SOMERSET SOLAR, LLC

MATTER NO. 22-00026

§900-2.9 EXHIBIT 8

Visual Impacts

CONTENTS

TABLES

APPENDICES

Acronyms List

§	Section
Applicant	Somerset Solar, LLC
BLM	Bureau of Land Management
DEM	Digital Elevation Models
FAA	Federal Aviation Administration
Facility	Somerset Solar Facility
Facility Site	the approximately 696-acre limit of disturbance for the Facility
Facility Substation	Somerset Collector Substation
ft	feet/foot
gen-tie	generation interconnection
GIS	geographic information system
kV	kilovolt
LSZ	Landscape Similarity Zone
NESC	National Electrical Safety Code
NLCD	National Land Cover Dataset
NRHP	National Register of Historic Places
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OSHA	Occupational Safety and Health Administration
PV	photovoltaic
SRHP	State Register of Historic Places
SWDA	Solid Waste Disposal Area
USFS	United States Forest Service
USGS	United State Geological Survey
VIA	Visual Impact Assessment
VSA	Visual Study Area, consisting of a 2-mile radius around the approximately 1,396-acre Project Site

Glossary Terms

Applicant	Somerset Solar, LLC, a subsidiary of The AES Corporation, Inc. (AES), the entity seeking a siting permit for the Facility Site from the Office of Renewable Energy Siting (ORES) under Section (§) 94-c of the New York State Executive Law.
Application	Application under §94-c of the New York State Executive Law for review by the ORES for a Siting Permit.
Facility	The proposed components to be constructed for the collection and distribution of energy for the Somerset Solar Facility, which includes solar arrays, inverters, electric collection lines, and the collection substation.
Facility Site	The limit of disturbance (LOD) that will be utilized for construction and operation of the Facility, which totals about 696 acres on the Project Parcels in the Town of Somerset, Niagara County, New York (Figure 2-1).
Project Parcels	The parcels that are currently under agreement with the Applicant and Landowner, totaling about 1,784 acres in the Town of Somerset, Niagara County, New York, on which the Facility Site will be sited (Figure 3-1).
Project Site	The acreage of the Project Parcels under agreement between the Applicant and the Landowner, consisting of approximately 1,396 acres, in which the Applicant has performed diligence, surveys and assessments in support of Facility design and layout.

EXHIBIT 8 VISUAL IMPACTS

This exhibit addresses the requirements specified in 19 New York Codes, Rules and Regulations (NYCRR) Section (§) 900-2.9 regarding visual impacts.

The Visual Impact Assessment (VIA) determined that visual impacts from the Somerset Solar Facility (Facility) are minimal to the local community, residents, and protected or aesthetically valuable resources. Local stakeholders were consulted over the course of this analysis regarding potentially affected views, including the identification of sensitive sites and areas, including the Town of Somerset and representatives of the Babcock House (Appendix 2-D) to request input on the key observation points included in the VIA and proposed screening. A list of key observation points chosen for inclusion in the VIA, and bare earth and vegetated viewshed maps also were provided to the Office of Renewable Energy Siting for comment on November 16, 2022. Following communication with the Town of Somerset, adjacent residents, and the Office of Parks, Recreation and Historic Preservation, Somerset Solar, LLC (Applicant) has developed a landscaping plan that includes installation of primarily evergreen species along portions of the Facility to screen views from New York State (NYS) Route 18/Lake Road, the Babcock House Museum, and nearby residences along Niagara County Route 108/Hartland Road and Niagara County Route 65/Hosmer Road. A glare study completed for the Facility identified a de minimis amount of green glare would occur. No yellow or red glare is predicted to occur from the modelling results.

This exhibit provides a detailed summary of conclusions as a result of the VIA, which is included as Appendix 8-A. The VIA included a Visual Study Area (VSA) consisting of a 2-mile radius around the approximately 1,396-acre Project Site. Overall, the VIA determined that visibility of the arrays would occur on less than 21.7 percent of the land area within the VSA. There are areas from which the Facility would be visible, but there are a multitude of areas from which it would not be visible. Overall cumulative effects from the Facility vary but do not appear to be prominent due to the natural low profile of the panels. The Applicant is proposing to install landscaping along portions of the Facility to provide nearby residences with screened views. The Facility has been designed to comply with local laws relevant to visual minimization, 19 NYCRR §900-2.9 and the Uniform Standards and Conditions. Visual impacts have been avoided and minimized to the maximum extent practicable.

8(a) Visual Impact Assessment (VIA)

The setting for the proposed Somerset Solar Facility (Facility) can generally be characterized as a mix of industrial, agricultural and rural residential land uses situated along the southern shore

of Lake Ontario in the Town of Somerset. The Facility Site, or limit of disturbance, consists of 696-acres located on the north and south of NYS Route 18/Lake Road. The northern half of the Facility Site, located north of NYS Route 18, includes areas to be repurposed that previously supported the former coal plant (Somerset Station), including a coal storage pile, a coal ash landfill (Solid Waste Disposal Area [SWDA] II), and portions of a rail line and railroad tracks that were used to transport coal to the former coal plant (Figure 3-11). The existing Kintigh Substation is located on the Project Site and will serve as the point of interconnection for the Facility. The industrial influence of the former coal plant on the character of the neighborhood has been a dominant feature in this area of the Town of Somerset since the 1980s when the coal plant was constructed, including the coal plant's 613-ft smokestack (and plumes) which could be seen from as far away as the City of Buffalo. Areas of the Facility located south of NYS Route 18 are owned by the former coal plant operator, but consist primarily of rural residences, agricultural lands, the New York State Electric and Gas Corporation transmission line corridor (that connects to Kintigh Substation) and a segment of the railroad line that connects to the former coal plant.

A VIA was conducted for the Facility to determine the extent and assess the significance of Facility visibility (Appendix 8-A). The methods used to inventory scenic resources and assess visual impacts in the VIA are consistent with methods used in the Bureau of Land Management's (BLM's) Visual Resource Management System and United States Forest Service (USFS) Scenery Management System. Components of the VIA include:

- Identification of visually sensitive resources (Appendix 8-A, Section 4 and Figure 2;
- Viewshed mapping (Appendix 8-A, Section 4 and Figures 3a – 3f);
- Confirmatory visual assessment fieldwork (Appendix 8-A, Attachment 3);
- Viewpoint line-of-sight profiles (Appendix 8-A, Attachment 4);
- Visual simulations (photographic overlays) (Appendix 8-A, Attachment 7);
- Cumulative visual impact analysis (Appendix 8-A, Section 6); and
- Proposed visual impacts and minimization and mitigation plan (Appendix 8-A, Attachment 8).

(1) Character and Visual Quality of the Existing Landscape

The Facility is in the northeast quadrant of Niagara County, NY, in the Town of Somerset. The Facility would be situated near the southern shore of Lake Ontario, with distances

from the shoreline ranging from 60 feet (ft) to 1.6 miles. The VSA utilized for the VIA consists of a 2-mile radius around the Project Site. The “Resource Inventory Area” refers to a 5-mile radius around the Project Site which was used during the inventory process. These two areas are mapped on Figure 2 and Figure 4a of Appendix 8-A.

Landform

The landform within the VSA is generally flat (elevation averaging 300 ft above mean sea level) to very gently sloping downward from south to north, toward Lake Ontario. Although open views are possible across the flat landscape, as evidenced by views along straight roadways extending for up to 2 miles, the landscape is heavily vegetated with mixed deciduous woodlands, which frequently limit views to the foreground. Where the land meets the shoreline of Lake Ontario, a steep slope - approximately 20–25 ft high - connects the two.

Water

The open waters of Lake Ontario occupy roughly the northern third of the VSA. However, lakefront properties within the VSA are occupied by private agricultural fields, dense woodlands, the former coal plant site, or residential properties. For this reason, open views of Lake Ontario are infrequent within the VSA and limited to areas directly along the lakeshore or a few brief glimpses from public roadways. The nearest public waterfront site to the Facility is Barker Bi-Centennial Park, a 0.75-acre open space managed by the Village of Barker, located approximately 1 mile east of the Project Site.

In addition to Lake Ontario, Fish Creek crosses the VSA from the southwest to northeast, where it empties into the lake near Lakeshore Drive. Golden Hill Creek also passes through the VSA from southwest to northeast. Each of the two creeks include consistent wooded riparian zones, which block views across the creek corridors.

Land Use and Development, Including Existing Energy Infrastructure

The VSA is rural in nature; rectilinear agricultural fields, dispersed residential properties, and irregular patches of mixed forest dominate the VSA. In this setting, development is typically viewed from transportation corridors and from residences and community settings (towns and villages). Since the VSA extends 2 miles from the Facility Site boundary, it includes rural communities: besides the Town of Somerset, the Village of Barker and the hamlets of Appleton and West Somerset fall within it.

Within this rural setting however, large format industrial and energy developments are present, including the former coal plant and the Mayer Brothers Beverage production site, each located north of NYS Route 18. The former coal plant occupies approximately 192 acres, and although it is well screened from most views within the VSA by vegetation, its prominent exhaust tower (smokestack) is visible from numerous locations, including from NYS Route 18 and from the community of West Somerset, and can be seen from far away as the City of Buffalo.

The closest existing solar facility to the Facility Site is a small solar array located south of Haight Road just west of the Barker Central School District, approximately 1 mile southeast of the Facility.

Transportation Routes

The transportation network within the VSA is important to understand since it would be the primary means for viewers to see the Facility. Motorists using the roads and highways near the Facility would include local community members, commuters, or tourists/visitors, on a daily or infrequent basis. The types of roadways within the VSA range from NYS Route 18 (Lake Road) - which provides a continuous east-west connection between Niagara Falls and Rochester, NY - to Niagara County Routes spaced at intervals to connect the dispersed rural communities, including north-south County Routes 65 (Hosmer Road), 108 (Hartland Road), 15/148 (Quaker Road), and 121 (Carmen Road). East-west roadways within the VSA include County Route 3 and 135. These roadways have similar physical characteristics in that they provide one lane in each travel direction and narrow or no shoulders.

Public Known Planned or Proposed Land Uses

The Applicant is aware of a single planned 350-megawatt solar project (Ridge View Solar) proposed in Hartland, NY, approximately 2.3 miles south of the Facility Site at its closest proposed point (Ridge View Solar no date). According to the project's website, this facility is proposed to be operational in 2027, and as of the date of this Application, no siting permit application has been filed.

Distance Zones

Establishment of Distance Zones are required by §900-2.9 (b)(1) of the 94-c regulations and are based on Facility distances to an observer. Each of these areas will determine the level of detail and acuity of objects. Historically, these zones have been defined in

documents produced by the USFS or the BLM and refined to those jurisdictional lands that are prevalent in the western part of the country. Those western applications are often not as relevant to land in the northeast. The effects of distance highly depend 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. Solar panels are relatively low in height and tend to create low, dark horizonal bands as viewed in the landscape, and so they become obscured from view in settings including rolling topography and/or dense or frequent vegetation cover as exists within the Facility VSA. Distance zones for this Facility have been reasonably modified from the USFS Handbook to accommodate the VSA radius, limitations of human vision and perceptible detail of the low profile of the Facility components, and how much of the Facility can actually be seen. Two distance zones for this Facility are applicable in relation to the 94-c 2-mile VSA:

Distance Zone 1: Foreground (up to 0.5 miles 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 typically lies within this zone.

Distance Zone 2: Middleground to Background (0.5–2 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 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. Typically, the concentration of predicted visibility decreases in this zone due to the more abundant screening effects of trees, buildings, and topography that lies between a viewer and the Facility.

It should be noted that although the 2-mile VSA was applied, §900-2.9 (b)(1) also states that any potential visibility from specific significant visual resources beyond the specified study area should also be examined. Following this requirement, three additional resources were investigated: Golden Hills State Park, including the Thirty Mile Point Lighthouse, and Niagara County Krull Park. Refer to Figure 2 in Appendix 8-A.

Landscape Similarity Zones

The existing landscape character within the VSA provides the context for assessing the effects of changes to the landscape. Landscape character is identified and described by the combination of the scenic attributes that make each landscape identifiable or unique. A region's landscape character creates a sense of the area and describes its visual image of an area. To assess impacts to the landscape's visual character and quality, it is important to establish the context for the visual environment. This was done by establishing Landscape Similarity Zones (LSZs) within the VSA. LSZs consist of unified geographic areas that are within the broader regional landscape and have similar landscape characteristics (Smardon et al., 1988). LSZs provide a more specific framework within which to evaluate changes to the landscape and potential visual effects of the Facility. LSZs were defined based on physiographic characteristics such as landform, water, vegetation, and land use patterns. United States Geological Survey (USGS) contour and National Land Cover datasets (NLCD) were mapped using ArcGIS software and reviewed to identify areas within the VSA that had similar characteristics. LSZs within the VSA are summarized by occurrence in Table 8-1, below, and described in more detail in Appendix 8-A, Section 4.3.1.2, and include the following:

- Agricultural LSZ;
- Mixed Forest LSZ;
- Wetlands LSZ;
- Developed and Transportation Routes (including Village Centers) LSZ;
- Industrial; and
- Lake Ontario/Open Water.

Table 8.-1: Percentage of Landscape Similarity Zone (LSZs) within the 2-Mile Visual Study Area (VSA)

LSZ	Foreground Distance Zone 1		Middleground to Background Distance Zone 2		Total Square Miles of LSZ	Total Percent of LSZ in VSA
	Square Miles	Percent of LSZ within the VSA	Square Miles	Percent of LSZ within the VSA		
Agriculture	4.5	14.1%	8.8	27.6%	13.3	41.8%
Developed /Transportation Corridors	0.3	1.0%	1.1	3.3%	1.4	4.3%
Forest	1.2	3.7%	2.8	8.9%	4.0	12.6%
Wetland	0.5	1.5%	1.5	4.7%	2.0	6.2%
Industrial	0.2	0.6%	-	-	0.2	0.6%
Open Water	1.3	4.2%	9.6	30.3%	10.9	34.4%

(2) Visibility of the Facility

i. Viewshed Analysis

Topographic viewshed analyses were conducted to assess the potential visibility of the Facility within the VSA. The map displaying the results of the viewshed analyses was used to determine the extent to which the Facility would potentially be visible from the scenic resources identified within the VSA. Field visits were then conducted to verify visibility of the Facility from the sensitive viewpoints located in areas noted as “visible” on the viewshed map.

The detailed methodology for conducting the viewshed analyses is described in Appendix 8-A, Section 4.1.1. In summary, topographic (considering ‘bare earth’) and vegetated (i.e., topography plus consideration of mapped forest cover) viewshed maps were created to identify potential visibility of the Facility’s solar arrays. Separate viewshed analyses were conducted to determine visibility of the electric-distribution infrastructure equipment (i.e., the Somerset Collector Substation [Facility Substation] and 345-kilovolt [-kV] overhead generation interconnection [gen-tie] line). The series of viewshed maps completed for this study are included in Appendix 8-A, Figures 3a–3f.

While terrain within the VSA is generally level, without much elevation change or relief, the mosaic of forested areas throughout the VSA limits distant views. Based on the vegetated viewshed analyses, potential visibility of the solar arrays is concentrated within areas 1 to 2 miles surrounding the photovoltaic (PV) panels. Based solely on the viewshed analysis, locations from which the PV panels may be visible include a small number of residences adjacent to the Facility, portions of local roads adjacent to the Facility such as NYS Route 18/Lake Road, Niagara County Route 108/Hartland Road, and Niagara County Route 65/Hosmer Road. Field verification and detailed aerial photography review demonstrate the vegetated viewshed is still conservative and actual visibility would be limited to areas directly adjacent to the Facility, especially public roadways and immediate neighboring residences. Most locations located even short distances away would be screened by existing vegetation.

To reduce visibility from adjacent areas, the Applicant is proposing to install trees and shrubs along portions of the Facility boundary where residences and major roadways will have unobstructed views of the Facility.

Field visits to the VSA were conducted to assess the existing visual character of the landscape and to inventory potential views of the Facility from scenic resources identified as having potential views based on the viewshed analyses. The field inventory included three components: (1) identify and photo-document scenic resources/representative viewpoints; (2) classify visual sensitivity of scenic resources; and (3) describe Facility visibility from representative viewpoint locations that were visited. Field visits were conducted on April 29 and June 22, 2022, to capture photography from representative viewpoints during “leaf-off” [1] and “leaf-on” [2] conditions.

Locations identified for field verification are referred to as representative viewpoints. At each representative viewpoint, a panorama (overlapping series of photographs) was captured to evaluate landscape context and potential visibility at each location. Photographs taken during the field visits are included in Appendix 8-A, Attachment 3.

1 Leaf-off conditions are when there is no foliage or a reduced amount of foliage on trees and shrubs. The April 2022 field visit was conducted during leaf-off conditions.
2 Leaf-on conditions are when foliage is on the trees and shrubs. The June 2022 field visit was conducted during leaf-on conditions.

The representative viewpoints visited during the field visits and the degree of visibility based on the viewshed and field verification are discussed in Appendix 8-A, Sections 4.3.3 and 5.2.2.3.

See section 8a (9) of this exhibit regarding glare.

(3) Visibility of Aboveground Interconnections and Roadways

Power Collection System and Facility Substation

The Facility's power collection system includes inverters, aboveground and underground electrical collector lines, a short span of overhead gen-tie line, and one substation. The overhead interconnection line that will connect the Facility Substation to Kintigh Substation shown in Appendix 8-A, Figure 1, is limited to a 159-ft section of overhead line containing a take-off structure, an interconnection line pole, and another take-off structure at Kintigh Substation. Kintigh Substation is located on the Project Site. The 40 inverters (with integrated transformers) will be located within short boxes on concrete pads or skids and dispersed throughout the Facility Site, amongst the PV array areas (Appendix 5-B, Sheet PV-E.01.09). The boxes that house the inverters will have a similar geometric shape and scale as the PV panels (i.e., low, rectilinear elements) and they will be treated to reduce potential visibility and reflectivity through use of dulled finishes in colors selected to blend into the backdrop. In most cases, the inverters are not visible from public roads or neighboring areas because they are lower in height and situated behind the arrays. Views toward the inverters also will include views of other Facility components, including PV panels and perimeter fence. Given the scale of the inverters in relation to other Facility components and existing features in the landscape, it is anticipated that, where visible, the inverters will create weak contrast (i.e., the element contrast can be seen but does not attract attention due to other elements in the landscape that stand out more). Refer to section 8a (8) below for a detailed explanation of how 'contrast' is applied for this study.

The Facility Substation is located approximately 1,150 ft north of NYS Route 18 and is mostly screened by existing mixed vegetation. It includes a short (approximately 159-ft [ft]) overhead gen-tie line to connect to the existing Kintigh Substation, which is located on the Project Site to the east of the Facility Substation footprint. To reduce potential impacts from sound from the Facility Substation, a freestanding concrete sound barrier wall (approximately 43 ft in long by 28 ft in height) would be included within the Facility Substation footprint, approximately 10 ft south of the transformer. These Facility

components will slightly increase the presence of vertical and geometric lines, forms, and materials into a relatively flat, agricultural landscape. However, an existing 250-ft wide transmission corridor runs north-south through the Project Site to the existing Kintigh Substation, which has already introduced vertical, energy infrastructure elements and cleared vegetation into the landscape setting. The Facility Substation location and technical drawings are shown in Appendix 8-A, Figure 1 and Attachment 9, respectively. Although the Facility Substation will contrast with some of the elements of the existing landscape, such as dark green foliage during spring and summer months, its overall visual effect will vary depending on the portions of the Facility Substation that are visible, distance of the Facility Substation from the viewer, and the extent the viewer sees the Facility Substation in combination with PV panels arrays. For example, visual contrast is anticipated to be stronger for eastbound travelers along NYS Route 18 where they are approaching or adjacent to the Facility boundary and will have a brief line of sight toward the Facility Substation. Refer to visual simulations depicting this viewpoint (Viewpoint 2A) in Appendix 8-A, Attachment 7. Westbound motorists on NYS Route 18 will likely pass the same location without noticing the Facility Substation, due to their focus being away from its location and vegetative screening. In summary, the Facility Substation will not appear as a dominant feature because of its small scale, distance from viewers along NYS Route 18, limited visibility, and screening by existing vegetation. Visibility from NYS Route 18 will be of short duration for individual viewers because travelers will only be approaching and parallel to the Facility Substation for a limited time (the posted speed for NYS Route 18 within the VSA is 55 miles per hour) and their primary focus will be on the road ahead.

Visual contrast is anticipated to be reduced to moderate or weak for residences located farther from the Facility Substation site (of which there are very few; approximately five or fewer within 0.5 mile of the Facility Substation), where views will be partially to fully screened by intervening vegetation, existing topography or structures associated with farming (i.e., barns, sheds). It is also anticipated that views will be limited to the upper portions of the Facility Substation infrastructure equipment, such as the take-off, that may extend above tree line. Furthermore, the Facility Substation will be seen in the context of the existing Kintigh Substation and transmission lines, and other Facility components. It is anticipated that views from locations 0.5-1 mile or more from the Facility Substation will be mostly to completely screened by vegetation and/or topography.

Internal Infrastructure

Narrow gravel access roads (approximately 20-ft wide) to each Facility area will be located off three roads, NYS Route 18/Lake Road, Niagara County Route 65/Hosmer Road, and Niagara County Route 108/Hartland Road. The access roads will create a series of straight corridors, clear of vegetation or visual obstruction, on the ground within the Facility. Internal access roads (i.e., those in between the PV panels) will be grassed access corridors for operations and maintenance access and permanent access roads will be gravel. Access corridors located within the loop track and landfill areas will consist of the final cover system, which is anticipated to be non-gravel and seeded with an appropriate grass seed mix. The landfill final cover system plan is detailed in Appendix 6-D, and includes a nominal 6-inch top soil cover. In most cases, access roads and corridors for the Facility will be screened from public view by the PV panels. Views of the gravel access roads will be limited to those seen from public roadways where they intersect with access roads – five are located along NYS Route 18/Lake Road, and one each connects to Niagara County Route 65/Hosmer Road and Niagara County Route 108/Hartland Road. The gravel access road intersections will appear like other driveways and farm roads within the VSA. Given the low profile and small scale of the access roads in relation to other Facility components and existing features in the landscape, it is anticipated that, where visible, the access roads will create weak visual contrast.

Security fencing will consist of a 7-ft-high ‘agriculture style’ fence around the PV panel arrays and 7-ft-high chain link fencing around the Facility Substation perimeter. The agriculture style fence surrounding the Facility will consist of wire mesh panels framed by wood posts. Standard chain link fencing material will be used surrounding the Facility Substation, in addition to 12-inch barbed wire across the top for added security. Because the agriculture style fence uses wire mesh, it will be highly transparent and allow views through it to the Facility components within the fence line. Where seen from a distance (e.g., 600 ft), the agriculture style fence will introduce spans of semi-transparent dark bands into the landscape that will begin to blend with the PV panels and become less noticeable with increased distance. When viewed in close proximity, the agriculture style fence will appear highly transparent, and the wooden fence panel vertical posts and horizontal rails will become more prominent, yet complementary with the landscape setting. Given the transparency of the agriculture style fence and its scale in relation to other Facility components, it is anticipated that the fence will create weak contrast. Views

of the Facility Substation fencing are limited to a short segment (no more than 900 ft long) of NYS Route 18. Based on the visual simulation created to illustrate the Facility Substation from NYS Route 18, the security fencing surrounding it is hardly discernible due to the distance from the viewer and background vegetation subsuming the fence into the scene. For these reasons, the Facility Substation security fencing also is anticipated to create weak to negligible contrast.

(4) Appearance of the Facility upon Completion/Representative Views

To show the anticipated appearances of the Facility upon completion, photographic simulations were created during leaf-off conditions (simulating worst-case scenarios) and leaf-on conditions where vegetative screening is applicable. The simulations were created using ArcGIS software, Autodesk 3D Studio Max®, and rendering software, as well as Adobe Photoshop and InDesign. To create the simulations, the location data captured by the GPS device were transferred to ArcMap, where it was combined with geographic information system (GIS) data of the preliminary Facility layout. A map showing the data was exported at true scale and imported into 3D Studio Max®. Using this scaled map as a base, 3D models of the Facility (i.e., solar panels, Facility Substation, fences, etc.) were created to scale. These 3D models of the proposed Facility, previously modeled to scale in 3D Studio Max®, were added in their appropriate locations and elevations. The views from the existing photographs were then matched in the 3D model using virtual cameras with the same focal length and field of view as the cameras used to capture photography during the field visits (Appendix 8-A, Section 4.2.4). After date- and time-specific lighting was added to the 3D model, renderings from the virtual cameras were created. These renderings were then blended into the existing conditions photographs in Adobe Photoshop software. Any necessary modifications to the existing landscape were completed in Photoshop as well, such as illustrating Facility revegetation. This process of creating a 3D model at true scale and rendering images using the same specifications used by the camera ensures that the spatial relationships of the landscape, Facility features, and viewer perspective are accurate and match the existing site photographs.

The photographic simulations for the Facility are included in Appendix 8-A, Attachment 7.

(5) Lighting

The Facility is not anticipated to introduce a significant source of lighting into the existing environment. Lighting at the Facility is planned only at the Facility Substation, and then

only for safety and security purposes. The closest residential receptor to the Facility Substation is located 0.25 mile away and is screened for that distance by existing mature vegetation. Per §900-2.9(a)(5), the Facility Lighting Plan, including photometrics, is included with the Facility Substation Plan and Elevation drawings in Appendix 8-A, Attachment 9. The Lighting Plan was developed to minimize fugitive light while meeting lighting standards established by the National Electrical Safety Code (NESC). The proposed lighting also complies with Occupational Safety and Health Administration (OSHA) requirements, as proper illumination will be provided for all working spaces around the electrical equipment. All of which has been designed so that control points or persons making repairs will not be endangered by “live parts” or other equipment.

Facility Substation lighting includes manually activated emergency and security lighting. The emergency lighting will only be activated in the event of an outage or other repair-related event at the Facility Substation during nighttime hours. Within the Facility Substation, a total of six emergency lights will be installed. The lighting will be mounted at a height of not more than 30 ft on vertical structures and will be directed downward toward equipment. RAB LED Area light fixtures with a lumen output of 15,200 (or similar) will be used. The average footcandle measure within the Facility Substation is 2.65, as shown by the Lighting Plan. To reduce impacts to nearby receptors, the lights will only be turned on when Facility personnel are performing maintenance; lights will be turned off after repairs are completed.

Security lights will be installed above the door of the control building at the Facility Substation. RAB LED Wall Pack fixtures (or similar) with a lumen output of 2,900 to 3,800 will be used. To reduce impacts, the security lights will be on during nighttime hours only when motion is detected. Additionally, security lighting will be directed downward and shielded with hoods to avoid light trespass and nighttime light pollution impacts.

A Notice of Criteria review was performed for the Facility, which determined no additional consultation with the Federal Aviation Administration (FAA) is required to be performed. Additional information on the evaluations performed, FAA requirements, and air transportation is provided in Attachment 8, Appendix A and discussed further in Exhibit 16.

(6) Representative Views (Photographic Overlays)

Photographic simulations were created for each of the five representative viewpoints to illustrate the Facility components and the potential visual changes to the existing landscape. The simulations were used to determine the level of contrast between the existing landscape and the expected landscape after the Facility is constructed. Simulations also were created to illustrate proposed mitigation for those representative viewpoints where landscaping is proposed to help screen the Facility. Appendix 8-A, Section 5.1.3 provides detailed discussion of the methodology used for creating the simulations. The simulations are included in Appendix 8-A, Attachment 7.

(7) Nature and Degree of Visual Change from Construction

Short-term visual effects, typical of any major commercial or industrial project, will occur during construction of the Facility, resulting from construction activities and the presence of construction equipment, staging areas, and work crews. Construction activities associated with the solar facility will include surveying, vegetation clearing portions of the construction site, grading activities, including activities necessary for installation of stormwater features and access roads, trenching for installation of collector lines, installation of support pilings, delivery of the solar panel and Facility Substation components, solar panel installation, installation of Facility Substation foundations, placement and erection of Facility Substation equipment and take-off structures and interconnection line pole, and placement of perimeter fencing.

As noted in the effects on transportation study conducted for this Project, the peak daily construction workforce for this Facility is expected to be between 50 and 150 workers which will be distributed to/from the Facility Site, conservatively assuming one worker per vehicle per day. In addition to construction workforce trips, construction equipment delivery trips were included in the traffic analysis for the construction period. Construction hours are to be limited to 7 a.m. to 11 p.m., Monday through Saturday, and 8:00 a.m. to 8 p.m. on Sunday and national holidays, with the exception of construction and delivery activities, which may occur during extended hours beyond this schedule on an as-needed basis. The actual time of day and day of the week for the delivery/removal of any cut and fill as will the delineation of approach and departure routes will be determined when the construction schedule is finalized.

There will also be temporary stockpiles, and stormwater management, and erosion control measures in place during construction activities, which foreground viewers could observe.

It is anticipated that visual contrast will be introduced during Facility construction primarily for viewers associated with residences directly adjacent to the Facility, which include homes along NYS Route 18/Lake Road, Haight Road, and Niagara County Route 108/Hartland Road where the presence of construction equipment, materials, and crews will be dominant in the foreground. However, these visual effects will be temporary because construction equipment will be removed once construction is completed in each specific area. Views of Facility construction from areas not immediately adjacent to the Facility will be mostly to fully screened by existing vegetation and/or topography. Visual effects to these viewers will be mostly limited to the presence of construction traffic on local roads. Further detail on expected number of trips and specific construction activity and equipment can be found in Exhibit 16.

(8) Nature and Degree of Visual Change from Operation

Long-term visual changes during operation of the Facility would result from the visibility of the above-ground components associated with the Facility, including the PV panels, inverters, Facility Substation, 345-kV overhead gen-tie line, and internal infrastructure including permanent gravel access roads and fencing.

Public enjoyment of scenic resources is subjective and highly dependent on the viewer's perception of beauty and scenery. The addition of the Facility into a view may enhance one viewer's enjoyment of a location, while it could have a negligible or negative effect for a different viewer. Therefore, a process using the concept of "contrast" based on the BLM Visual Resource Management system is often used to objectively measure potential changes to landscape features of inventoried sensitive resources (BLM 1986a, BLM 1984). The BLM's visual contrast rating process (BLM 1986b) was used as the basis for reviewing potential landscape changes resulting from the Facility and is discussed below.

The degree of visual contrast is a means to evaluate the level of modification to the existing landscape features. In the context of the Facility, existing landscape scenery is defined by the visual characteristics (form, line, color, and texture) associated with the landform (including water), vegetation, and existing facilities within and adjacent to the Facility. Descriptions of each visual character element are listed below:

- Form – shape and mass of landforms or structures;

- Line – edge of shapes or masses, silhouettes, or bands;
- Color – property of reflecting light of a particular intensity of wavelength that the eye can see; and
- Texture – nature of the surface of landforms, vegetation, or structures.

The level of visual contrast introduced by an action can be measured based on changes in form, line, color, and texture. The greater the difference between these character elements found within the landscape and the proposed Facility components, the level of visual contrast becomes more apparent, which typically increases perceived contrast.

The degree of contrast introduced to a particular viewpoint by the Facility, in combination with the sensitivity of viewers at that viewpoint and where applicable, recognized scenic value, will determine the level of visual effect. The following general criteria are based upon the criteria used by the BLM (BLM 1986b) when rating the degree of contrast, and are utilized here to describe the visibility/noticeability of the Facility components:

- None – element contrast is not visible or perceived;
- Weak – element contrast can be seen but does not attract attention;
- Weak-Moderate – element contrast begins to attract attention and is moderately subordinate in the landscape;
- Moderate – element contrast begins to attract attention and begins to dominate the characteristic landscape;
- Moderate-Strong – element contrast begins to demand attention and is moderately dominant in the landscape; and
- Strong – element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Other environmental factors that can influence the amount of visual contrast introduced by Facility components, such as distance, angle of observation, and atmospheric conditions, are discussed in Appendix 8-A, Section 5.1.1.

Contrast ratings were prepared for each of the five representative viewpoints determined to have views toward the Facility using a form adapted from the BLM's Visual Contrast Rating Worksheet (Form 8400-4; BLM 1984). Additional ratings of weak-moderate and moderate-strong were added to BLMs core ratings. Contrast rating worksheets were

completed by a rating panel of three visual resource professionals with experience in conducting visual impact assessments.

To assist in the evaluation of changes associated with the implementation of the Facility, photographic simulations were compared to exiting photographs taken during the field visit. A detailed discussion of how the photographic simulations were created is included in Appendix 8-A, Section 5.1.3. Criteria used to assist in completing the contrast rating forms also were based on BLM's requirements, as outlined in BLM Manual 8431 – Visual Resource Contrast Rating (BLM 1986b). The criteria used to complete the contrast rating worksheets along with the forms completed by the rating panel are included in Appendix 8-A, Attachment 6.

Overall, the Facility will result in minor to moderate change to the landscape conditions for most viewers within the VSA, primarily motorists/cyclists traveling east or west along NYS Route 18/Lake Road. Moderate change to the landscape may be apparent to a limited number of viewers located adjacent to the Facility, specifically certain residences located on NYS Route 18/Lake Road, Haight and Niagara County Route 108/Hartland Road with direct line of sight toward the array areas. Over time, as proposed vegetative screening grows, these changes will be lessened and eventually non-existent.

It is possible that recreational boaters on Lake Ontario within 0.5 miles of shore (the immediate foreground distance zone) within the VSA would notice partial views of the PV arrays nearest the shoreline, where two of the array areas are positioned east and west of the existing Somerset Power Plant site. However, the bank is elevated above the water surface (i.e., boaters would be viewing the arrays from an inferior position, limiting the portion of the Facility that could be seen) and heavily screened by vegetation lining the shore.

Other factors informing the degree of visual change resulting from Facility operations include:

- Arrays are set back from property lines and/or are placed behind forested areas resulting in reduced visibility
- Because a tracker racking system will be employed, panels will not appear at maximum tilt at all times. During the middle portion of the day the panels will lean towards a shorter, more horizontal aspect as the panels track the sun.

- While the Facility 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 NY. The Facility will not impair these surrounding regional landscape characteristics.
- There will be no interference with the general enjoyment of recreational resources in the area due to the fact that most visual resources are at a distance from the Facility or they are linear features (roads) running through the area and are expected to have intermittent and short-duration views. There is limited long-range visibility overall in the VSA.
- The Applicant has employed reasonable mitigation measures to the maximum extent practicable with respect to the overall design and layout of the proposed Facility as well as the proposed vegetative plantings that screen views to nearby residents and the historic Babcock House.
- The vertical scale of solar arrays 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 Facility solar arrays, considering their layout, spacing and the topography, forest cover, 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. Landscape mitigation also assists in diminishing visual clutter and offering consistency to the view.
- Aside from normally low local road traffic, the public areas in the vicinity of the Facility Site with predicted visibility are not exceedingly high-use destination areas.
- The Facility does not have an adverse effect on a known listed scenic vista.

- The Facility does not create a new source of substantial light that would adversely affect nighttime views in the area. Potential glare from the solar modules and associated equipment would be negligible because they would consist of a non-reflective coating, when possible.

Based on the results of the rating panel, visual contrast will range from moderate-weak visual impact to moderate-strong visual impact which primarily depends on the distance of the viewer to Facility components, existing vegetation screening, and whether the Facility components would block valued lines of sight from within the landscape. Landscaping is proposed around the perimeter of the Facility where adjacent viewers will have unobstructed views towards the Facility. Landscaping will consist of a variety of evergreen trees and native shrubs that will help to screen portions of the Facility and break up the uniformity of the blocks of PV panels. Landscape screening will help to reduce contrast, significantly in some areas, and overall visibility for adjacent viewers. Viewers not directly adjacent to the Facility will be mostly to completely screened by topography and/or vegetation within the existing landscape and will therefore result in minimal to no visual impacts.

Results of the rating panel are further discussed in Appendix 8-A, Section 5.2.2.3.

(9) Related Operational Effects of Facility

The PV panels are designed to absorb sunlight, rather than reflect it, and the glass panels that protect the PV panel surface are typically formulated with glass designed to allow sunlight to pass with minimal reflection. Panels will have anti-reflective coatings that will further reduce reflectivity from PV panels. Any glare off the PV panels is anticipated to be minimal and would further be mitigated by existing and proposed screening vegetation.

A glare analysis has been completed for the Facility (Appendix 8-A, Attachment 8, Appendix A), and was completed using a ForgeSolar software update that allows for obstructions to be included in the model. The analyses used this tool to model areas of dense forest and tree lines found within the Project Site and surrounding area as obstructions. A total of 10 obstructions were used to simulate the natural vegetation buffer, using an average height of 30 feet. Results of the glare analysis did not identify the need for additional mitigation to address glare. No yellow or red glare was predicted to occur. Based on the model results, the accumulated instances of green glare is for less than 25 minutes per day, either between the hours of 6:00 AM and 7:00 AM, or 6:00 PM and 7:00

PM during various periods from March to September. The glare analysis does not account for varying ambient conditions (i.e., cloudy days, precipitation), atmospheric attenuation, or proposed landscaping to be included. The use of existing natural screening along various sides of each PV Array Area provides partial to substantial natural vegetative buffering between the Facility and non-participating property lines, which appear to be mainly undeveloped and vacant. In addition to maintaining existing vegetative buffering, a landscape and screening plan has been developed along portions of NYS Route 18/Lake Road, County Route 108/Hartland Road and Haight Road, which is further detailed in the Landscaping Plan (Appendix 5-A, Sheets PV-C.05.01 through PV-C.05.04). The landscaping plan is expected to minimize any remaining views of the project by non-participating occupied residences located along NYS Route 18/Lake Road, County Route 108/Hartland Road, and Haight Road. In the case of this Facility, existing topography and intervening structures and vegetation are expected to reduce the potential for glare at all of the observation points and roadway segments

Based on the PV panel design and construction, as well as operation of the tracker system, where installed, glare resulting from sunlight reflected by the PV panels will occur to only a limited extent within the VSA, with only limited green glare expected. Although the Facility may represent a potential source of additional glare in the VSA, introduced glare will not be sufficient to adversely affect views in the area or create an annoyance for viewers. Therefore, potential glare impacts from the Facility are considered to be negligible, as documented in the glare analysis provided in Attachment 8, Appendix A.

No plumes, shading, glare or other visual impacts are predicted during operation of the Facility.

(10) Visual Resources Affected by Facility

Scenic resources were identified in accordance with guidance provided by 94-c regulations Part 900-2.9 and the New York State Department of Environmental Conservation (NYSDEC) Program Policy DEP-00-2 *Assessing and Mitigating Visual Impacts* (NYSDEC 2000) which identifies categories from which aesthetic resources of statewide significance can be derived. The categories identified within the DEP-00-2 Policy are generally consistent with those scenic resources that are to be considered under 94-c regulations Part 900-2.9 and include the following categories:

- Landmark landscapes;

- Wild, scenic or recreational rivers administered respectively by either the NYSDEC or the Adirondack Park Agency pursuant to Environmental Conservation Law Article 15 or Department of Interior pursuant to 16 United States Code 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 NYS governments;
- Scenic districts and scenic roads;
- Designated by the Commissioner of NYSDEC pursuant to Environmental Conservation Law Article 49;
- Scenic districts;
- Scenic areas of statewide significance;
- NYS parks or historic sites;
- Sites listed or eligible for listing on National Register of Historic Places (NRHP) or NYS Register of Historic Places (SRHP);
- Areas covered by scenic easements, public parks or recreation areas;
- Locally designated historic or scenic districts and scenic overlooks;
- High-use public areas;
- NYS Parks;
- Urban Cultural Parks;
- NYS Forest Preserves;
- National Wildlife Refuges, NYS Game Refuges and NYS Wildlife Management Areas;
- National Natural Landmarks;

- Sites of the National Park System, including Recreation Areas, Seashores, and Forests;
- National or NYS Wild, Scenic or Recreational Rivers;
- Sites, areas, lakes, reservoirs or highways designated or eligible for designation as scenic;
- NYS or federally-designated trails, or one proposed for designation;
- Adirondack Park Scenic Vistas;
- NYS Nature and Historic Preserve Areas;
- Palisades Park; and
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space Category.

In addition, resources of local significance were identified within the VSA and included local parks and recreation areas, lakes and rivers, major transportation corridors, and schools and colleges. The scenic resources identified and evaluated within the VSA are listed in Table 8-3, below, and documented in Appendix 8-A, Attachment 2.

8(b) Viewshed Analysis

(1) Viewshed Map with Facility Visibility on 1:24,000 Scale

Topographic and vegetated viewshed maps were created within the 2-mile VSA to identify potential visibility of the solar array and the electrical-distribution equipment. The methodology for conducting these analyses is described in detail in Appendix 8-A, Section 4.1.1. The viewshed maps were prepared and are presented on a 1:24,000 scale recent edition topographic base map (Appendix 8-A, Figures 3d–3f). Scenic resources identified within the VSA were combined with the viewshed maps to identify where potentially visible areas intersected with scenic resources. The viewshed analysis and scenic resources identified are depicted on the composite map in Appendix 8-A, Attachment 2. Locations identified for field verification, referred to as Representative Viewpoints, as well as viewpoints identified for simulation are depicted on Appendix 8-A, Figure 4a and Figure 4b. The results of the viewshed analysis are discussed in Appendix 8-A, Section 5.2.2.2.

Line-of-sight profiles were prepared to demonstrate potential Facility visibility and sources of screening from various locations along three lines within the VSA as depicted in Appendix 8-A, Figure 4a. These profile lines were selected because they intersected scenic resources and portions of the Facility. Using ArcGIS software, data regarding the scenic resources, Facility components, and representative viewpoint locations were overlaid on the Digital Elevation Models (DEM) and NLCD data. Next, lines were drawn through representative viewpoints and Facility. ArcGIS software then sampled elevations along the lines. The resulting output includes bare-earth profile lines and separate lines demonstrating additional screening provided by vegetation. Lines on the vertical axis were exaggerated in order to demonstrate topographic relief over a long distance. The line-of-sight profiles were then imported into Adobe Illustrator in order to add Facility components, vegetation or other sources of screening, and labels. Existing features located along the viewing paths were identified using recent aerial photography. The line-of-sight profiles are included in Appendix 8-A, Attachment 4.

(2) Methodology to Develop Viewshed Maps

Topographic viewshed analyses were conducted to assess the potential visibility of the Facility. Due to differences in height in the Facility components, two separate viewshed analyses were conducted. The results are mapped in Appendix 8-A, Figures 3a–3f.

One viewshed analysis focused on the location and height of the solar arrays (refer to the shading in Appendix 8-A, Figure 3a and Figure 3b and Figure 3d and Figure 3e). The solar arrays will occupy the largest area of land within the Facility, and therefore, represent the most extensive source of potential contrast introduced into the landscape. A height of approximately 10 ft was used for the viewshed analysis, based on the maximum height of a representative single-axis tracker solar module when the module is fully titled.

- The second viewshed analysis focused on the electrical-distribution infrastructure equipment: the one proposed Facility Substation and single overhead gen-tie line that connects the Facility Substation to the existing nearby Kintigh Substation (refer to the shading in Appendix 8-A, Figure 3c and Figure 3f). The Facility Substation take-off mast and overhead line were used because they are the tallest components proposed within the Facility. The viewshed analysis of the electrical-distribution infrastructure equipment was run using a point for each static mast within the Facility Substation (with

a height of 52 ft), with two points (take-off structures) for the Facility Substation.

An assumed viewer height of 6 ft was used for both analyses. The topographic viewshed analyses (Appendix 8-A, Figure 3a) assumed "bare-earth" conditions and were conducted using Environmental Systems Research Institute ArcGIS Desktop 10.8 software with the Spatial Analyst extension to process 10-meter DEM of the terrain within the VSA. The ArcGIS software analyzes line-of-sight from the three-dimensional coordinates of Facility components to points on the terrain surface, thereby identifying locations from which the Facility will potentially be visible. The bare-earth modeling approach used in the viewshed analyses, based only on the effects of terrain on visibility, results in a very conservative assessment of potential visibility. A bare-earth analysis does not take into account the visibility effects of vegetation or buildings, which in practice will screen or block certain views.

To further advance the viewshed analyses, a vegetated viewshed was conducted using USGS LANDFIRE existing vegetation land height data (USGS 2021) to identify areas within the VSA where potential screening may be provided by forest vegetation. This database provided height data for the VSA. The vegetated viewsheds for the solar panels and electrical-distribution infrastructure equipment were conducted as described above. Since the vegetation viewshed considers both terrain and the approximate tree height of forested areas, it more accurately reflects potential Facility visibility within the VSA. The resulting viewshed map conservatively shows areas with potential visibility based on topography and vegetative screening (Appendix 8-A, Figure 3a and Figure 3b). It is conservative because "seen" areas identified in the viewshed analyses do not necessarily indicate that the Facility will be visible or noticeable to the casual observer.[3] "Seen" areas indicate that some portion of the Facility could be potentially visible from that point because there may be a direct, unobstructed line-of-sight between the Facility component and some location within the VSA. Factors such as distance, color, lighting and atmospheric conditions (such as haze, fog, or low cloudiness) that can diminish visibility under actual field conditions were not accounted for in the viewshed analyses.

3 The "casual observer" is a common term considered for an observer who is not actively looking or searching for the Facility but is engaged in typical activities at locations with potential views of the proposed Facility, such as hiking, driving on a scenic road, or viewing the landscape from their residence. If the Facility is not noticeable to the casual observer, visual effects can be considered minor to negligible.

The map displaying the results of the viewshed analyses was used to determine the extent to which the Facility will potentially be visible from the scenic resources identified in Appendix 8-A, Section 4.2.2. Table 8-2 shows a comparison of the vegetated viewshed analysis of the solar arrays relative to foreground views and background views.

Table 8-2: Percentage Visibility within Distance Zones

Distance Zone	Total Area Comprising Distance Zone Square Miles	Visibility[1] Within Distance Zone Square Miles	% Visibility[1] Within Distance Zone	% Visibility[1] Within Full VSA	% VSA Visibility[1] on Participating Landowner Property	% VSA Visibility[1] on Non-Participating Landowner Property
Zone 1 0-0.5 Mile	8.0	5.8	72.5%	18.2%	6%	12.1%
Zone 2 0.5 to 2 Miles	23.8	11.8	50.0%	37.1%	-	37.3%
Total	31.8	17.6[2]	-	55.3%[3]	6%	49.5%

1 – Visibility here reflects the viewshed analysis considering the solar arrays compared with topography plus mapped forested areas using United States Geological Survey LANDFIRE data. This analysis is mapped on -Appendix 8-A, Figure 3b.
2 – Of this total, 10.7 square miles occurs over the open water of Lake Ontario, leaving 6.9 square miles total theoretical visibility occurring within upland (non-lake) areas of the VSA.
3 – Of this total, 60% of the theoretical visibility occurs over the open water of Lake Ontario. Based on the land area visibility stated in note 2, then 21.7% of the land area within the VSA has theoretical visibility.

(3) Sensitive Viewing Areas

The viewshed mapping was used to determine sensitive viewing areas, including recreational areas, residences, businesses, historic properties, and travelers with potential views the of Facility.

Scenic resources were identified in accordance with guidance provided by 94-c regulation §900-2.9 and NYSDEC Program Policy DEP-00-2 *Assessing and Mitigating Visual Impacts* (NYSDEC 2000) which identifies categories from which aesthetic resources of statewide significance can be derived. The categories identified within the DEP-00-2 Policy are generally consistent with those scenic resources that are to be considered under 94-c regulations §900-2.9. The categories reviewed to identify scenic resources included those outlined in 94-c regulations §900-2.9 and NYSDEC Policy DEP-00-2, as noted in Appendix 8-A, Section 3.2.2, and the following additional categories:

- Local Parks and Recreation Areas;

- Lakes and Rivers;
- Major Transportation Corridors;
- Residential Areas;
- Areas identified for Environmental Justice as defined by NYSDEC; and
- Schools and Colleges.

Data sources reviewed to identify scenic resources were obtained through the NYS GIS Clearinghouse; Environmental Systems Research Institute; national, NYS, and local agency websites and local planning and zoning documents; and Google Earth. The scenic resources identified within the Resource Inventory Area are listed in Appendix 8-A, Attachment 2 and Figure 2. Areas identified as being potentially visible on the topographic and vegetated viewshed maps were reviewed during the field visits to review expected visibility of the Facility and assess potential visual impacts. Locations identified for field verification are referred to as representative viewpoints. Additionally, local planning plan reports and ordinances were reviewed to assist in determining potential viewpoints near the Facility, as described in Appendix 8-A, Section 3.2 (see also Appendix 3-A and Appendix 24-A).

(4) Important or Representative Viewpoints

The Applicant coordinated and shared Project details with the Town of Somerset, pursuant to 94-c regulations §900-1.3, Exhibit 2. Prior to conducting fieldwork for this study, the proposed visual simulation locations and a list including a total of 13 sensitive visual resources (ranging from NYS parks to scenic byways to private residential areas) and 14 unique viewpoint locations were shared with the Town of Somerset (Town Supervisor and Town Historian) in May 2021. The Applicant also reviewed Facility visual renderings with the Town of Somerset in August 2022. No additional scenic resources, viewpoints, or comments were received from the Town. In addition, the Applicant evaluated the Facility location and nearby areas for those eligible for environmental justice per Exhibit 19 (no such Environmental Justice-eligible areas were identified; see Exhibit 19). The Applicant coordinated with the NYS Office of Parks, Recreation and Historic Preservation on potential impacts to NRHP resources (Appendix 9-A), and this coordination resulted in the inclusion in this exhibit of several SRHP-listed eligible historic sites for potential visual effects.

Table 8-3: Representative Viewpoint Characteristics

Viewpoint No.[4]	Representative Viewpoint Name	Site Address	Resource Type/Landscape Similarity Zone (LSZ)	New York Code, Rules and Regulations (NYCRR) §900-2.9(b)(4) Selection criteria	Approx. Distance to Nearest Facility Component (miles or feet as noted)[1]	Viewing Direction	Existing Landscape Characteristics and Views	Views Toward Facility[2] ● *Not Visible* ○ *Visible*
1	Babcock House Museum	7449 Lake Road Appleton, NY 14008	State-listed 'eligible' historic building; Public Museum, Agriculture	(i) Representative of unobstructed view (ii) New York State Historic Preservation Office (NY SHPO) eligible historic site	315 feet	West, East, North	Historic residence, notable for its exterior cobblestone surfacing, and farm with multiple red ancillary buildings located off NYS Route 18. The Babcock House faces south, toward New York State (NYS) Route 18, and multiple mature evergreen and deciduous trees exist around the 4.5-acre site. Terrain is level and offers foreground to middleground views of adjoining agricultural fields. The house is the main office of the Town of Somerset Historical Society and offers a publicly accessible collection of local historical items. The Babcock House Museum is typically open Sunday afternoons during the summer months.	○
2A	NYS Route 18/Lake Road Location A	N/A	National Scenic Byway, Developed Area/ Transportation Corridor	(i) Representative of unobstructed view (ii) scenic byways designated by the Federal or State governments (iii) level of viewer exposure, i.e., frequency of viewers or relative numbers, including residential areas, or high-volume roadways;	620 feet	East, West, Northeast	Primary east-west route through the Visual Study Area (VSA) offering views of agricultural landscape, Town of Somerset, and rural residential areas. Terrain is relatively level to gently rolling, and the roadway is relatively straight within the VSA, offering extended east/west views along the route. Vegetation includes patches and hedgerows of mature deciduous and evergreen trees, limiting views where present. Northward views of Lake Ontario from NYS Route 18 within the VSA, while possible, are not frequent or notable, due to the minimum distance of 0.6 mile and intervening mature trees or terrain. Human-made features primarily include scattered farmhouses oriented toward the roadway, as well as ancillary agricultural structures and overhead utility lines. The exhaust tower associated with the former coal plant is a prominent visible landmark and can be seen from NYS Route 18 near the Facility.	○
2B	NYS Route 18/Lake Road Location B	N/A	National Scenic Byway, Developed Area/ Transportation Corridor	(i) Representative of unobstructed view (ii) scenic byways designated by the Federal or State governments (iii) level of viewer exposure, i.e., frequency of viewers or relative numbers, including residential areas, or high-volume roadways;	100 feet	East, West, Southeast		○
3	Niagara County Route 108/Hartland Road	N/A	Developed Area/ Transportation Corridor	(i) Representative of unobstructed view	50 feet	West	The landscape along this north-south route is characterized by level terrain that connects the Town of Somerset with communities to the south. Continuous, dense roadside vegetation is more prevalent along Hartland Road within the VSA, though the characteristic open agricultural fields and rural residential areas are also present and seen. An overhead transmission line parallels the roadway to the west. Approaching within 0.5 mile of Lake Ontario, northbound	○

[4] To standardize the terminology used in the visual impact assessment and visual impacts exhibit (Exhibit 8) that will be included in the 94-c Application, the term "Key Observation Point" or "KOP" has been changed to Viewpoint throughout all relevant application materials.

Viewpoint No.[4]	Representative Viewpoint Name	Site Address	Resource Type/Landscape Similarity Zone (LSZ)	New York Code, Rules and Regulations (NYCRR) §900-2.9(b)(4) Selection criteria	Approx. Distance to Nearest Facility Component (miles or feet as noted)[1]	Viewing Direction	Existing Landscape Characteristics and Views	Views Toward Facility[2] ● *Not Visible* ○ *Visible*
							travelers along Hartland Road may have a brief opportunity to view the lake in the distance during clear conditions.	
4	West Somerset Cemetery	Hosmer Road Appleton, NY 14008	Local Site; Agriculture	(ii) locally designated historic site; public park	0.5 mile	North	Small traditional cemetery located along Niagara County Route 65/Hosmer Road. Landscape character is agricultural, with open, cultivated fields located adjacently to the north, south, and east. Individual mature landscape trees are present within and surrounding the cemetery, effectively bounding the cemetery site from the surrounding open spaces. Views beyond the immediate foreground are limited to only those to the east.	●
5	Haight Road Residence	Haight Road Somerset, NY 14008	Residential Area; Agriculture	(i) Representative of unobstructed view	70 feet	North	Representative view from residence. Landscape characteristics include level terrain, with residence set off highway which runs east-west. Views include highway, transmission line, and rectilinear agricultural fields bounded by mature trees.	○
6	Thirty Mile Point Lighthouse	9691 Lower Lake Rd Barker, NY 14012	Historic, Recreation; Forest	(ii) State parks or historic sites (iii) level of viewer exposure, i.e., frequency of viewers or relative numbers, including residential areas, or high-volume roadways;	4.5 miles	West/ Southwest	National Register of Historic Properties- (NRHP-) listed and regionally significant lighthouse on the shore of Lake Ontario, set within Golden Hill State Park. Elevated views from lighthouse accessible to the public.	●
7	Golden Hill State Park	9691 Lower Lake Rd Barker, NY 14012	Forest	(ii) State parks or historic sites	4.2 miles	West	Large, primarily flat and forested recreational area on the shore of Lake Ontario. State Park contains Thirty-Mile Point Lighthouse, which itself is visually appealing. Views of the lake dominate and make for high quality scenic views. Views toward the Facility, to the west, are heavily screened by multiple wooded and forested areas.	●
8	Somerset Cemetery	8722 Lake Road Barker, NY 14012	Agriculture	(ii) locally designated historic site; public park	1.6 miles	West	Large, locally significant cemetery located off NYS Route 18. Views are limited by dense forested areas to the east and wooded residential area to the north.	●
9	Somerset Town Park	8700 Haight Rd Barker, NY 14012	Developed	(ii) public park or recreation area	1.5 miles	Northwest	Moderately sized municipal park, located off Haight Road, containing sports fields including baseball and softball fields. Park contains open areas of green lawn. Dense vegetation to the south and northwest limits views, and the park is adjacent to a municipal highway department maintenance facility. Humanmade features include storage structures, stockpiled aggregate materials.	●
10	West Somerset Baptist Church	1876 Hosmer Rd Appleton, NY 14008	Developed	None	0.9 mile	North	Attractive, two-story brick church facing Niagara County Route 65/Hosmer Road, located directly south of the Facility. Mature trees and neighboring homes and buildings surround the property and views primarily limited to the immediate foreground. Exception is looking north along the Niagara County Route 65/Hosmer Road corridor, which extends to the exhaust tower located within the former coal plant.	●

Viewpoint No.[4]	Representative Viewpoint Name	Site Address	Resource Type/Landscape Similarity Zone (LSZ)	New York Code, Rules and Regulations (NYCRR) §900-2.9(b)(4) Selection criteria	Approx. Distance to Nearest Facility Component (miles or feet as noted)[1]	Viewing Direction	Existing Landscape Characteristics and Views	Views Toward Facility[2] ● *Not Visible* ○ *Visible*
11	Sawyer Cemetery	Lake Rd Appleton, NY 14008	Agriculture	(ii) locally designated historic site; public park	0.6 mile	East	Small country cemetery located 375 ft. south off of NYS Route 18/Lake Road. The cemetery is fully surrounded by cultivated agricultural fields.	●
12	Krull County Park	6108 E Lake Rd Olcott, NY 14126	Recreation/ Mixed Forested	(ii) public park or recreation area	4.3 miles	East/ Northeast	The landscape is characterized by gently rolling terrain with a large, forested area to the southwest. Vegetation includes dense forested areas to the southwest and trees within residential lots. Human-made features include scattered residential development, roads, and distribution lines. Views from the site are generally open and consist primarily of agricultural development and the existing roadways. Views towards the solar array, Facility Substation, and electrical equipment will be partially screened by variations in terrain.	●
13	Smith Residence (private)	7397 Lake Rd Appleton NY 14008	State-listed 'eligible' historic building; Agriculture	(ii) NY SHPO eligible historic site	0.2 mile	East	The landscape surrounding this state-listed, NRHP-eligible home is wooded. Views beyond the immediate foreground are oriented to the south. Dense mature vegetation exists between the Smith Residence and the Facility. Humanmade features visible from the residence include the two-lane NYS Route 18, wood transmission poles crossing the highway, and neighboring rural residences to the south. Views of the neighboring Mayer Bros Beverage industrial facility to the west exist through low vegetation.	●
14	Barker Bi-Centennial Park	1 Huntington Beach Barker, NY 14012	Agriculture	(ii) public park or recreation area	1.0 mile	West-southwest	Small municipal park (Village of Barker) located on the shore of Lake Ontario, at the northern terminus of Quaker Road among a cluster of residential parcels. Park offers open lawn areas and a few large trees, but primary feature is views and access to the lake. Two small docks allow launching of hand-held watercraft, such as kayaks. Views are oriented to the north and blocked to the east and west by brush and trees and neighboring residences.	●
15	Russel U-Pick Blueberries[5]	7269 Lake Rd Appleton NY 14008	Private commercial agriculture site; Agriculture	(i) Representative of unobstructed view	150 feet	East	Private commercial/agriculture site immediately adjacent to the western Facility boundary and accessible from NYS Route 18. Landscape character is dominated by green vegetation, including neat linear rows of blueberry shrubs in a green field surrounded to the south, east and west by dense vegetation.	○

Notes
a/ Distance taken between central point of the resource and perimeter fence.
b/ Based on viewshed analysis, aerial photography, and fieldwork.

[5] This location does not meet the 94-c regulatory requirements for inclusion as a potential viewpoint; however, due to this location adjacent to the Facility Site it was included for review.

8(c) Visual Contrast Evaluation

(1) Photographic Simulations of Facility and Interconnections

Photographic simulations were created to depict the appearance of the proposed Facility components and their potential changes to the existing landscape. The simulations were used to determine the level of contrast between the existing landscape and the expected landscape after the proposed Facility is constructed. Simulation locations are shown on Appendix 8-A, Figure 4a and Figure 4b; and Appendix 8-A, Attachment 7.

(2) Photographic Simulations of Facility with Mitigation

Simulations were also created to illustrate proposed mitigation for those representative viewpoints where landscaping is proposed to help screen the Facility. Vegetative screening will be provided along portions of NYS Route 18, adjacent to the Babcock House, and around multiple residential areas located adjacent to the Facility, to help screen views of the Facility from residences and travelers along the roadway. Simulations depicting views of the Facility with mitigation implemented are included in Appendix 8-A, Attachment 7.

(3) Results of Visual Impact Assessment

As noted in Appendix 8-A, Section 5.1.1, a panel of three visual professionals completed contrast rating worksheets for five representative viewpoints. To assist in the evaluation of changes associated with the implementation of the Facility, photographic simulations were compared to exiting photographs taken during the field visit. Contrast rating worksheets are included in Appendix 8-A, Attachment 6.

Table 8-4: Summary of Results of Contrast Rating Panel

Simulation / Representative Viewpoint No.[1]	Representative Viewpoint	Distance to Nearest Facility Component (miles/feet)	Viewer Group	Average Contrast Rating Results			
				Panelist 1	Panelist 2	Panelist 3	Contrast Rating Results[2]
Viewpoint 1	Babcock House Museum	315 feet	Residential / Recreationist	3	2.7	2.3	Moderate-Weak
Viewpoint 2A	NYS Route 18/Lake Road	620 feet	Residential / Recreationist/Traveler	1.7	2.7	2.3	Moderate-Weak
Viewpoint 2B	NYS Route 18/Lake Road	100 feet	Residential / Recreationist/Traveler	4	3.6	3.3	Moderate-Strong
Viewpoint 3	Niagara County Route 108/Hartland Road	50 feet	Residential / Traveler	3	3.6	3.6	Moderate-Strong
Viewpoint 5	Haight Road Residential	75 feet	Residential/Traveler	3.7	3	2.7	Moderate-Strong

1 – Viewpoint numbers correspond to viewpoints identified in Appendix 8-A, Table 3, Section 4.3.3.2.

2 – Contrast rating results reflect averages without mitigation taken into consideration. Visibility results including mitigation plantings are discussed on the contrast rating forms for each viewpoint. See Appendix 8-A, Attachment 6, which includes contrast ratings with and without landscape mitigation.

Descriptions of the contrast rating results for each of the five representative viewpoints is included in Appendix 8-A, Section 5.2.2.3.

Overall, the Facility will result in minor to moderate change to the landscape conditions for most viewers within the VSA, primarily motorists/cyclists traveling along NYS Route 18/Lake Road. Minor to moderate change to the landscape will be apparent to a limited number of viewers located adjacent to the Facility.

During the construction period for Facility components, viewers will be able to observe construction equipment, laydown areas, and crews. Varying degrees of visual contrast will occur when equipment and construction crews are present; however, this source of contrast will be short-term since equipment and support facilities will be removed once construction is complete. Visual effects during operation of the Facility will result from the visibility of the aboveground components associated with the Facility, including PV panels, inverters, the Facility Substation, and overhead gen-tie line, access roads, and perimeter fencing. The Facility will introduce regular dark-colored forms and horizontal and vertical lines into a landscape setting that has been modified primarily by agricultural and residential development. Residences and travelers' local roads, such as NYS Route 18/Lake Road, Niagara County Route 108/Hartland Road, and Haight Road, will have views towards the Facility that range from unobstructed to partially screened to completely screened by vegetation along the Facility boundary. It is also possible boaters on Lake Ontario will have brief and partial views of PV panels, but these views will be heavily screened by topography and shoreline vegetation.

Based on the results of the rating panel evaluating the existing conditions and the photo simulations, contrast will range from moderate-weak visual impact to moderate-strong visual impact which primarily depends on the distance of the viewer to Facility components, existing vegetation screening, and other human-made modifications present in the viewscape. Landscaping is proposed around the perimeter of the Facility where adjacent viewers will have unobstructed views towards the Facility, and will consist of a variety of evergreen trees that will help to screen portions of the Facility and break up the uniformity of the blocks of PV panels. Landscape screening will help to reduce contrast, significantly in some areas, and overall visibility for adjacent viewers. Viewers not directly adjacent to the Facility will be mostly

to completely screened by topography and/or vegetation within the existing landscape and will therefore result in minimal to no visual impacts.

8(d) Visual Impacts Minimization and Mitigation Plan

A Visual Impacts Minimization and Mitigation Plan is provided as Appendix 8-A, Attachment 8. Appendix 8-A, Attachment 9, includes the Facility Substation Plan and Profile Drawings. Minimization measures that the Applicant has implemented at the Facility include those described in Appendix 8-A, Section 7.

The following avoidance, minimization, and mitigation measures form an integral part of the proposed Facility's design.

- The solar panels will be located primarily within the existing open areas associated with the brownfield of the former coal plant site and agricultural fields within the Facility and vegetation clearing will be limited where necessary for construction, to the maximum extent practicable (Appendix 5-A, Sheet PV-C.02.00). Several swaths of forested wetlands within the Facility will be preserved. The design approach of breaking up the PV panel arrays into smaller sections installed within existing cultivated fields located south of NYS Route 18 interspersed within the existing vegetated landscape will help to mitigate the visual effects from surrounding areas.
- Setbacks and offsets: The Facility alignment has been designed to incorporate and abide by and/or exceed the minimum property and building setback distance requirements for 94-c (see Exhibit 5 for more detail). The Applicant used offsets of 250 feet from occupied buildings and 50 feet from the center line of public roads and non-residential, non-participating property lines.
- Evergreen and deciduous vegetative screening will be provided along portions of NYS Route 18 and around residential areas located in proximity to the Facility, to screen views of the solar panels from residences and travelers along the roadway (Appendix 5-A, Sheets PV-C.05.01–PV-C.05.04).
- Facility perimeter fencing has been designed using wood-framed panels of welded wire mesh. This 'agriculture-style' fencing will appear more visually compatible with the existing rural/agricultural setting compared with the typical chain link fencing (Appendix 5-A, Sheets PV-C.09.01 and PV-C.09.02).

- When construction is complete, areas disturbed during the construction process will be reseeded with appropriate native seed mixes.
- Panels will have anti-reflective coatings that will reduce the level of reflectivity and the majority of the panel arrays will be trackers, minimizing glare even further.
- The PV medium voltage electrical collection system has been located underground, to the maximum extent practicable. A small number of aboveground sections of the electrical collection system are situated on cable trays (sleepers) where underground work is prohibited to protect groundwater liners that in place (at the coal storage pile and SWDA II landfill). Structures to be constructed for the overhead portions of the Facility are limited to a 159-ft section of overhead interconnection line that will connect the Facility Substation to Kintigh Substation which include a take-off structure at the Facility Substation, an interconnection line pole, and connection to another take-off structure at Kintigh Substation. (Appendix 5-B, Sheet TL-P.01.01).
- Outdoor nighttime lighting at the Facility Substation will be kept to the minimum required for emergencies. Lighting will only be activated in the event of an outage or other repair-related event at the Facility Substation during nighttime hours and will be turned off after repairs are completed.
- Security lights will be manually operated and only on during nighttime hours as required. Light fixtures will be shielded and downward facing to minimize off-site lighting impacts.
- “Good housekeeping” will be implemented to maintain the Facility free of debris, trash, and waste during construction.

(1) Advertisements, Conspicuous Lettering, or Logos

Advertisements, conspicuous lettering, or logos identifying the Facility owner, solar module manufacturer, or any other supplier entity, other than warning and safety signs, will not be on the Facility infrastructure.

(2) Electrical Collection System

The PV medium voltage electrical collection system will be located underground, to the extent practicable (Exhibit 5). Structures shall only be constructed aboveground for portions where necessary based on engineering, construction, or environmental constraints.

(3) Electric Collection and Transmission Facilities Design

High voltage electric collection and gen-tie line facilities design are expected to use wood poles; if used steel poles will be self-weathering (such as Corten or equivalent) or other surface finish in dark brown or green color, non-glare finish. The Facility Substation will interconnect to the adjacent, existing Kintigh Substation and New York State Electric and Gas Corporation 345-kV transmission line for connection to the grid.

(4) Non-specular Conductors

Non-specular conductors will be used for any overhead portions of the gen-tie line and the electric collection system.

(5) FAA Turbine Colors for Wind Facilities

This section is not applicable and is therefore not discussed in this plan.

(6) Shadow Flicker for Wind Facilities

This section is not applicable and is therefore not discussed in this plan.

(7) Glare for Solar Facilities

The glare model results provided in Attachment 8, Appendix A does not account for varying ambient conditions (i.e., cloudy days, precipitation), atmospheric attenuation, screening due to existing topography not located within the defined array layouts, or existing vegetation or structures (including fences or walls), nor does the tool allow proposed landscaping to be included. However, through the use of the obstruction feature that is now available from the software program used in the glare analysis, sections of existing natural screening through the existing forested areas buffering between the Facility and non-participating property lines was able to be included in the model. The use of existing natural screening along various sides of each PV array area provides partial to substantial natural vegetative buffering between the Facility and non-participating property lines, which appear to be mainly undeveloped and vacant. In addition to maintaining existing vegetative buffering, a landscape and screening plan utilizing a variety of evergreen tree and shrub species has been developed along a portion of NYS Route 18/Lake Road and Niagara County Route 108/Hartland Road, which is further detailed in the preliminary Landscaping Plan (Appendix 5-A, Sheets PV-

C.05.01–PV-C.05.04). The landscaping plan is expected to minimize any remaining views of the project by non-participating occupied residences, especially along NYS Route 18/Lake Road. In the case of this Facility, existing topography and intervening structures and vegetation are expected to reduce the potential for glare at all the observation points and roadway segments. As such, the predicted results are conservative. Based on this completed effort, it is not anticipated that glare impacts will result during operation of the Facility.

(8) Planting Plan

Vegetative mitigation, or screening, can be effective in further minimizing views. A Landscaping Plan was prepared for the Facility (Appendix 5-A, Sheets PV-C.05.01–PV-C.05.04). To provide additional screening, the landscape plan was developed to include sustainable, hearty, and resilient plantings that primarily consist of native/indigenous species. The landscape plan has been coordinated with Town of Somerset officials and representatives of the Somerset Historical Society (Appendix 2-C). To address potential visual impacts to the Babcock House Museum (a participating property on the Project Site) as identified by the Office of Parks, Recreation and Historic Preservation (Appendix 9-A), additional rows of landscape plantings around the museum parcel have been incorporated into the landscaping plan in this area of the Facility. The planting materials emphasize evergreens which will help minimize views of the Facility Site year-round, as well as use of deer-resistant plant species, to reduce the potential for plant damage from deer browse.

The following items and concepts were applied to the Landscaping Plan:

- The Town of Somerset Solar Law was reviewed, and the visual screening efforts meet the stated intent and spirit of the requirements to the best extent possible.
- Evergreen species including spruce and cedar, and ninebark species were selected for inclusion into the plan. The species chosen will need to reach an adequate height and width to provide the appropriate visual screening, while also maintaining minimum mature heights that will not produce shade over the Facility PV panels in later years. Evergreen tree species include white spruce (*Picea glauca*), Serbian spruce (*Picea omorika*), and eastern red cedar (*Juniperus virginiana*), with eastern ninebark (*Physocarpus opulifolius*), a deciduous species proposed for the lower shrub layer and considered a deer-resistant species.

- The plantings are proposed along the outside fence line or at property boundaries in locations noted on the Landscaping Plan (Appendix 5-A, Sheets PV-C.05.01–PV.C.05.04).
- Expected growth heights (depending on the specific tree or shrub species) are between 5 to 15 feet at five years. However, fully mature heights of the evergreen tree species may reach 40 to 60 feet high.
- A grass seed mix using appropriate native/indigenous warm and cool season grasses was developed especially for the areas under and around the solar panels and is considered favorable for wildlife habitat and sustainable growth. The seed mix will provide a groundcover that minimizes erosion concerns, does not pose any shading issues, and is manageable year-round.
- An appropriate native pollinator seed mix is intended to be sown in a designated 10-ft-wide area located outside of the panels, and around the perimeter of the proposed landscape mitigation buffer. Native flowers in the mix will provide an attractive display of colors during the growing season.
- An annual maintenance program will be provided to ensure that proper care and attention is given to the proposed plantings once they have been installed and established. Maintenance will include, but may not be limited to, selective pruning, mowing, and monitoring of invasive species.

(9) Lighting Plan

Lighting is proposed only at the Facility Substation and is intended for security, safety, and maintenance purposes. A lighting plan, including a photometrics plan indicating illumination levels anticipated at the Facility Substation is provided in Appendix 8-A, Attachment 9.

Emergency lights will be installed within the Facility Substation and would only be activated in the event of an outage or other repair-related event during nighttime hours. Within the Facility Substation footprint, a total of nine pole-mounted emergency working lights will be installed. The lighting will be mounted at a height of not more than approximately 30 feet on poles and will be directed downward toward equipment with full cutoff shields to minimize light trespass. The lighting has been designed to provide an average of 2.65 foot candles. RAB LED Area

light fixtures with a lumen output of 15,200 (or similar) will be used. The lights will only be turned on when Facility personnel are performing maintenance; the lights will be turned off after repairs are completed. Security lights will be installed above the door of the Facility Substation control building (Appendix 5-B, Sheet HV-P.14.01). These security lights will be manually operated and only on during nighttime hours as required. Light fixtures on the control building will also be shielded and downward facing to minimize off-site lighting impacts.

The lighting plan addresses the following, as applicable:

- Security lighting needs at the Facility Substation: Lights are located on pole-mounted locations – two of which are located near entries to the Facility Substation.
- Lights Require full cutoff fixtures, with no drop-down optical elements (that can spread illumination and create glare) for permanent exterior lighting.
- The proposed lighting complies with lighting standards established by the NESC and OSHA requirements, as proper illumination will be provided for all working spaces around the electrical equipment. All of which has been designed so that control points or persons making repairs will not be endangered by “live parts” or other equipment.
- Exterior lighting design will be limited to lighting required for health, safety, security, emergencies, and operational purposes and will be specified to avoid off-site lighting effects as follows:
    - Using task lighting as appropriate to perform specific tasks;
    - Limiting the maximum total outdoor lighting output;
    - Task lighting fixtures will be designed to be placed at the lowest practical height and directed to the ground and/or work areas to avoid being cast skyward or over long distances;
    - Incorporate shields and/or louvers where practicable; and
    - Lights are capable of manual or auto-shut off switch activation rather than motion detection.

The amount and character of light generated by the Facility emergency lights will be consistent with existing light sources within the VSA including outdoor lighting at the existing Kintigh Substation, schools, and businesses within the VSA. Considering the lighting plan, dense vegetation around the Facility Substation, and distance to potential receptors sensitive to nighttime lighting, lighting from the Facility Substation is not expected to result in adverse visual impacts.

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