Zone 2 is the Finger Lakes Trail and Watkins Glen State Park to the north as well as Sugar Hill and the Six Nations Trail System to the west. None of these resources are expected to have visibility of the Project, although there may be possible views from the fire tower at Sugar Hill State Forest as it is 75 feet high. Remaining resources reside in Distance Zone 3 between 2 and 5 miles where also, there are no expected views of the solar panels. Visual impacts to historic sites are not expected.

From the results of the viewshed analysis with vegetation, the percent visibility of the land area located in the 5-mile VSA is shown in Table 24-2 and discussed below.

Table 24-2. Percent Visibility of the 5-Mile VSA*

Distance Zone	Total Area Comprising Distance Zone (Square Miles)	Visibility Within Distance Zone (Square Miles)	% Visibility Within Distance Zone	% Visibility Within Full VSA
Zone 1 0-0.5 Miles	3.32	1.17	35.14%	**1.21%**
Zone 2 0.5–2.0 Miles	17.03	0.77	4.52%	**0.80%**
Zone 3 2.0-5.0 Miles	76.46	1.64	2.14%	**1.69%**
Total VSA	**96.81**	**3.58**	**3.70%**	**3.70%**

* Results are from the visibility analysis with vegetation

Table 24-2 shows that when considering visibility between Distance Zones, the highest amount of visibility occurs within Zone 1 at 35.1%. This makes sense because there is a concentrated amount of visibility in proximity to the Project within the half mile acreage, much of it within the solar array parcels themselves. There is an abrupt difference once outside of a half mile where visibility for respective Distance Zones trends downward to less than 5.0% as distance increases into the larger acreages of Zones 2 and 3 with increasing vegetative screening. There are approximately 3.6 square miles of total visibility within the entire 96.8 square miles that comprise the VSA; therefore 3.7% of the 5-mile VSA is predicted to experience partial, close, or distant views of the Project.

(3) Visibility of Aboveground Interconnections and Roadways

The proposed collection substation and switchyard have been sited in the southeastern portion of the Project on Kuhl-Winner Way.

Line of Sight (LOS) viewpoints L2 and L3 (Attachment 4 in Appendix 24-1) show that following mitigation, it is expected that there will be short duration and partial views of the upper portion of the collection substation from Kuhl-Winner Way. Vegetative mitigation is proposed on the north, east, and south sides of the station. There is mature forest on the west side. The station site also utilizes an existing tree row located east of the station and the road, thereby mitigating views to the east. Prior to the growth of landscape mitigation that is proposed at the fence line, it is

expected that Project Components such as electrical equipment will likely be visible in the early years north and south of the station and between tree gaps in the eastern tree row facing Kuhl-Winner Way. Expected growth heights of proposed landscaping, depending on tree or shrub, is expected to be between 5 to 15 feet at 5 years. LOS viewpoint L2 shows that at vegetative mitigation growth by 5 years, the upper portions of a proposed 50-foot lightning mast (approximately 18 inches in diameter) or 48-foot dead-end structures may be visible in the near vicinity as the roadway passes by the Project. The lightning masts will be similar in look to other utility poles in the area. However, fully mature heights of the year-round coniferous species may reach up to 40 feet high thereby obscuring views even further.

Roads used to access solar arrays will follow existing farm roads where practicable in order to minimize the need for new roads. The same access roads used during construction will be used during operation of the Project and will be gravel surfaced.

(4) Appearance of the Facility Upon Completion

Photosimulations of representative views showing Proposed Conditions from various compass points around the Project are provided in Attachment 4 of Appendix 24-1.

To create visual simulations, Autodesk 3DS MAX visualization software was used to correctly dimension the Project 3D models into the digital photographic image from each viewpoint location. TRC created the 3D model of the solar layout using engineering specifications obtained from Westwood, the design engineers for the Project. The terrain elevation data (z value) needed to place the panels correctly on the surface of the earth was derived from Light Detection and Ranging (LiDAR) datasets from FEMA Seneca Watershed (2012), provided by the New York State GIS Program Office as point cloud .las datasets. Using the engineering site plan and LiDAR terrain surface data in GIS, each x, y, z coordinate location of each proposed solar array was obtained and imported into Autodesk 3DS Max visualization software including the terrain surface itself. A 3D model of every proposed individual solar array was then physically constructed according to the proposed panel specifications and tilt angle along with the proposed racking system. The proposed tracker arrays were built with a height of 13 feet above ground surface with array axis oriented north-south. Since tracker arrays track and follow the maximum sun angle, they can be facing east, west, or up depending on the time of day. The tracker panel orientations depicted in the simulations and which way they might face was based on the time of day the photo was taken to determine if they faced east or west but then were depicted at their maximum tilt angle to show worse case. In most cases closer to noon, the tracker panels would actually be

more horizontal and parallel to the ground in order to face noontime sun angles. The simulation model was further developed to position the viewer at the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (x, y, z) positions were entered into the model along with other camera information. Reference locations, which are existing visible objects in the photograph such as light posts, building corners, placed stakes, gate posts or utility poles, were used to assist with refined placement of the proposed Project within the photograph as well as other industry standard terrain matching methodologies. The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for the sun angle in the simulation software in order to represent lighting conditions for the time of day and year.

For the landscaping simulations, a CAD version of the proposed landscaping plan obtained directly from the Landscape Architect was imported into the Max modeling environment where subsequently each proposed tree and shrub species was then translated and built into 3D with growth heights set and placed along the Project fence line according to the landscape plan.

(5) Lighting

Lighting is only proposed at the Project interconnection facilities and is only for security, safety, and maintenance purposes; no lighting is proposed within the solar arrays. Details regarding the Project's Lighting Plan are included in the Preliminary Design Drawings in Appendix 11-1. Manually operated security lighting is proposed at the collection substation and switchyard. This plan was developed to minimize fugitive light while meeting lighting standards established by the National Electric Safety Code. The collection substation and switchyard will primarily remain unoccupied. All lighting will be activated manually, turned on by a switch. Lighting will be installed facing downward to minimize potential impacts to the surrounding public. Lighting has been designed to provide a 2.1 foot-candle average, to eliminate unnecessary light trespass beyond the collection substation and switchyard. Lighting will be attached to equipment or pole structure mounted and will not be illuminated during unoccupied periods. The collection substation and switchyard will use full cut-off fixtures and task lighting wherever feasible, as specified in the Lighting Plan. Drop-down optics will not be utilized for the Project.

(6) Photographic Overlays and LOS

In order to simulate the visual changes that are anticipated from introducing the built facilities into the Project Area, high-resolution computer-enhanced image render processing was used to create realistic photographic simulations of the proposed Components from selected viewpoints.

The Project proposes to install tracker racking systems as noted in Section 24(a). The tracker system in all analyses is set at 13 feet above ground surface (the height at maximum tilt).

The following is a summary of the potential visibility to viewers at simulation locations. The complete visual simulations for the Project are provided in Attachment 4 Appendix 24-1.

VP3a Old Joe Road – Dix (LSZ 1,(2); Distance 110 feet)

VP3a is along Old Joe Road, a low-travel local dirt road that runs east-west and parallel with the northern portion of the Project. The viewer is approximately 110 feet from the fence line and looking southerly at the proposed arrays through a small gap between existing dense roadside vegetation that will remain in the proposed conditions. Existing conditions show a couple of open fields through the vegetation gap as well as tall foreground trees lining the road. From this location, the sight line shows a partial view of solar panels. The arrays and fence line that follow the contour are visible and somewhat consistent with the existing horizontal linear patterns found in the view, although there is a new solid shape in close proximity to the viewer. Color contrasts are strongly moderate and although color values are similar to that of existing vegetation, the new sweep of panels that can be seen across the open gap provides a new contrast against the fields. Because the arrays are on a slope close to the road, the horizon line is broken. Due to proximity, the size and scale of the Project is dominant in the view.

VP4 County Road 16 – Dix (LSZ 1,3; Distance 0.26 miles)

VP4 was taken to show a view from one of the more highly traveled roadways in proximity to the Project 0.26 mile away. Panels can be seen along a portion of the hill in the background with partial views of the Project, as existing forested areas block some views as well as topography. The arrays that are visible provide some visual contrast with new form and color introduced into the environment seen at distance, and a color change in the fields between existing and proposed conditions is evident. At the same time, the arrays also appear visually absorbed and somewhat compatible within the existing hillside trees. The arrays are low profile and the new form is also visually compatible with the existing larger horizontal shapes seen in the landscape. The partial

views of the panels at this location are co-dominant in the view since the visual impression of the introduced shape is not overly large or small in the view. Overall Project contrast was rated as moderately weak.

VP6b Kuhl-Winner Way – Dix (LSZ 1; Distance 496 feet)

VP6b photo was taken to represent one of the few proximal clear views that can be obtained from the east and is approximately 496 feet from the Project fence line. There are forested areas along the majority of the eastern side of Baker Hill at the site location (approximately 1,700 feet amsl) and block most views to the east. VP6b is viewing the arrays from the eastern side of the Project looking west at Baker Hill. Under proposed conditions, the higher elevation panels in view are seen at the top of the hill between a gap in the forest. The location of the panels closer to the viewer as they are viewed on the hillslope drops in elevation to around 1,597 feet amsl. The arrays at this distance have moderate discernible detail. Overall Project contrast is moderately weak to moderate. Although the panels are close, they are far enough away to appear compatible with the adjacent tree groups having a similar horizontal shape and line. The panels “fit” within the field and forested area, conform to the flow of the landscape and are low profile without interrupting the skyline significantly. They also appear are compatible in size and color with the background, as the panel color is somewhat visually absorbed by the dark background trees. Due to proximity however, the Project is dominant in the view.

VP12 Baker Hill Road – Dix (LSZ 1,3; Distance 674 feet)

There are few residences in the immediate vicinity, but this VP was taken to assess the potential visibility of the Project from the roadway near a homeowner’s property on Baker Hill Road south of Heddon Road. The road can be partially seen sweeping across the view in the lower part of the photo. The photo is a view looking north approximately 674 feet from the Project fence line. The existing view shows a contrasting pattern of light-colored fields against dark colored tree groups. The proposed panels appear in the middleground within an open, light-colored field. The size and scale of the Project in view show arrays as a narrow band with a horizontal linear flow that conforms to the topography resulting in a linearly compatible shape with the existing landscape. The largest contrast that the Project provides is a lateral breadth of color change from light to dark and some detail can be discerned from this distance. A portion of the Project is offset from the road near the viewer however and provides a color contrast against the existing foreground field color itself and changes the look of the middleground. There are portions of the Project in view in the left of the photo, which are visually absorbed against the existing trees that

the arrays are set against. Although the Project appears somewhat small vertically, it is apparent and dominant in the view because of the color change and proximity to the viewer. Overall Project contrast is rated as strongly moderate.

The Applicant is proposing vegetative screening in this area as depicted on the Landscape Plan drawings included in Appendix 11-1. The mitigation simulation shows plantings on the north side of Heddon Road. Although the landscaping does not block all views at 5 years, with the inclusion of vegetative mitigation, views are moderated as the trees and shrubs are more congruous with the existing environment. The landscape planting also softens the view with natural forms and color in the transition zone between the viewer and the Project. The proposed landscaping also is an enhancement to screen views from motorists on Heddon Road seen running horizontally across the middle ground of the photo. A low number of viewers are expected because of the rural location and few residences. Views of the mitigation for motorists will be intermittent and of short duration while longer duration partial views will be obtained by the resident. Also, in considering the environmental conditions in addition to the Operations and Maintenance Plan with regards to vegetation, several of the year-round coniferous tree species could reach 40 feet at full maturity thereby offering increased screening.

VP13 Heddon Road – Dix (LSZ 1,3; Distance 368 feet)

VP13 photo was taken to assess the visibility of the Project from a homeowner along Heddon Road and to represent a viewpoint from the south on Heddon Road which runs east-west and adjacent to the Project. At this viewpoint, sightlines are unimpeded with roadside open views to the Project approximately 368 feet from the viewer. The tree group in the background and the open field is viewed as large horizontal homogeneous shapes with an existing cell tower nearby.

The proposed Project is seen at a distance from the road and illustrates how road offsets can moderate views, as the size and scale of the arrays is diminished and has a compatibility with the distant mountain range in both size and color and which shows some visual absorption by landscape features. The dark color of the panels and discernible detail against the existing field does show visual change, but the detail is moderate and not strong. Overall, the panels are co-dominant in the view. There will be long duration views held by a nearby resident located behind the viewer. There will be shorter duration views to motorists associated with local or commuter viewer types.

The Applicant is proposing vegetative screening along this area as depicted on the Landscape Plan drawings included in Appendix 11-1. As seen in the simulation with mitigation at 5 years, the proposed trees and shrubs block a substantial amount of the Project. With the inclusion of the proposed vegetation, views are softened and moderated as the trees and shrubs are more congruous with the existing environment as well as providing a reduction in Project color and value contrasts. Also, in considering the environmental conditions in addition to the Operations and Maintenance Plan with regards to vegetation, several of the year-round coniferous tree species could reach 40 feet at full maturity thereby offering increased screening.

VP16b Baker Hill Road– Dix (LSZ 1; Distance 872 feet)

VP16b is a view of arrays from Baker Hill Road from the midpoint of the interior of the Project looking southwest approximately 872 feet away. The existing view shows mostly open land with various farm fields and intermittent distant tree groups. A farm is seen in the far-left background. The proposed panels appear in the middleground to background within open land but is offset from the road which visually minimizes perceived vertical height and detail. The size and scale of the Project has a small low-profile appearance in comparison to the trees that surround the field with a horizontal shape that conforms to the topography. There is a small interruption of the horizon line but most of the Project remains below the tree line. The largest contrast that the Project provides is a lateral breadth of color change from light to dark, however, contrasts are reduced in areas where set against the darker background trees. Also, for this area, the landscape plan proposes a pollinator seed mix to be planted between the road and the arrays as seen in the VP16b simulation. Overall although low-profile, the Project could be considered as co-dominant in the view because of the spatial amount the panels take up in addition to lateral breadth and color contrast.

VP17 Baker Hill Road– Dix (LSZ 1; Distance 846 feet)

VP17 is a view of arrays from the northern end of Baker Hill Road within the interior of the Project looking southwest approximately 846 feet away. The existing view shows open land in the foreground with a tree row in the middleground and a forested ridge in the background. For this area, the landscape plan proposes a pollinator seed mix to be planted between the road and the arrays as seen in the VP17 simulation. The proposed panels are offset from the road and appear behind the middleground trees. The road offset also minimizes perceived vertical height and detail. The size and scale of the Project has a small, low-profile appearance in comparison to the background ridge and does not interrupt the horizon line. Visual color contrasts are generally

mitigated as the Project tends to blend in with the background colors of the vegetation. There is some contrast and visibility obtained in left of photo in the clearing on the hill. But due to the size and the way the panels lay on the land and how the majority is placed behind a row of trees, the Project can be considered as co-dominant in the overall wider view. Overall Project contrast is rated as moderately weak.

VP19 Vanzandt Hollow Road - Dix (LSZ 1,(2),3; Distance 1.4 miles)

VP19 was taken to show a distant higher elevation view looking at the hillsides where the Project is located approximately 1.4 miles away. The viewpoint is at an open point along Vanzandt Hollow Road where there is a view across a valley area to hillside fields south of the VP location. The existing view shows a mosaic-like pattern of light- to mid-toned fields mixed in with darker forest groups. A residence is seen in the photo.

While the level of discernible detail is very low and there are extremely minor horizon line interruptions for proposed conditions, there is a difference in color change noted in some areas by the introduction of the arrays the into the landscape. However, the solar arrays are similar in color and value to that of the trees and Project contrasts are minimized and blend in with the landscape at distance. The placement of the panels in geometric arrangement as well as providing gaps within the arrays is similar and mimics the existing field-forest pattern and line. While not all of the open fields have solar arrays, the lateral extent of the Project occupies a portion of the view and will show a visual change not just in color and pattern, but in size and scale due to distance keeps the Project subordinate in the view. The views from this roadside location will be of short duration for travelers on Vanzandt Hollow Road focused on driving while there may be partial but longer duration views for the residents at areas on their property in the right of the photo. Project contrast for this VP was rated as weak.

VP22 Beaver Dams Moreland Road – Dix (LSZ 1; Distance 2.1 miles)

VP22 photo was taken along Beaver Dams Moreland Road to explore an area of potential visibility at a higher elevation farther to the south (see Figure 4 in Attachment 2). This location has a long view across the adjacent field towards the Project. There will be no views of the Project from this location as it is embedded below the tree line.

LOS

LOS profiles were performed for the collection substation and for the fire tower at Sugar Hill State Forest. LOS analyses are able to provide the viewer with information that assists in examining the reasons why objects such as solar arrays or Project Components may have impeded views or no views. The underlying topography of a sight line in addition to vegetative obstructions can be produced as well as an estimated amount of visibility of the upper portion of an object if it is visible.

LiDAR data obtained for the Project was used for an elevation source. ArcGIS Environmental System Research Institute (ESRI) 3D Analyst was used to produce elevation samples across select sight lines for bare earth topography and for vegetation. Please refer to the profiles in Attachment 4 of Appendix 24-1.

L1 – Sugar Hill Fire Tower, Orange (LSZ 2; Profile Line Length 3.9 miles)

There are few areas beyond the two-mile Distance Zone where there may be views of the Project in public locations. The Project is not expected to be seen from areas within Sugar Hill State Forest itself due to heavily forested terrain and ground level obstruction by trees. There is also a campground within the Sugar Hill Recreation Area. Because of its ground level position, the campground will not have views of the Project either. However, there is a fire tower near the premises that is 75 feet high and accessible to the public. The immediate tower site consists of a small clearing surrounded by mature forested areas. An LOS analysis was performed as there are expected panoramic views over the treetops when in the tower itself. The L1 LOS Profile shows the fire tower situated on higher elevation with a view directed toward the Project at a topographically lower elevation. The profile shows that at least some of the Project will be in view from a far distance of approximately 4 miles. While the Project may be visible, it will occupy only a small sector of an overall 360-degree viewshed. The view is southeast and Watkins Glen International Raceway is directly behind the Project from the tower vantage point so the motor speedway will also be in view alongside the Project.

L2 – Kuhl-Winner Way 1 to Collection Substation, Dix (LSZ 1,3; Profile Line Length 316 feet)

The proposed collection substation and switchyard are sited in an open area approximately 210 feet west Kuhl-Winner Way and 260 feet north of the existing Bath-Montour Falls 115-kV transmission line. The station is proposed where a heavily vegetated forested area lies just to the west and with an existing mature tree row to the east. This tree row is between the station and Kuhl-Winner Way and is expected to block most views to the roadway at eastern points. The areas north and south of the station are not vegetated. The highest proposed components at the collection substation include one static lightning mast within the fence line that will be 32 inches in diameter at the base tapering to 18 inches in diameter at the top with a height of 50 feet and two 48-foot surge arresters associated with dead-end structures. A 12.5-foot-high control building is proposed. The highest switchyard components will be several 48-foot dead-end structures. Vegetative mitigation is proposed along the north, east, and south side of the station. There are no residences in the vicinity. Short duration vehicular views of the collection substation site are expected from road travel at the L2 location. The L2 profile shows the viewpoint at a higher elevation than the station and that by 5 years the mitigation at the fence line will screen the lower components of the station including the control building. Tree and shrub plantings are predicted to reach heights from 5–15 feet by 5 years. As the profile indicates, at 5 years there may be possible views of upper parts of the lightning mast or surge arresters yet will be similar to views of the existing 115-kV transmission line infrastructure. In considering the environmental conditions in addition to the Operations and Maintenance Plan with regards to vegetation, several of the year-round coniferous tree species could reach 40 feet at full maturity thereby reducing the visibility even further.

L3 – Kuhl-Winner Way 2 to Collection Substation, Dix (LSZ 1,3; Profile Line Length 460 feet)

As noted above, the proposed collection substation and switchyard are sited in an open area between tree groups about 210 feet west of Kuhl-Winner Way with highest structures proposed to be 48–50 feet high. Highest proposed Project Components are consistent and compatible with the existing Bath-Montour Falls 115-kV transmission line running east-west that is located approximately 260 feet south of the proposed station. The eastern tree row between the station and Kuhl-Winner Way will block many views from the road for vehicular traffic and other points east. Vegetated mitigation is proposed on the north and south sides as well as in front of the

eastern tree row to block views from existing tree gaps. As the L3 profile in Attachment 4 shows, there will be no expected views to the Project or collection substation from this location.

(7) Nature and Degree of Visual Change from Construction

Visual impacts during construction are anticipated to be minor and temporary in nature. Construction activities for a solar facility are site and project dependent; however, construction of a typical facility would normally involve the following major actions with potential visibility: building/upgrading roads; constructing laydown areas; removing some vegetation from construction; transporting components and other materials and equipment related to the solar site; assembling the solar panels; constructing ancillary structures (e.g., collection substation, fences) and installing power-conducting cables (typically buried). Potential visual contrasts that could result from construction activities include contrasts in form, line, color, and texture resulting from road upgrading; construction and use of staging and laydown areas; vehicular, equipment, worker presence and activity; dust; and emissions.

Construction visual contrasts would vary in frequency and duration throughout the course of construction; there may be periods of intense activity followed by periods with less activity and associated visibility would vary in accordance with construction activity levels. Construction schedules are project dependent. Visual contrasts will be typical of any major construction project to which the public has grown accustomed.

(8) Nature and Degree of Visual Change from Operation

The information in the VIA (Appendix 24-1) can provide an understanding of the particular issues involved in the visual relationship between the Project and its surrounding context. In-depth compilation of computerized analysis results and corresponding discussion is provided in Section 10.0 of Appendix 24-1. The viewshed analysis makes it clear that there is minimal expected visibility (3.7%) within the overall VSA but there would be limited areas from which the Project would be visible and, in contrast, a multitude of areas from which it would not be seen. There are several tree groups surrounding the Project that will block views. There are also attributes of the design of this solar project and its relationship to its particular surroundings that would minimize the Project's impacts as discussed in Exhibit 24(a)(9).

The arrays will be located on parcels of land currently used for agricultural purposes and forested areas. The general visual appearance of the low-profile panels as a group contribute to a homogenous form at distance which consists of a new horizontal pattern similar to the background

forested areas and field edges found in many views. The horizontal shapes en masse in many instances provide a visual flow that is repeated or similar to what is in the landscape as the panels follow the existing contours. Color differences between the Project and the landscape may provide some contrast but will vary throughout the seasons. Overall Project contrast and the overall visual effect will vary depending on the extent of panel visibility (partial or full), distance of the arrays from the viewer, and if the panels are seen in the context of other existing noticeable modifications to the local natural landscape. The Applicant is proposing to install landscaping along portions of the Project to provide screened or moderated views. Landscaping will consist of a variety of evergreen trees and shrubs that will provide year-round screening. Project contrast is anticipated to be avoided or minimized in areas where landscaping is proposed. Contrast may also occur for short durations for travelers in vehicles on roads.

Due to the placement, the collection substation will not be visible from all areas in the vicinity as well as within the overall VSA. The collection substation is 260 feet north of the existing Bath-Montour Falls 115-kV transmission line and is consistent and compatible with the transmission line infrastructure. The highest components of the station include one static lightning mast within the fence line that will be 32 inches in diameter at the base tapering to 18 inches in diameter at the top with a height of 50 feet and two 48-foot surge arresters associated with dead-end structures. A control building is proposed that will be 12.5 feet high. The highest switchyard components will be several 48-foot dead-end structures. LOS analyses show that following mitigation, it is expected that there will be short duration and partial views of the upper portion of the collection substation from Kuhl-Winner Way. Vegetative mitigation is proposed on the north, east, and south sides of the station. The station site also utilizes an existing tree row located east of the station and the road, thereby mitigating views to the east. Mature forest exists on the west side.

Prior to the growth of landscape mitigation that is proposed at the fence line, it is expected that Project Components such as electrical equipment will likely be visible in the early years north and south of the station and between tree gaps in the eastern tree row facing Kuhl-Winner Way. Expected growth heights of proposed landscaping, depending on tree or shrub, is expected to be 5–15 feet at 5 years. However, fully mature heights of the year-round coniferous species may reach up to 40 feet high thereby obscuring views even further.

Other factors assessing the degree of visual change other than percentages of visibility expected (Table 24-2) as a result of the Project can be considered:

- Project Facilities are set back from property lines to reduce visibility and Project contrast.
- Through the use of the efficient solar arrays, the Applicant is able to limit the ground cover required to achieve its objective of a 50 MW generating capacity. Additionally, solar facilities typically result in a minimal amount of ground disturbance for the installation of racking and mounting posts thereby preserving the ability to utilize the land for agricultural purposes in the future following decommissioning.
- The AC collection lines will be placed underground for the entirety of their length and installed primarily via direct burial or trenching with some portions to be proposed via HDD in order to avoid wetland resources.
- While the Project area consists of many pastoral views, landscape features are similar to each other and landscape characteristics are typical of what you would find in a rural area in this part of New York. The Project will not impair these surrounding regional landscape characteristics.
- The Project will not always appear as a dominant feature in a view and due to limited to no long-range visibility and the fact that most visual resources are at distance to the Project, it should not interfere with the general enjoyment of recreational resources in the area.
- The Applicant has employed reasonable avoidance, minimization, and mitigation measures in the overall design and layout of the proposed Project so that it fits reasonably well into the available parcels and landscape.
- Vertical scale is typically not an issue in relation to surrounding features such as trees, hills, and barns. Lateral extent may be an issue if the arrays appear to overwhelm a ridgeline, scenic water body, or cultural feature that appears diminished in prominence. The Project solar arrays, considering their layout, spacing and the topography and resources in the area, do not overwhelm such physical geographic areas.
- Visual clutter often is adversely perceived and commonly results from the combination of human-made elements in close association that are of differing shapes, colors, forms, patterns, or scales. Generally, solar facilities offer simple and uniform or geometrically patterned arrays or groupings that may be more visually consistent than mixed types and sizes of objects. At a distance, the arrays usually appear as a continuous nearly homogenous shape or color following the grade as opposed to randomly scattered objects.
- Aside from normal road traffic, the public areas in proximity to the Facility are not exceedingly high-use destination areas.

- The Project does not have an adverse effect on a known listed scenic vista.
- The Project does not damage or degrade existing scenic resources.
- The Project will not impede the use of recreational activities including Watkins Glen International Raceway (the participating landowner), Watkins Glen State Park, and other state forests listed in Table 24-3.
- The Project does not create a new source of substantial light which would adversely affect nighttime views in the area.
- Panels are designed to absorb sunlight and will be treated with anti-reflective coatings that will absorb and transmit light rather than reflect it. In the case of tracker arrays, the face of the solar panel surface is programmed to follow the movement of the sun.

The Project is not predicted to emit significant glare into the existing environment. In general, solar panels are less reflective than window glass or water surfaces (NYSERDA, 2019) and any reflected light from solar panels will have a significantly lower intensity than glare from direct sunlight (Mass. Department of Energy Resources, 2015).

The Applicant prepared a Glint and Glare Analysis, included as Appendix 24-2 of the Application, to identify any potential glint/glare impacts on nearby residences and roads and the need for any necessary mitigation. The analysis was prepared by Capitol Airspace Group utilizing the Solar Glare Hazard Analysis Tool (SGHAT). The results of the analysis conform to, and are in accordance with, the FAA's interim policy for Solar Energy System Projects on Federally Obligated Airports (78 FR 63271, October 2013), although this policy is only applicable for projects proposing to install solar panels at federally funded airports. SGHAT is a very conservative tool in that:

- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover, and geographic obstructions;
- The glare analysis assumes clear, sunny skies for 365 days of the year and does not take into account meteorological conditions that would nullify predicted glare such as clouds, rain or snow; and,
- Although only a portion of a modeled array may have the potential to produce glare, the results are provided as if the receptor has visibility of the entire array.

The results of the analysis indicate there is no predicted glare for the proposed arrays. Based on the results of the analysis, no significant impacts from glare are expected as a result of the Project. Refer to the VIA and Appendix 24-2 for full details on the glint and glare analysis.

(9) Measures to Avoid, Minimize and /or Mitigate for Visual Impacts

Measures include siting and design and vegetative plantings to help moderate visibility. Landscape buffers have been provided to mitigate visibility of the Project from the few residences where visibility is predicted.

When a solar farm is decommissioned and removed, the land can be returned to other productive use, including farming. In this way, a solar lease can be a way to preserve land for potential future agricultural use. Large-scale solar projects can be made less visible from roads or other public vantage points. Several techniques for minimizing and mitigating visibility from large-scale solar projects can be made; keeping facility components at low profile and locating and designing the site to take advantage of natural topographic and vegetative screening; road setbacks; siting against tree lines; and avoiding use of overhead interconnection lines.

Siting and Design

Current siting is optimized such that attempts to minimize visibility have been created by the placement of the arrays in certain ways. Siting against tree lines as well as setback distances of several hundred feet are effective in reducing visibility.

Siting layout and design considerations that offer mitigation are summarized as follows:

- Use of surrounding woodlands and hedgerows as existing visual barriers as much as possible;
- Panels proposed against background trees to reduce visual contrasts, as color contrasts are absorbed and moderated by the background trees;
- Use of road offsets;
- Use of antireflective coatings on solar panels. Solar photovoltaic panels are also designed to absorb light, not reflect light, and produce minimal glare;
- When employed, tracker technology keeps panels at a 90-degree angle from the sun reflecting any glare back towards the sky;
- General site location placed far from sensitive agency recognized and listed visual receptors;

- The Project has been sited away from the population centers in order to minimize potential visibility by a relatively larger number of viewers;
- The collection substation is located proximal to the existing transmission right-of-way within similar utility infrastructure and for minimally distant new interconnect to the electric grid;
- Vegetative buffers: plantings of native pollinator species are included in the proposed buffer;
- Collection lines have been placed underground to decrease additional aboveground impacts. This configuration allows continued use of the land within the Project Area; and
- Minimized vegetation clearing outside of the arrays.

Vegetative Mitigation

Both the solar arrays themselves and their ancillary components can affect the character of a landscape. From a scenery point of view, methods and techniques of hiding/screening solar facilities can be quite effective. Typically, selected landscaping is chosen to provide year-round screening, provide a long-lived, resilient and dense bank of vegetation, and be a native and/or pollinator species readily available in the area.

The Landscaping Plan for vegetative mitigation can be found in Exhibit 11, Attachment 11-1. The following items and concepts were applied to the plan:

- The Town of Dix Land Use Code and Zoning Law was reviewed to understand how and where to apply visual screening. The screening proposed herein complies with any substantive requirements of that Code.
- Native evergreen and deciduous shrubs and trees as well as pollinator species were chosen for the vegetative barriers. Species chosen needed to reach an adequate height and width to provide visual screening yet not be too high at maturity that could ultimately produce shade over the Project in later years. Deciduous and evergreen tree species include: Downy Shadbush (*Amelanchier arborea*), Balsam Fir (*Abies balsamea*), White Fir (*Abies concolor*), and Black Cherry (*Prunus serotina*). Shrub species include: Red Chokeberry (*Aronia arbutifolia*), Red Twig Dogwood (*Cornus sericea*), Common Witch Hazel (*Hamamelis*), Common Snowberry (*Symphoricarpos*), and Highbush Blueberry (*Vaccinium corymbosum*).

- Per Section J(7) of the Town of Dix Solar Energy Law, the Project Area will be seeded with a native perennial vegetation designed to attract pollinators in order to meet the local substantive pollinator requirement. A minimum of 20percent of the total surface area of the solar panels on the parcel was calculated to be seeded. A full species listing that comprises the pollinator species can be found in Attachment 11-1 of Exhibit 11.
- The planting scheme is generally proposed along the fence line at locations where the Project faces residential locations that do not have existing vegetative screening. Expected growth heights depending on tree or shrub is expected to be between 5 to 15 feet at 5 years. Also, in considering the environmental conditions in addition to the Operations and Maintenance Plan with regards to vegetation, several of the coniferous tree species could reach 40 feet at full maturity thereby offering increased screening.
- Vegetative mitigation is proposed in three main areas.
    - The first area for vegetative plantings is proposed on the east side of Baker Hill Road near at the northeastern portion of the Project. Here the plantings are intended to block views to residences in the vicinity of the corner of Baker Hill and Old Joe Roads.
    - The second area for vegetative mitigation is proposed at the southeast portion of the Project along the north side of Heddon Road. Here the plantings are intended to block or moderate views from a nearby resident on Heddon Road and a resident on Baker Hill Road approximately 500 feet south of the junction with Heddon Road.
    - The third area for vegetative mitigation is proposed on the north, east, and south sides of the collection substation. Mature forest exists on the west side of the proposed station.

(10) Description of Visual Resources to be Affected

Exhibit 24(b)(4) discusses the visual resources in the 5-mile VSA in detail and includes Table 24-3 that indicates the distance zones and the extent the Project is visible from these visual resources. Mapped locations of the resources can be found in Attachment 2 of Appendix 24-1.

24(b) Viewshed Analysis

(1) Viewshed Maps

A viewshed analysis is a computerized GIS analytical technique that illustrates the predicted visibility that may potentially be expected for a project. It allows one to determine if and where

objects, such as a solar array, can geographically be seen within a larger regional area. The viewshed model accounts for topography, vegetation, and the height of the solar panels. The results of the viewshed analysis, typically displayed over a USGS topographic map or aerial photo, are combined with other Article 10 listed visual receptors such as historic places, national forests, or state parks, etc. Incorporating GIS integrated data along with a viewshed analysis assists in understanding the potential for Project visibility at sensitive resource locations. Refer to Attachment 2 of Appendix 24-1 for maps depicting the result of the viewshed analysis.

(2) Methodology

Viewshed analysis out to the 5-mile VSA extents was performed and incorporates tree heights present in the landscape. A viewshed analysis is a computerized GIS analytical technique that illustrates the predicted visibility that may potentially be expected for a project. It allows one to determine if and where an object, such as a solar project, can geographically be seen within a larger regional area. The viewshed model accounts for topography, vegetation, and the height of the solar panels. The results of the viewshed analysis, typically displayed over a USGS topographic map or aerial photo, are combined with other sensitive location information such as historic places, national forests, or state parks, etc. Incorporating GIS integrated data along with a viewshed analysis assists in understanding the potential for project visibility at sensitive receptors.

In areas where available, the analysis used Light Detection and Ranging (LiDAR) data from FEMA Seneca Watershed (2012), provided by the New York State GIS Program Office as point cloud .las datasets. LiDAR data is the best available elevation data for this analysis as it includes high resolution ground elevations in addition to building and individual tree heights that offer realistic physical visual impediments in the landscape, although it was not available in all areas. In remaining areas where LiDAR was not available USGS elevation data was used for ground surface elevations. Forested areas and tree groups were then digitized from current aerial photographs, assigned a height of 45 feet, and then added to the ground surface data. ESRI Spatial and 3D Analyst GIS software was used to develop the viewshed model.

For the analysis, data was controlled within the model to ensure that the vertical offsets of the solar panels were embedded properly against the surface elevation and existing trees. The Project will utilize a tracker array system. For the analysis, the top of the panels was set at a maximum 13 feet in height above ground surface (its height at maximum tilt) and placed within the viewshed modeling environment.

The viewshed model was further developed by establishing an observer height of 6 feet, and the assumption that the Project would not be visible to a viewer who is standing amongst trees in a forested area. The final resulting output identified those areas from which viewers would potentially see all or some part of the proposed solar panels.

Assumptions and Limitations of the Viewshed Model

The viewshed analysis identifies cells (image pixels) that contain elevation information and computes the differences along the terrain surface between an observer in the landscape and a target (e.g., solar panel). The analysis is a clear line-of-sight and therefore certain factors in the interpretation of results need to be considered:

- The model, because of its computerized aspect, assumes the observer to have perfect vision at all distances. Therefore, a certain amount of reasonable interpretation needs to be considered because of the limitations of human vision at greater distances or those atmospheric/meteorological conditions that may cause imperfect vision, such as haze or inclement weather. Additionally, an object is naturally smaller and shows much less detail at distances and will have less visual impact. These aspects cannot be conveyed with this analysis.

- Because an area may show visibility, it does not mean the entirety of the Project will be seen. The viewshed analysis depicts areas of visibility over a regional area. It can only predict geographically on a map, areas where some part of the solar panels might be seen. It does not and cannot determine if it is seeing a full-on view or a partial view. Additionally, if visibility is occurring in an area, it may sometimes only be a result of glimpsing a portion of the Project over undulating treetops between gaps of trees, or visibility of the tops of panels and not a full-on view. Likewise, there may be understory tree gaps where there may be visibility of the Project.

- The viewshed model when trees are incorporated, assumes that any vegetation is opaque and therefore represents a leaf-on condition. Transparency predictions through something similar to bare-branched trees under leaf off conditions cannot be made. A topography-only analysis has been included to help understand some of the visual environment in the absence of trees.

- The model was developed with the assumption that a viewer would not see the panels if standing amongst trees in forested areas as it is assumed the tree canopy would preclude outward looking views.

(3) Viewer Groups Overview

Sensitivity levels are a measure of public concern for scenic quality. Visual sensitivity is dependent upon user or viewer attitudes, the amount of use and the types of activities in which people are engaged when viewing an object. Overall, higher degrees of visual sensitivity are correlated with areas where people live and with people who are engaged in recreational outdoor pursuits or participate in scenic driving. Conversely areas of industrial or commercial use are considered to have low to moderate visual sensitivity because the activities conducted are not significantly affected by the quality of the environment.

These concepts are applied when evaluating the visual landscape and assessing the importance of a viewpoint location if it falls in an area of visibility. Viewer groups and associated responses to visual changes are analyzed from a variety of factors including:

Viewer group – Types of viewers will vary by geographic region, as well as by travel route or use areas, such as a developed recreation site, urban area, or back yard. Viewer groups include:

- *local constituency*: – People living in the local area and/or surrounding communities who interpret the significance of where they live and interact with others; these people may include local residents and members of groups to which the local area is important in different ways.

- *commuter constituency*: – People who use or are generally restricted to travel corridors that are destination oriented towards places of employment. These people generally have transient short duration views.

- *visitor or recreational constituency*: – Individuals who visit the area to experience its natural appearance, cultural landscape qualities or recreational opportunities. Visitors may be of local, regional, or national origin.

Context of viewer – The viewer group and associated viewer sensitivity is distinguished among viewers in residential, recreational/open space, tourist commercial establishments, and workplace areas, with the first two having relative high sensitivity.

Number of viewers – The number of viewers is established by the amount of people estimated to be exposed to the view. In comparing viewing locations to each other, one can consider if the area is a high public use area or if it is a location that is less frequently visited or more inaccessible where the public is not expected to be present (such as marshes or swamps).

Duration of view – Duration of view is the amount of time a viewer would actually be looking at a particular site. Use areas are locations that receive concentrated public-use viewing with views of long duration such as residential back yards. Recreational long duration views include picnic areas, favorite fishing spots, campsites, or day use in smaller local parks. Comparatively, drivers, hikers, snowmobilers, or canoeists will likely encounter a shorter, more rapid transient experience as a person transitions from one linear segment to the next but will encounter more visually varied experiences.

Viewer activities – Activities can either encourage a viewer to observe the surrounding area more closely (hiking) or discourage close observation (commuting in traffic).

(4) Scenic Resources Inventory

An inventory of publicly available and accessible visual resources out to the 5-mile VSA was explored through the acquisition of GIS data, review of town, county, and agency reports, topographic data, and site visits along with photographic documentation. This inventory is intended to address locations that have been officially designated for their aesthetic, recreational, or historic qualities and that are accessible to the public at large as opposed to places that have individual or private importance only. Visual resources within the 5-mile VSA are listed in Table 24-3. Locations of these visual resources can be found in Attachment 2 of Appendix 24-1.

Local, state, and federal visual resources were compiled per Stipulation 24 (b)(5)(ii). This Stipulation states that the viewshed analysis component of the VIA shall be conducted as follows and has guided the resource inventory:

Viewpoint selection will be based upon the following criteria:

> *"significance of viewpoints, designated scenic resources, areas or features (which features typically include, but are not limited to: landmark landscapes; wild, scenic or recreational rivers administered respectively by either the DEC or the APA pursuant to ECL Article 15 or Department of Interior pursuant to 16 USC Section 1271; forest preserve lands, scenic vistas specifically identified in the Adirondack Park State Land Master Plan,*

conservation easement lands, scenic byways designated by the federal or state governments; Scenic districts and scenic roads, designated by the Commissioner of Environmental Conservation pursuant to ECL Article 49 scenic districts; Scenic Areas of Statewide Significance; state parks or historic sites; sites listed on National or State Registers of Historic Places; areas covered by scenic easements, public parks or recreation areas; locally designated historic or scenic districts and scenic overlooks; and high-use public areas;"

Additional locations of local importance were added for recognition as a result of stakeholder outreach efforts. For historic sites, listed National Register of Historic Places (NRHP) and eligible historic properties obtained from NYS Cultural Resource Information System (CRIS) are addressed in this report. Refer to Exhibit 20 of the Article 10 Application for greater detail on cultural resources investigations.

Table 24-3 provides the results of this investigation listing the resources found within the full 5-mile VSA with other information regarding location characteristics such as distances and potential for visibility.

Table 24-3. Inventory of Visual Resources Within the 5-Mile VSA

Resource Name	Distance (Miles)	LSZ	Expected Visibility*	Town
Municipal, County, State Recreation				
Beaver Dams State Forest	3.9	2	N	Hornby, Orange
Catharine Creek Marsh State Wildlife Management Area	4.1	4	N	Dix, Montour, Reading, Veteran
Cinnamon Lake State Forest	4.3	2	N	Hornby, Orange
Clute Park Campground	4.8	3, 4	N	Village of Watkins Glen
Coon Hollow State Forest	0.2	2	N	Dix, Orange
Lafayette Park	4.3	3	N	Village of Watkins Glen
Lakeside Park (Clute Memorial Park)	4.8	4	N	Village of Watkins Glen
Seneca Lake	4.4	4	N	Dix, Reading
Sugar Hill State Forest	1.3	2	N	Dix, Hornby, Orange, Reading, Tyrone
Watkins Glen Golf Course	4.2	4	N	Reading
Watkins Glen International Raceway	0.2	4	Y	Dix

Resource Name	Distance (Miles)	LSZ	Expected Visibility*	Town
Watkins Glen State Park and Campground	1.2	2	N	Dix
Scenic Byway				
Seneca Lake Scenic Byway	5.2	3, 4	N	Hector
Trails, Multipaths, and Bikeways				
Catharine Valley Trail (also part of State Bikeway 14)	4.5	2, 4	N	Montour, Veteran
Finger Lakes Trail	1.3	2	N	Dix, Orange, Reading, Village of Watkins Glen
Six Nations Trail System (and snowmobile trails)	1.8	2	N	Hornby, Orange, Tyrone
State Fishing Rights or Boat Launch				
Catharine Creek (15 easements)	4.5	2, 4	N	Caitlin, Dix, Hector, Montour, Veteran
Local Importance**				
Sugar Hill Fire Tower and Campsite	3.9	2	Possible from fire tower	Orange
Hamlet of Townsend (Jane A. Delano birthplace)	0.4	3	N	Dix
Hamlet of Beaver Dams	2.4	3	N	Dix
Hamlet of Moreland	1.9	3	N	Dix
Maple Grove Cemetery	4.5	4	N	Catlin
Quigley Cemetery	4.6	4	N	Catlin
Savory Cemetery	4.7	4	N	Catlin
Beaver Dams Cemetery	1.9	4	N	Dix
Cooley Cemetery	2.20	4	N	Dix
Greenwood Cemetery	3.9	4	N	Dix
Saint Mary's Cemetery	3.8	4	N	Dix
Townsend Cemetery	0.8	4	N	Dix
Cook Cemetery	4.8	4	N	Montour
Monterey Cemetery	4.9	4	N	Orange
Old Sugar Hill Cemetery	2.8	4	N	Orange

Resource Name	Distance (Miles)	LSZ	Expected Visibility*	Town
Schuyler Cemetery	4.6	4	N	Orange
Sugar Hill Cemetery	2.2	4	N	Orange
County Line Cemetery	3.7	4	N	Reading

Map ID	USN	Resource	Distance (Miles)	LSZ	Expected Visibility*	Town
NRHP-Listed Historic Site						
1	9740.0000020	Schuyler County Courthouse Complex	4.1	3	N	Watkins Glen
2	9740.000191	US Post Office - Watkins Glen	4.2	3	N	Watkins Glen
3	9740.000172	A.F. Chapman House	4.2	3	N	Watkins Glen
4	9740.000143	First Baptist Church of Watkins Glen	4.4	3	N	Watkins Glen
5	9740.0002140	Watkins Glen Grand Prix Course 1948	3.1	2	N	Watkins Glen
6	9742.000002	Brick Tavern Stand	4.6	3	N	Montour Falls
NRHP Historic District						
7	9740.000226	Watkins Glen Historic District	4.2	3	N	Watkins Glen
8	9742.000129	Montour Falls Historic District	4.4	3	N	Montour Falls
CRIS Eligible Historic Site						
NA	9703.000005	Watkins Glen State Park: Pavilion (present Gift Shop)	4.1	3	N	Dix
NA	9703.000006	Suspension Bridge, Watkins Glen State Park	4.1	3	N	Dix
NA	9703.000007	Comfort Station	4.1	3	N	Watkins Glen
NA	9703.000008	South Pavilion	4.1	3	N	Dix
NA	9703.000009	Concession Stand	3.5	1	N	Dix
NA	9703.000010	Hidden Valley Camp	2.8	2	N	Dix
NA	9703.000019	Unknown	3.4	3	N	Dix
NA	9740.000077	Watkins Glen Railroad Station	4.2	3	N	Watkins Glen
NA	9740.000227	Watkins Glen State Park: Concession Stand at lower park entrance	4.1	3	N	Watkins Glen

** Expected visibility is based on viewshed analysis results*

***Resources of Local Importance are recognized as a result of the stakeholder outreach efforts. See Section 24(b)(10).*

(5) Viewpoint Selection

Integrating the results of the GIS resources inventory data along with the viewshed analysis results provided desktop reconnaissance for recognizing areas with potential visibility and identifying candidate locations for photosimulations. While focusing on inventoried locations as listed in Section 6.0, an additional objective in the viewpoint selection process is to also choose locations for simulations that represent the various LSZs as well as Distance Zones. In addition, site field visits are necessary for ground-truthing and increasing the understanding of the visual environment.

Visibility as noted by the viewshed results in Attachment 2 of Appendix 24-1, guided the photo acquisition in selecting candidate locations for simulations viewpoints. The visibility mapping shows the most prominent visibility is within Distance Zone 1 (0.5 miles) of the Project, with some minor predicted visibility in Distance Zones 2 and 3. It is often difficult to obtain representative simulation photos at distance as there are often minimal locations with far reaching views of solar projects in the northeast. Therefore, much of the focus for viewpoint locations are closer to the Project.

As noted in Table 24-3 Visual Resources Inventory, few of the listed visual receptors may experience views of the Project. Attempts to represent all LSZs are typically made; however, obtaining photo viewpoints from a representative forested area is often moot, since there are not expected to be outward views from within a forested area. Most viewpoints then are taken in the remaining two but abundant LSZs which are agricultural open land and developed roads that are closer to the Project. Several viewpoint photos were taken to represent views from residential areas.

On March 2, 2020, an information request was sent out to stakeholders per Stipulation 24 (b)(v) and Stipulation 24 (b)(v)(vi). In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the trees-only viewshed analysis. Opportunity was provided for stakeholders, including local municipalities with predicted visibility of the Project, to suggest additional and reasonable candidate locations for photosimulations. This request to stakeholders

was specific to locations that were publicly accessible. There were no additional requests for simulation viewpoints.

Correspondence is included in Attachment 5 of Appendix 24-1.

In summary, the Applicant has prepared simulations that are representative of the Project with respect to LSZs, inventoried locations, different distance zones as best as Project views allowed, different viewer types, varying lighting conditions, and views that offered as much of a clear unobstructed sightline as possible. Table 24-4 outlines the viewpoints chosen for simulations or lines of sight.

Table 24-4. Summary Table Simulation and LOS Viewpoints

Viewpoint ID	Location	Town	Distance to Fence Line	Landscape Similarity Zone	Comment
3a	Old Joe Road	Dix	110 ft	1, (2)	Nearest adjacent road to the north of Project, northeast end
4	County Road 16	Dix	0.26 mi	1	More well-traveled county road north of site
6b	Kuhl-Winner Way	Dix	496 ft	1	Nearest local road to east
12	Baker Hill Road	Dix	674 ft	1, 3	View from the south near residence
13	Heddon Road	Dix	368 ft	1, 3	View from nearest road to south near residence
16b	Baker Hill Road	Dix	872 ft	1	View from road at interior of project looking SW
17	Baker Hill Road	Dix	846 ft	1	View from road at interior of project looking SW
19	Vanzandt Hollow Road	Dix	1.4 mi	1, (2), 3	View from high elevation at distance from the north
22	Beaver Dams Moreland Road	Dix	2.1 mi	1	View from high elevation at distance from the south
L1	Sugar Hill Fire Tower	Dix	3.9 mi	2	LOS from up in tower Sugar Hill State Forest
L2	Kuhl-Winner Way	Dix	315 ft	1,3	LOS for collector station
L3	Kuhl-Winner Way	Dix	460 ft	1,3	LOS for collector station

(6) Photographic Simulations and LOS

As described previously, photographic simulations were prepared using high-resolution photos with 3D visualization software in order to realistically represent the built facilities from each of the selected viewpoints. The photographic simulations are presented in Attachment 4 of Appendix 24-1 and include locations representative of vantage points around the Project at varying distances and compass points.

Visibility is not relatively extensive in all LSZs or Distance Zones nor is visibility expected at most of the listed Table 24-3 visual receptors and as discussed in Exhibit 24(9)(b). Most simulations then are from locations that the community would experience, which is within agricultural land and travel roadways, and near residences.

LOS analysis was performed for the collection substation and from the fire tower at Sugar Hill State Forest. Results are presented in Attachment 4 of Appendix 24-1.

(7) Mitigation Strategies

Landscape mitigation for visual screening is proposed in numerous areas of the Project. See Exhibit 24(a)(9) for a discussion of mitigation strategies that include siting considerations and vegetative mitigation to reduce visual impacts from the Project.

(8) Visual Impact Rating of Project Photo Simulations

TRC has developed a visual impact rating form for use in comparing Project photosimulations. This form is a simplified version of various federal agency visual impact rating systems. It includes concepts and applications sourced from:

- U.S. Bureau of Land Management (BLM), Handbook H-8431: Visual Contrast Rating, January 1986 (USDOI, 1986).
- Visual Resources Assessment Procedure for U.S. Army Corps of Engineers, March 1988 (Smardon, et al., 1988).
- National Park Service (NPS) Visual Resources Inventory View Importance Rating Guide, 2016 (NPS, 2016c).
- USDA Forest Service, Landscape Aesthetics: A Handbook for Scenery Management. USDA Forest Service Agriculture Handbook No. 701, 1995 (USDA, 1995).

Depending on the Project location, a variety of VIA guidance and established procedures exist as noted above that apply to management of federal lands that fall under a specific agency such as the USFS or BLM. These guidance documents vary in regard to agency-specific rating systems or procedures and often begin with the evaluation of existing conditions such as scenic quality or presence of sensitive resource locations.

TRC has developed this form for efficient and streamlined use with projects that undergo state environmental permitting processes. It is assumed that visual resource inventories, terrain analyses, development of LSZs or viewshed analyses have already been performed in the Project VIA according to state regulatory requirements or other visual policy. This form was developed to be used as a numerical rating system for the comparison of Existing Conditions (before) vs. With Project (after) photosimulations of final selected viewpoint locations and is meant to accompany the Project VIA.

For evaluating visual change there are two parts to the form. Part 1 is the Visual Contrast Rating which rates the Project as it contrasts against compositional visual elements of the viewpoint scene. This includes compositional contrasts against the existing and natural environment such as vegetation, water, sky, landform, or structures. The higher the rating total the higher the contrast. Part 2 is the Viewpoint Sensitivity Rating. This section incorporates the concepts in Section 8.0. It rates the sensitivity of the viewpoint location which inherently considers the importance of the viewpoint (if it falls within a visual resource area), duration of view, if it is a high use area, or if there is the presence of water. The higher the rating total, the more sensitive the viewpoint is. Part 3 does not rate change but is an overall General Scenic Quality of the View which rates the view of existing conditions only, without the influence of the Project. A more in-depth discussion of how Parts 1-3 were rated can be found in the VIA in Appendix 24-1.

Visual Contrast Ratings Results

The VIA in Appendix 24-1 describes the concepts and methodology applied to rating visual change incurred by the proposed Project by evaluating the Project photosimulations. Only the simulations without mitigation were rated to understand contrasts under worse-case conditions. Three panelists evaluated and scored the simulations where there were views of the Project. Panelist 1 has been trained in the visual arts with a B.F.A. with a minor in art history as well as having an environmental background with an M.S. in Soil Science. Panelist 2 is a landscape architect. Panelist 3 has no visual arts study or landscape architecture experience but understands solar projects in addition to the Article 10 process. The raw evaluation forms for each viewpoint can be found in Attachment 7 to Appendix 24-1. However, Table 24-5 below summarizes the final scores and averages for Part 1 Visual Contrast, Part 2 Viewpoint Sensitivity and Part 3 Existing Scenic Quality. Here, trends of contrast ratings where those VP locations that are considered to have the highest or lowest visual change in relation to each other can be obtained. Mean deviations are also calculated to gauge the variation between each of the panelists.

Table 24-5. Visual Impact Rating Results Summary

VP	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	Mean Dev* Part 1	Avg Part 2	Mean Dev* Part 2	Avg Part3	Mean Dev* Part 3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3						
3a	Old Joe Road	18	2	1	21	4.5	1	18.5	1	0.5	19.2	1.2	2.5	1.3	0.8	0.2
4	County Road 16	12	3.5	2	9.5	5	1.5	9	5	1.5	10.2	1.2	4.5	0.7	1.7	0.2
6b	Kuhl-Winner Way	13	2.5	2	20	5.5	1	10.5	3	1	14.5	3.7	3.7	1.2	1.3	0.4
12	Baker Hill Road	13.5	3	2	12.5	5.5	1.5	19.5	4	2	15.2	2.9	4.2	0.9	1.8	0.2
13	Heddon Road	16	5.5	1	16.5	5	1	16	5.5	1	16.2	0.2	5.3	0.2	1.0	0.0
16b	Baker Hill Road	13.5	2	2.5	12.5	5	1	17.5	8	1.5	14.5	2.0	5.0	2.0	1.7	0.6
17	Baker Hill Road	8	1	2	12	5	1	17.5	8	1	12.5	3.3	4.7	2.4	1.3	0.4
19	Vanzandt Hollow Road	10.5	5.5	2	8.5	6.5	1.5	5	6.5	1.5	8.0	2.0	6.2	0.4	1.7	0.2

Mean Dev = Mean Deviation

Part 1 Contrast Rating

Part 1 Contrast rates proposed visual change with respect to compositional elements such as newly introduced line, shape, color, project scale, broken horizon lines, etc. Under Part 1 there are nine categories to rate, where the total rating ranges from 0 to 27 with the rating scale as thus:

Contrast Rating Scale	
0	None
4.5	
9	Weak
13.5	
18	Moderate
22.5	
27	Strong

The viewpoint with the highest Part 1 Contrast is 3a on Old Joe Road with a strongly moderate rating of 19.2. This location is closest to the site of the simulations and shows the viewer 110 feet from the Project fence line. Only a very small portion of the Project is visible through a tree gap in the road but shows new form, color, line, and texture contrasts of discernible detail due to distance to the viewer compared to what is currently there.

The next highest contrast groupings that are similarly assigned drop to a weak to moderate average contrast rating of 14.5 (VP6b and 16b), 15.2 (VP12), and 16.2 (VP13). Although assigned ranks are near the same range on the scale, the VP rating drops likely due to the effects of road offsets and viewing distances. VP13 is 368 feet away, VP6b is 496 feet way, VP12 is 674 feet away, and VP16b is 872 feet away. Each of these simulations also shows trees in the background where the Project color and contrast appear to be visually absorbed.

VP17 and VP4 contrast values are even lower and closer to the weak rating with average ratings of 12.5 and 10.2 respectively. While VP17 is nearly at the same distance as VP16b, VP17 results in a lower rating by 2 points likely because there is more of an existing vegetative buffer in front of the arrays blocking some of the panels. VP4 is weak because of distance, at 0.26 miles (1372 feet) from the viewer. Each of these views has some level of vegetative obstruction while arrays that are visible have a similar color to the adjacent tree groups. Also, as distance from the Project increases especially for VP4, discernible detail decreases greatly at that viewing distance.

VP19 results in the lowest average contrast, rated as weak at 8.0. This is likely attributed to distance as the Project is 1.4 miles away. Although VP19 is at a higher elevation to the north

where there is a view of the arrays on parts of a hillside there appeared to be a general consensus among the panelists that a weak rating was applied because the color and scale of the arrays are uniform with the existing trees hillside, as well as mimicking the vegetative pattern.

Mean deviations were calculated to observe the level of variance between the panelists within each simulation evaluation. Mean deviations ranged between 0.2 and 3.7. It appears panelist opinion varied the most regarding contrast changes when assessing VPs 6b, 12, and 17. For VP 6b two panelist rated contrasts as moderately weak while one panelist rated the visual change as strongly moderate. Again, for VP12, two panelists rated the contrast similarly (weak to moderate) while the third panelist rated the contrast as strongly moderate. For VP17 one panelist rated the contrast as weak, a second panelist rated the contrast as moderately weak, while the third panelist rated the contrast closer to moderate.

Part 2 Viewer Sensitivity

There are eight categories to rate under Part 2, where the total rating ranges from 0 to 24 with a rating scale as thus:

Contrast Rating Scale	
0	None
4	
8	Weak
12	
16	Moderate
20	
24	Strong

Part 2 takes into account viewer sensitivity, in particular if the VP falls within or has a view of an existing visual receptor as well as the character of viewer groups such as number of viewers, duration of view, presence of existing development, etc.

Since Table 2 indicates minimal to no views of the Project will occur at the listed visual receptors, most of the viewer sensitivity issues focus on viewer groups related to the community travelers or residents. All viewer sensitivity ratings for the Project simulations were rated as weak as there were no views that were considered to be recognized as being highly unique to the area nor do the simulations have the presence of water within the view. The highest Part 2 viewer sensitivity is at VP19 with a rating of 6.2. It is weak rating but is likely rated highest in the group because of

its higher elevation view from an open roadway near a residence towards a hillside location with a more long-range panoramic view over other viewpoints.

VPs 13 and 16b resulted in average ratings of 5.3 and 5.0.

VPs 4, 12 and 17 were somewhat similar with an average sensitivity rating from 4.2 to 4.7.

VP6b had an average sensitivity rating of 3.7 while VP3a was rated as 2.5.

Simulation views were along roadways looking towards the Project in an open field and some were on the road near residences. Generally, the small differences between the weak ratings were due to varying degrees of opinion regarding the duration of view (near a resident or how far from the nearest resident or with transient vehicular views) or numbers of viewers (remote local rural road vs. a county road).

Mean deviations for Part 2 Viewer Sensitivity do not show a lot of variance between panelist opinion for six of the simulations, with ratings ranging between 0.3 and 1.3. This can be somewhat expected as the Part 2 categories are less subjective than Part 1. In the case of the six simulations viewing circumstances were similar but there were slight differences on how panelists rated their opinion regarding the presence of development or view duration and numbers affected viewer sensitivity. Two simulations, VP16b and VP17 have the highest mean deviation at 2.0 and 2.4, respectively where opinions on view duration and numbers of viewers varied more than the other six viewpoints.

Part 3 Scenic Quality

Part 3 Scenic Quality is a standalone single rating that assesses the overall scenic quality of the VP's existing conditions (see also Attachment 6). Here there is no evaluation of visual change but a simple appraisal of the scenic quality of the view. A rating of 1 is weak; 2 is moderate; 3 is strong.

There were no VPs where scenic quality was rated as moderate or strong. Although there are views of open fields with forested tree groups, panelists felt the views were average and typical of the area and by comparison to each other did not show much variety between views or provide dramatic features such as high mountains, rock formations or water. VP12 was rated highest with an average scenic quality value of 1.8. It is likely the highest because of the remote nature of the viewpoint without many landscape alterations appearing in the view. Remaining VPs have

average ratings between 0.8 to 1.7. Overall, the ratings indicate weak or moderately weak scenic quality indicating that either views are not outstanding according to criteria in Attachment 6 and/or are typical of the area.

Mean deviations for Part 3 are comparatively very low, ranging between 0.0 and 0.6. This suggests the panelist's opinions on scenic quality regarding each viewpoint were very similar.

(9) Visible Effects Created by the Project

As applicable to the proposed Project technology and as part of this Application, the comprehensive VIA examined the overall appearance, operational characteristics, and general visible effects of the Project by means of computerized GIS viewshed and terrain analysis and with the use of specialized 3D visualization software. Viewshed analyses results are mapped for illustrating geographic locations of predictive visibility as well as having used resultant data to quantify and compare amounts of visibility within varying parameters such as Distance Zones, LSZs, and sensitive receptors. More descriptive and qualitative assessments of the proposed Project was further provided with photo simulations that show comparisons between existing conditions and conditions with the Project.

Portions of the VIA have been discussed in previous sections; however, refer to Appendix 24-1 for the full detailed VIA.

The viewshed analysis concludes that 3.7% of the land area within the VSA expects some level of full or partial views of the Project where there would be some areas from which the Project would be in view and, in contrast, a multitude of areas from which it would not be seen. There is existing topography and many tree groups surrounding the Project that will block views. There are also significant attributes of the design of this solar project and its relationship to its particular surroundings that would minimize the Project's impacts as discussed in under 24(a)(9). Refer to 24(a)(8) for a discussion on the nature and degree of visual change during operation of the Project.

Article 10 Resources

Visibility is not relatively extensive nor is visibility of the Project expected in nearly all of the listed Table 24-3 visual receptors. Those resources that may experience some level of visibility per viewshed results include Watkins Glen International Raceway 0.2 miles to the east and likely when up in the Sugar Hill Fire Tower located in Sugar Hill State Forest. The tower is 3.9 miles to

the northwest. Watkins Glen International Raceway is not likely to have full views of the project but is predicted to experience partial and limited views in small localized areas.

While not classed specifically as an agency-listed scenic resource, it is recognized that few local town residents will see the solar arrays. A small amount of roadway traffic will experience views of the Project in varying locations noted in the Appendix 24-1, Attachment 2 visibility maps.

(10) Outreach to Visual Stakeholders

On March 2, 2020, an information request was sent out to stakeholders per Stipulation 24 (b)(v) and Stipulation 24 (b)(v)(vi). In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the trees-only viewshed analysis. Opportunity was provided for stakeholders, including local municipalities (those within the 5-mile Study Area with predicted visibility of the Project) to suggest additional and reasonable candidate locations for photosimulations or append additional visual resources of concern to the inventory. This request to stakeholders was specific to locations that were publicly accessible. The stakeholder response and requests were as follows:

- DPS requested additional electronic files for their review in March 2020. There were no additional requests or comments thereafter.
- In March 2020, the Town of Dix Historian responded by requesting the recognition of the Sugar Hill Fire Tower and campsite, nearby hamlets, the Second Watkins Glen Raceway of the 1950s, and area cemeteries. This requested was fulfilled and has been incorporated into Table 24-3 Inventory of Visual Resources Within the 5-Mile VSA and noted in the Appendix 24-1 Attachment 2 mapping.

Correspondence can be found in Attachment 5 of Appendix 24-1.

References

Finger Lakes Land Trust. Website. Accessed January 2020. Available at: https://www.fllt.org/.

The Finger Lakes Trail Conference. Finger Lakes Interactive Trail Map. Accessed January 2020. Available at: https://fingerlakestrail.org/plan-hikes-finger-lakes-trail/interactive-trail-map-segmented/.

Massachusetts Department of Energy Resources. June 2015. Clean Energy Results - Questions and Answers: Ground-Mounted Solar Photovoltaic Systems.

Multi-Resolution Land Characteristics Consortium. USGS 2016 National Land Cover Database. Accessed September 2019. Available at: https://www.mrlc.gov/.

National Park Service (NPS). Find a Park in NY. Accessed January 2020. Available at: http://www.nps.gov/state/ny/index.htm.

NPS. National Natural Landmarks in New York. Accessed January 2020. Available at: https://www.nps.gov/subjects/nnlandmarks/state.htm?State=NY.

NPS. National Register of Historic Places. Accessed February 2020. Available at: https://www.nps.gov/subjects/nationalregister/data-downloads.htm.

NPS. Nationwide Rivers Inventory. Accessed February 2020. Available at: https://www.nps.gov/ncrc/programs/rtca/nri/states/ny.html.

National Recreation Trails (NRT). The National Recreation Trails Database. Accessed January 2020. Available at: http://www.americantrails.org/ee/index.php/nationalrecreationtrails.

National Wild and Scenic Rivers. Explore Designated Rivers. Accessed January 2020. Available at: https://rivers.gov/map.php.

New York State Department of Environmental Conservation (NYSDEC). New York's Forest Preserve. Accessed January 2020. Available at: http://www.dec.ny.gov/lands/4960.html.

NYSDEC. List of State Forests By Region. Accessed January 2020. Available at: http://www.dec.ny.gov/lands/34531.html.

NYSDEC. Critical Environmental Areas. Accessed January 2020. Available at: http://www.dec.ny.gov/permits/6184.html.

NYSDEC. New York State Boat Launching Sites for Seneca and Cayuta Lake. Accessed December 2019. Available at: https://www.dec.ny.gov/docs/fish_marine_pdf/sencayutalksbls.pdf.

NYSDEC. State Lands Interactive Mapper. Accessed January 2020. Available at: https://www.dec.ny.gov/outdoor/45415.html.

NYSDEC. Western New York Public Fishing Rights Maps. Accessed January 2020. Available at: https://www.dec.ny.gov/outdoor/9924.html.

NYSDEC. Wild, Scenic and Recreational Rivers. Accessed January 2020. Available at: http://www.dec.ny.gov/permits/32739.html.

New York State GIS Program Office (NYGISPO). Public Fishing Rights. Accessed January 2020. http://gis.ny.gov/gisdata/

NYGISPO. Scenic Areas of Statewide Significance. Accessed January 2020. Available at http://gis.ny.gov/gisdata/.

NYGISPO. NYDEC Lands. Accessed January 2020. Available at http://gis.ny.gov/gisdata/.

New York Natural Heritage Program (NYNHP). New York Protected Areas Database. Accessed January 2020. Available at: http://www.nypad.org/

New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP). State Parks. Accessed January 2020. Available at: https://parks.ny.gov/parks/default.aspx.

NYSDOT. Bicycling in New York. Accessed January 2020. Available at: https://www.dot.ny.gov/bicycle.

NYSDOT. New York State Scenic Byways. Accessed January 2020. Available at: https://www.dot.ny.gov/scenic-byways.

NYSERDA. New York Solar Guidebook for Local Governments. 2019. Available at: https://www.nyserda.ny.gov/All%20Programs/Programs/Clean%20Energy%20Siting/Solar%20Guidebook.

NYSOPRHP. Cultural Resource Information System (CRIS). 2016. Available at: https://cris.parks.ny.gov/ Accessed February 2020.

NYSOPRHP. Heritage Areas. Accessed January 2020. Available at: http://nysparks.com/historic-preservation/heritage-areas.aspx.

NYSOPRHP. Trails. Accessed February 2020. Available at: http://www.nysparks.com/recreation/trails.

Smardon, R.C, Palmer, J.F, Knopf, A. and Girinde, K. 1988. Visual Resources Assessment Procedure for US Army Corps of Engineers. Department of the Army.

Sullivan, Robert and Jennifer Abplanalp. 2013. Utility-Scale Solar Energy Facility Visual Impact Characterization and Mitigation. U.S. Department of Energy's Argonne National Laboratory.

Town of Dix Comprehensive Plan. 2001.

United Stated Department of Agriculture (USDA), National Forest Service (1995). Landscape Aesthetics, A Handbook for Scenery Management. Agricultural Handbook 701. Washington, D.C.

United States Department of the Interior (USDOI). 2013. Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands. Bureau of Land Management. Cheyenne, Wyoming.

USDOI. 1986. Bureau of Land Management. Handbook H-8431: Visual Contrast Rating.

USDOI. 1980. Bureau of Land Management. Visual Resource Management Program. U.S. Government Printing Office. 1980. 0-302-993. Washington, D.C.

United States Department of Transportation (USDOT). America's Byways. Accessed March 2019. Available at: https://www.fhwa.dot.gov/byways/states/NY

United States Fish and Wildlife Service (USFWS). 2019. National Wildlife Refuge Locator. Available at: https://www.fws.gov/refuges/refugeLocatorMaps/NewYork.html. Accessed January 2020.