APPENDIX 8-A

Visual Impact Assessment

Visual Impact Assessment

for the

Somerset Solar Project

Niagara County, New York

March 2023

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LIST OF ABBREVIATIONS AND ACRONYMS

Acronym/Abbreviation	Definition
%	percent
94-c Exhibit regulations §900-2.9	Title 19 of the New York Codes, Rules, and Regulations
Applicant	Somerset Solar LLC
BLM	United States Bureau of Land Management
DEM	Digital Elevation Models
ECL	New York Department of Environmental Conservation's Environmental Conservation Law
Facility	Somerset Solar Facility, including photovoltaic solar arrays, interconnection line and electrical collection lines, access roads and related infrastructure
Facility Site	Limit of disturbance that will be utilized for construction and operation of the Facility, which totals about 693 acres
GIS	geographic information system
kV	kilovolt
LWRP	Local Waterfront Revitalization Program
LSZ	Landscape Similarity Zones
MW	megawatt
NLCD	National Land Cover Database
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
ORES	Office of Renewable Energy Siting
Project Site	approximately 1,396 acres of land in Niagara County, New York, on which the Somerset Solar Facility is proposed
PV	photovoltaic
Resource Inventory Area	a 5-mile radius around the Facility, included in this assessment
SASS	Scenic Areas of Statewide Significance
SRHP	State Register of Historic Places
SWDA	Solid Waste Disposal Area
Tetra Tech	Tetra Tech, Inc.
USFS	United States Forest Service
VIA	Visual Impact Assessment
Visual Study Area, VSA	a 2-mile radius around the Facility, included in this assessment
VRM	Visual Resource Management

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was contracted by The AES Corporation, Inc. to prepare a Visual Impact Assessment (VIA) in support of the development of the New York Codes, Rules, and Regulations (NYCRR) Chapter XVIII, Title 19 NYCRR §900-2.9 (Implementing Section 94-c of the Executive Law) Application for the Somerset Solar Facility (the Facility). The Project Site for the Facility consists of a 125-megawatt (MW) photovoltaic (PV) solar farm to be sited on approximately 1,396 acres of privately-owned land located in Niagara County, New York; of which approximately 693 acres will be subject to disturbance (Facility Site) (see Figure 1). The Facility is situated along New York State (NYS) Route 18/Lake Road, between the village of West Somerset and the edge of Lake Ontario.

The VIA includes a description of the Facility components that were evaluated (Section 2); a summary of the regulatory requirements and drivers behind the analysis conducted (Section 3); a detailed discussion of the methods used to identify the Facility's Visual Study Area (VSA), conducting viewshed mapping, and inventorying visual resources potentially affected by the construction and operation of the Facility (Section 4); a detailed discussion of the methods used to evaluate impacts and a summary of potential effects (Section 5); a discussion of cumulative impacts (Section 6); and an evaluation of potential mitigation measures and best management practices applicable to the Facility (Section 7).

For the purposes of this VIA, "Facility" refers to the locations within the Facility that are proposed for Facility components (i.e., solar panels, inverters, substation, other internal infrastructure). "Visual Study Area" ("VSA") refers to a 2-mile radius around the Facility, in accordance with the requirements specified in 94-c Exhibit regulations §900-2.9. The "Resource Inventory Area" refers to a 5-mile radius around the Facility which was used during the inventory process.

2.0 FACILITY DESCRIPTION

The Facility is proposed to have a rated capacity of approximately 125 MW (alternating current). The Facility components will consist of solar panel arrays, a substation, and associated infrastructure that have been carefully sited within the Facility to avoid and minimize environmental and visual impacts to the maximum extent practicable. Panel areas, substation, and other Facility infrastructure footprints make up approximately 50 percent (%) of the 1,396-acre Project Site (Exhibit 2, Figure 2-1). The Facility will consist of the following components:

- The solar arrays will consist of PV panels producing direct current electricity mounted using one of two methods: 1) on single-axis tracking structures that will follow the sun throughout the day; and 2) fixed-tilt racking oriented south. The PV panels will generally follow the existing topography; therefore, minimal grading will be required.
- Inverters (with integrated transformers) within boxes on concrete pads, skids, or similar improvements will be located throughout the Facility (amongst the solar arrays) to convert direct current electricity to alternating current electricity.
- One on-site substation is proposed (the Somerset Collector Substation [Facility Substation]), which will step-up the medium voltage of 34.5 kilovolt (kV) to the voltage of 345-kV for connection to the Kintigh Substation (point of interconnection via a 345-kV transmission line. The Facility Substation will be located within the northwestern portion of the Facility, adjacent to the existing Kintigh Substation.
- Emergency lights will be installed within the Facility Substation. These lights will only be activated in the event of an outage or other repair-related event during nighttime hours. 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 control building at the Facility Substation. These 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.
- Internal infrastructure will include, but is not limited to, permanent gravel access roads (approximately 15 to 25 ft wide), grassed access corridors within the PV array areas, and security fencing around Facility equipment. Multiple access points will be available to the Facility due to the nature of the non-contiguous parcels. Public roads will be used for

construction access and general access during Facility operation. It is not anticipated that any improvements to public road intersections or the addition of turnarounds will be required.

- Construction of the Facility will use temporary construction laydown areas to accommodate construction equipment, Facility components, trailers, and parking for construction workers.
- The construction laydown areas will be approximately 1 to 5 acres in size and will be located off each Facility Site entrance driveway. The construction laydown areas will be temporary.
- Perimeter security fencing will consist of a 7-foot-high wire mesh (agricultural style) or chain-link fence, subject to electrical and building code requirements.
- Facility Substation fencing also will be 7 feet in height, with an additional 1 foot of barbed wire for additional security.
- Facility Substation also contains a concrete sound mitigation wall, which is approximately 28 feet high and 43 feet long near the transformer. Solar array area 5 also contains two sections of chain link fencing modified to provide sound mitigation.

3.0 REGULATORY SETTING

3.1 19 NYCRR 900-2.9

On April 3, 2020, New York enacted the Accelerated Renewable Energy Growth and Community Benefit Act (2020 Renewables Act), landmark environmental legislation which included a new Executive Law §94-c. Executive Law §94-c created the Office of Renewable Energy Siting (ORES), the nation's first state office specifically devoted to the siting of large-scale renewable energy generation facilities. ORES is committed to advancing the State's renewable energy goals by completing "a coordinated and timely review of proposed major renewable energy facilities . . . while ensuring the protection of the environment and consideration of a pertinent social, economic and environmental factors" (Executive Law §94-c(1)) (ORES 2021).

19 NYCRR §900-2.9, Exhibit 8 requires a VIA to be completed to determine the extent and assess the significance of facility visibility and outlines specific components of the VIA including: identification of visually sensitive resources; viewshed mapping; confirmatory visual assessment fieldwork; visual simulations (photographic overlays) and line-of-sight profiles; cumulative visual impact analysis; and proposed visual impact mitigation. Table 1 outlines the information needed to fulfill the requirements of 19 NYCRR §900-2.9 and where these requirements are addressed in this VIA.

Table 1. 19 NYCRR §900-2.9 Requirements

19 NYCRR §900-2.9 Visual Impacts	Section
(a) A visual impact assessment (VIA) to determine the extent and assess the significance of facility visibility. The components of the VIA shall include identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), cumulative visual impact analysis, and proposed Visual Impacts Minimization and Mitigation Plan as outlined in subdivision (d) of this section. The VIA shall address the following issues:	
(1) the character and visual quality of the existing landscape;	4.3.1 4.3.1.1 4.3.1.2
(2) the visibility of the facility, including visibility of facility operational characteristics, such as wind turbine lighting, glare from solar panel arrays;	5.2.2 5.2.2.2 5.2.2.5
(3) the visibility of all above-ground interconnections and roadways to be constructed within the facility as determined by the viewshed analysis;	4.1.1 5.2.2.2
(4) the appearance of the facility upon completion, including building/structure size, architectural design, façade colors and texture, and site lighting;	5.2.2.1 5.2.2.3 Attachment 7
(5) the proposed facility lighting (including lumens, location and direction of lights for facility site and/or task use, and safety including worker safety and tall structure marking requirements) and similar features;	5.2.2.4

19 NYCRR §900-2.9 Visual Impacts	Section
(6) representative views (photographic overlays) of the facility, including relevant front, side, and rear views, indicating approximate elevations;	Attachment 7
(7) the nature and degree of visual change resulting from construction of the facility and above-ground connections;	5.2.1
(8) the nature and degree of visual change resulting from operation of the facility and above-ground interconnections;	5.1.1 5.2.2 5.2.2.1 5.2.2.3 Attachment 6 Attachment 7
(9) an analysis and description of related operational effects of the facility such as visible plumes, shading, glare, and shadow flicker; and	5.2.2.4 5.2.2.5
(10) a description of all visual resources that would be affected by the facility.	4.2.2 4.3.3 Attachment 2
(b) The viewshed analysis component of the VIA shall be conducted as follows:	
(1) Viewshed maps depicting areas of project visibility within two (2) miles of a solar facility and within five (5) miles of a wind facility, as well as any potential visibility from specific significant visual resources beyond the specified study area, shall be prepared and presented on a 1:24,000 scale recent edition topographic base map. A line-of-sight profile shall also be done for resources of statewide concern located within the VIA study area. The viewshed maps shall provide an indication of areas of potential visibility based on topography and vegetation and the highest elevation of facility structures and distance zone (foreground, midground and background areas). The potential screening effects of vegetation shall also be shown. Visually-sensitive sites, cultural and historical resources, representative viewpoints, photograph locations, and public vantage points within the viewshed study area shall be included on the map(s) or an overlay. An overlay indicating landscape similarity zones shall be included.	Figures 3a–3f maps Attachment 2
(2) The VIA shall include a description of the methodology used to develop the viewshed maps, including software, baseline information, and sources of data.	4.1.1 Attachment 1
(3) The viewshed mapping shall be used to determine the potential visibility from viewpoints to be analyzed (as indicated in the following paragraph (4) of this subdivision) and locations of viewer groups in the vicinity of the facility, as determined pursuant to the pre-application meeting(s) held pursuant to section 900-1.3(z) of this Part. These shall include recreational areas, residential, business locations, historic properties (listed or eligible for listing on the State or National Register of Historic Places), and travelers (interstate and other highway users).	4.1.1 4.2.2 4.3.2 4.3.3
(4) The applicant shall confer with municipal planning representatives, the Office, and where appropriate, OPRHP and/or APA in its selection of important or representative viewpoints. Viewpoint selection is based upon the following criteria:	4.3.3
(i) representative or typical views from unobstructed or direct line-of-sight views;	4.3.3 Attachment 4
(ii) significance of viewpoints, designated scenic resources, areas or features (which features typically include, but are not limited to: landmark landscapes; wild, scenic or recreational rivers administered respectively by either the NYSDEC or the APA pursuant to ECL Article 15 or Department of Interior pursuant to 16 USC Section 1271; forest preserve lands; scenic vistas specifically identified in the Adirondack Park State Land Master Plan; conservation easement lands; scenic byways designated by the Federal or State governments; scenic districts and scenic roads, designated by	3.2.1 4.3.3

19 NYCRR §900-2.9 Visual Impacts	Section
the Commissioner of Environmental Conservation pursuant to ECL Article 49; scenic districts; scenic areas of statewide significance (SASS); State parks or historic sites; sites listed on National or State Registers of Historic Places; areas covered by scenic easements, public parks or recreation areas; locally designated historic or scenic districts and scenic overlooks; and high-use public areas;	
(iii) level of viewer exposure, i.e., frequency of viewers or relative numbers, including residential areas, or high-volume roadways;	4.3.2 4.3.3
(iv) proposed land uses;	3.2.5 3.2.9.2
(v) assessment of visual impacts pursuant to the requirement of adopted local laws or ordinances; and	3.6.2.1 5.2.2
(c) Visual Contrast Evaluation	
(1) Photographic simulations of the facility shall be prepared from the representative viewpoints to demonstrate the post-construction appearance of the facility. Where vegetation screening is relied on for facility mitigation, leaf-off and leaf-on simulation shall be provided.	4.3.3 5.1.2 Attachment 7
(2) Additional revised simulations illustrating mitigation shall be prepared for those observation points for which mitigation is proposed in the application.	5.1.2 5.2.2.3, Attachment 7
(3) Each set of existing and simulated views of the facility shall be compared and rated and the results of the VIA shall be summarized. Documentation of the steps followed in the rating and assessment methodology shall be provided including results of rating impact panels and a description of the qualifications of the individuals serving on the panels. Where visual impacts from the facility are identified, contrast minimization and mitigation measures shall be identified, and the extent to which they effectively minimize such impact shall be discussed.	5.1.1 5.2.2.3 7.0 Attachment 5 Attachment 6 Attachment 7
(d) Visual Impacts Minimization and Mitigation Plan. The Visual Impacts Minimization and Mitigation Plan shall include proposed minimization and mitigation alternatives based on an assessment of mitigation strategies, including screening (landscaping), architectural design, visual offsets, relocation or rearranging facility components, reduction of facility component profiles, alternative technologies, facility color and design, lighting options for work areas and safety requirements, and lighting options for FAA aviation hazard lighting. The facility design shall incorporate the following measures for the Visual Impacts Minimization and Mitigation Plan:	Attachment 8
(1) Advertisements, conspicuous lettering, or logos identifying the facility owner, turbine manufacturer, solar module manufacturer, or any other supplier entity, other than warning and safety signs, shall not be allowed;	Attachment 8
(2) The electrical collection system shall be located underground, to the extent practicable. Structures shall only be constructed overhead for portions where necessary based on engineering, construction, or environmental constraints;	Attachment 8
(3) Electric collection and transmission facilities design shall specify use of either wood poles or steel pole structures; steel poles shall be self-weathering (such as Corten or equivalent) or other surface finish in dark brown or green color, non-glare finish;	Attachment 8
(4) Non-specular conductors shall be used for any overhead portions of the transmission line and the electric collection system; and	Attachment 8
(5) For wind facilities, wind turbines, towers and blades shall be Federal Aviation Administration (FAA) approved white or off-white colors to avoid the need for daytime aviation hazard lighting, unless otherwise mandated by FAA, and non-reflective finishes shall be used on wind turbines to minimize reflected glare.	Not Applicable
(6) Shadow Flicker for Wind Facilities. Shadow Flicker shall be limited to thirty (30) hours per year at any non-participating residence, subject to verification using shadow prediction and	Not Applicable

19 NYCRR §900-2.9 Visual Impacts	Section
operational controls at appropriate wind turbines. The Visual Impacts Minimization and Mitigation Plan shall include items i-v.	
(7) Glare for Solar Facilities. Solar panels shall have anti-reflective coatings and the Visual Impacts Minimization and Mitigation Plan shall include an analysis using Sandia National Laboratories Solar Glare Hazard Analysis Tool (SGHAT) methodology or equivalent, that solar glare exposure at any non-participating residence, airport or public roadway will be avoided or minimized, and will not result in complaints, impede traffic movements or create safety hazards.	Attachment 8, Appendix A
(8) Planting Plans which shall include the facility substation; energy storage structures; and the POI Switchyard; and for components of solar generating facilities as appropriate to facility setting.	Attachment 8
(9) A lighting plan(s), which shall address: (i) Security lighting needs at substation and switchyard sites, and any exterior equipment storage yards; (ii) Plan and profile figures to demonstrate the lighting area needs and proposed lighting arrangement and illumination levels to provide safe working conditions at the collection substation site, and any exterior equipment storage yards or other locations; (iii) Exterior lighting design shall be limited to lighting required for health, safety, security, emergencies and operational purposes and shall be specified to avoid off-site lighting effects as follows: (a) Using task lighting as appropriate to perform specific tasks; limiting the maximum total outdoor lighting output based on the lowest allowable OSHA limits; task lighting fixtures shall 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 capable of manual or auto-shut off switch activation rather than motion detection; (b) Requiring full cutoff fixtures, with no drop-down optical elements (that can spread illumination and create glare) for permanent exterior lighting, consistent with OSHA requirements and adopted local laws or ordinances, including development standards for exterior industrial lighting, manufacturer's cut sheets of all proposed lighting fixtures shall be provided; and (c) For wind facilities, lighting shall be installed on turbines for aviation hazard marking as specified by FAA. The applicant shall file a Notice for a Marking and Lighting Study of Aircraft Detection Lighting System(s) (ADLS) and dimmable lighting options with the FAA/Department of Defense (DOD) seeking a written determination approving the use of ADLS or other dimmable lighting option at the Project. If FAA/DOD determine that ADLS or dimmable lighting options are not appropriate for the project, or if the applicant determines installation of ADLS or dimmable lighting options are not technically feasible, the applicant shall consider other means of minimizing lighting effects, such as use of low-intensity lighting, and synchronization of lighting activation with adjoining wind farms.	Attachment 8Attachment 9 5.2.2

3.2 STATE AND LOCAL LAND USE PLANS AND GUIDANCE

The Facility would be located within the Town of Somerset, Niagara County, New York. Regional and local planning documents were reviewed to identify locally designated visually sensitive areas:

- Niagara Communities Comprehensive Plan
- Town of Somerset 2016 Comprehensive Plan Update

- Town of Somerset Local Waterfront Revitalization Program (LWRP)

Sources of data that were used to identify scenic resources within the Resource Inventory Area are included in Attachment 1.

3.2.1 19 NYCRR §900-2.9

Chapter XVIII, Title 19 NYCRR §900-2.9 provides guidance for the evaluation of visual impacts of proposed projects. Per this regulation, scenic features may include the following categories:

- Landmark landscapes;
- Wild, scenic, or recreational rivers administered respectively by either the New York Department of Environmental Conservation (NYSDEC) or the American Planning Association pursuant to NYSDEC's Environmental Conservation Law (ECL) 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 State governments;
- Scenic districts and scenic roads;
- Designated by the Commissioner of Environmental Conservation pursuant to ECL Article 49;
- Scenic districts;
- Scenic areas of statewide significance (SASS);
- State parks or historic sites;
- Sites listed on National or State Registers of Historic Places;
- Areas covered by scenic easements, public parks or recreation areas;
- Locally designated historic or scenic districts and scenic overlooks; and
- High-use public areas.

3.2.2 New York State Department of Environmental Conservation Policy DEP-00-2

NYSDEC Policy DEP-00-2: Assessing and Mitigating Visual Impacts provides guidance for the evaluation of visual impacts of proposed projects. Per this policy, scenic and aesthetic resources of statewide significance may be derived from one or more of the following categories:

- Properties on or eligible for inclusion in the National Register of Historic Places or State Register of Historic Places;
- State Parks;
- NYS Heritage Areas (formerly Urban Cultural Parks);
- State Forest Preserves;
- National Wildlife Refuges, State Game Refuges, and State Wildlife Management Areas;
- National Natural Landmarks;
- Sites on the National Park System, including Recreation Areas, Seashores, and Forests;
- National or State Wild, Scenic, or Recreational Rivers;
- Sites, areas, lakes, reservoirs, or highways designated or eligible for designation as scenic;
- SASS;
- State or federally-designated trails, or one proposed for designation;
- Adirondack Park Scenic Vistas;
- State Nature and Historic Preserve Areas;
- Palisades Park;
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space Category; and
- National Heritage Areas.

3.2.3 National Scenic Byways

One National Scenic Byway was identified within the VSA:

Great Lakes Seaway Trail Scenic Byway—This 518-mile east-west route traces the northern perimeter of New York into Pennsylvania, along Lakes Erie and Ontario. The route was designated as a National Scenic Byway in 1996 (National Scenic Byway Foundation 2022), one of the first roads in America to receive the designation. Its primary intrinsic value is historic. Within the VSA, the Great Lakes Seaway Trail Scenic Byway follows NYS Route 18/Lake Road. Relevant goals and objectives from the Corridor Management Plan (NYSDOT 2005) pertaining to this analysis include:

- ***Goal II.*** *Protect and enhance the scenic, natural, historic and cultural resources of the Great Lakes Seaway Trail corridor*

  Objective 2-3. *Identify and develop strategies to protect and enhance the scenic, historic, cultural and natural resources as well as environmental quality within the byway corridor.*

- ***Corridor-wide Recommendation 2:*** *Preserve and Enhance Scenic Quality:*
  Scenic quality is essential to the viability of tourism in any location. Visitors seeking an "America's Byways" experience will expect a high level of visual quality. The rural, agricultural landscape found along much of the Great Lakes Seaway Trail is itself one of the primary attractions. Efforts must be continued and expanded to ensure that this visual quality is not diminished or eroded as the byway corridor continues to develop.

3.2.4 New York State Protected Areas

NYS coastal areas, inland waterways, groundwater management zones, flood-prone areas, and critical environmental areas designated pursuant to Article 8 of the ECL, are not located within the Facility Resource Study Area. Therefore, no SASSs were identified.

The Facility is located within a Coastal Erosion Hazard Area and Coastal Management Program areas: specifically, the Town of Somerset adopted its LWRP in 2005. That plan is discussed in Section 3.2.6.2, below.

3.2.4.1 Golden Hill State Park and Thirty-Mile Point Lighthouse

Located 4.3 miles from the Facility, Golden Hill State Park is a 510-acre forested park on the edge of Lake Ontario offers overnight camping, shoreline and forested hiking trails, fishing, and boat launch facilities. In addition to summer activities, the Park offers winter activities such as snowshoe trials and snowmobiling. The historic Thirty-Mile Point Lighthouse (b. 1875) is also located within the state park and its attached keepers' cottage is available to visitors for overnight rentals. The lighthouse is located 4.5 miles from the Facility, at the outer edge of the Resource Inventory Area. In addition to second-story views from the rentable cottage, the 60-foot-high lens deck is accessible to visitors, offering unobstructed, open views of Lake Ontario and its shoreline, as well as toward the agrarian landscape to the south. Additional historic description and cultural evaluation regarding the Thirty-Mile Point Lighthouse is provided in Exhibit 9.

3.2.5 Niagara County

The Niagara Communities Comprehensive Plan was adopted in 2009. Throughout the Plan, principles of smart growth are espoused, including the preservation of open space and scenic resources while balancing economic and infrastructure support. The VSA includes three small unincorporated villages in Niagara County: Village of Barker; West Somerset and Appleton. The primary scenic resource identified by the Niagara Communities Comprehensive Plan within the VSA is the Great Lakes Seaway Trail Scenic Byway.

3.2.6 Town of Somerset

3.2.6.1 Town of Somerset Comprehensive Plan

The Town of Somerset Comprehensive Plan was adopted in 2012 and updated in 2016. The Comprehensive Plan provides recommendations and policies that "grew out of existing land use patterns, [the Town's] strategic waterfront location, future vision, practical considerations of access to infrastructure and transportation, with an eye to preservation of important natural features" (Town of Somerset 2016). Relevant goals and objectives from the Town of Somerset Comprehensive Plan are listed below:

> **Goal 1.** Maintain the rural and agricultural character of the town
>
> **Objective 1.d.** *Strive to protect important features such as woodlots, wetlands, and important views and other features that contribute to the rural character and visual appeal of the Town.*

> **Goal 4.** Achieve a Pattern of Development which Minimizes Travel Time, Adheres to Smart Growth Principles and Establishes a High Standard of Design
>
> **Objective 4.d.** *Require adequate landscape screening and separation between residential areas and non-residential uses to minimize land use conflicts and achieve high visual appeal.*

In addition, the Town of Somerset Comprehensive Plan specifically recognizes the value and opportunity of the Great Lakes Seaway Trail National Scenic Byway:

> *The Seaway Trail, a national scenic byway with outstanding views and scenic vistas, represents an extremely important component of the Town and its future. The Seaway Trail needs to be protected from non-compatible uses and connected to important features. It is an important economic component of the Town and its tourism economy.*

3.2.6.2 Town of Somerset Local Waterfront Revitalization Program

The Town of Somerset LWRP was adopted in 2005 and is a locally prepared, comprehensive land and water use plan for the Town's natural, public, and developed waterfront resources along Fish Creek and Lake Ontario (New York Department of State 2016). The LWRP includes a comprehensive resource inventory, which identifies locally important scenic resources, "primarily the dramatic vistas of Lake Ontario and its shoreline" (Town of Somerset 2005).

3.2.7 Village of Barker

The Village of Barker is located approximately 1.8 miles south of the Facility. It includes two municipal parks, including Barker Bi-Centennial Park, on the shore of Lake Ontario.

4.0 RESOURCE INVENTORY

The methods used to inventory scenic resources and assess visual impacts in this VIA are consistent with some methods used in the United States Bureau of Land Management's (BLM's) Visual Resource Management (VRM) System and United States Forest Service (USFS) Scenery Management System. These are widely accepted, industry-standard federal agency methodologies and are consistent with the requirements of 19 NYCRR §900-2.9. At a high level, the methodology applied includes establishing a study area and visual character; inventorying potential visual resources within the study area; identifying scenic resources and representative viewpoints; conducting fieldwork to document the existing visual character of the landscape, and to inventory representative viewpoints; creating visual simulations and line-of-sight profiles; and assessing impacts and mitigation.

4.1 VISUAL STUDY AREA (VSA)

Consistent with 94-c Exhibit regulations §900-2.9, the VSA consists of a 2-mile radius around the Facility. The "Resource Inventory Area" refers to a 5-mile radius around the Facility which was used during the inventory process. The VSA and Resource Inventory Areas are depicted on Figure 2.

4.1.1 Viewshed Analysis

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 on Figures 3a, 3b, and 3c.

- One viewshed analysis focused on the location and height of the solar arrays. The solar arrays will occupy the largest area of land within the Facility and, therefore, represent the most extensive source of potential visual change or contrast introduced into the landscape. A height of 10 feet was used for the viewshed analysis, based on the maximum height of a representative single-axis tracker solar module when the module is fully tilted. South-facing fixed-tilt panels have a maximum height of approximately 7 feet and were included in the viewshed analysis as well. Separate viewshed studies considering the solar arrays were then conducted using 'bare earth' and vegetated data inputs, as described below.
- The second viewshed analysis focused on the electrical distribution infrastructure equipment: the one proposed Facility Substation and on-site 345-kV overhead interconnection line (gen-tie) that extends to the boundary of the Facility Site to connect to Kintigh Substation. The Facility Substation 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 conducted using a point for the 'take off' within the Facility Substation (with a height of 52 ft).

An assumed viewer height of 6 ft was used for both viewshed analyses. The topographic viewshed analyses assumed 'bare-earth' conditions and were conducted using Environmental Systems Research Institute ArcGIS Geographic Information System (GIS) Desktop 10.8 software with the Spatial Analyst extension to process 10-meter Digital Elevation Models (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 consider the visibility effects of vegetation or buildings, which may screen or block views.

To further advance the viewshed analyses, a vegetated viewshed was conducted using United States Geological Survey LANDFIRE existing vegetation height data (United States Geological Survey 2021) to identify areas within the VSA where potential screening may be provided by 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 vegetation height 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. 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.[1] "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 weather) that can diminish visibility under actual field conditions were not accounted for in the viewshed analyses.

The viewshed analysis of the PV panels included determining the percentage of PV panels that will be potentially visible from areas identified as "seen," as determined by the viewshed analysis, within the VSA. The results of the PV panel viewshed analysis was then grouped by percentage of PV panels potentially

[1] The "casual observer" is a common term used in visual analyses for an observer who is not actively looking or searching for the facility but is engaged in activities at locations with potential views of the proposed facility, such as hiking, driving on a scenic road, or relaxing on a beach. If the facility is not noticeable to the casual observer, visual effects can be considered minor to negligible.

visible. The results of the electrical-distribution infrastructure equipment viewsheds were characterized as visible or not visible. The results of the viewshed analysis for the PV panels and electrical-distribution infrastructure equipment are shown on Figures 3a, 3b, and 3c.

The results of the viewshed analyses were used to determine the extent to which the Facility will potentially be visible from the scenic resources identified in Section 4.2.2. Line-of-sight profiles are discussed in Section 4.3.3 and shown on Figure 4a.

4.1.2 Distance Zones

Establishment of Distance Zones are required as cited in §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 to two miles from the viewer). At this distance, individual tree forms and building detail can still be distinguished at, for example, one 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 two-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 (Figure 2).

4.2 INVENTORY COMPONENTS

The inventory for visual resources considered the existing landscape and scenery and the scenic resources within the Resource Inventory Area. These visual components are described below.

4.2.1 Landscape and Scenery

Scenery is the aggregate of features that give character to the landscape (BLM 1984). Typically, every landscape comprises varying levels of landform, vegetation, existence of water, color, scarcity, adjacent scenery, and cultural modifications; all of which combine to exhibit landscape character (BLM 1986a). Existing conditions in the Resource Inventory Area were evaluated by means of aerial photography and field reconnaissance to determine where modifications have affected natural settings. Existing conditions observed during the inventory process are described in Section 4.3.3.

4.2.2 Scenic Resources

Scenic resources were identified in accordance with guidance provided by 94-c Exhibit regulations §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 Exhibit regulations §900-2.9. The categories reviewed to identify scenic resources included those outlined in 94-c Exhibit regulations §900-2.9 and NYSDEC Policy DEP-00-2, as noted in Section 3.2.1 and 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[2], and
- Schools and Colleges.

Data sources reviewed to identify scenic resources were obtained through the NYS GIS Clearinghouse; Environmental Systems Research Institute; national, state, 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 Attachment 2 and are shown on Figure 2. Scenic resources identified within the Resource Inventory Area were combined with the viewshed maps (as described in Section 4.1.1) to identify where areas with potential visibility of the Facility intersected with scenic resources. Areas identified as having potential visibility on the topographic and vegetated viewshed maps were reviewed during the field visits (see Section 4.2.4) to review expected visibility of the Facility and assess potential visual impacts. Locations identified for field verification are referred to as representative viewpoints. A composite map showing scenic resources in relation to the viewshed analysis and representative viewpoints is also included in Attachment 2. Additionally, local laws and ordinances were reviewed to assist in determining potential scenic resources and viewpoints near the Facility, as described in Section 3.2.

Table 2. Identified Scenic Resources

Resource Name	Source	Within VSA (2 miles)	Within Inventory Area (5 miles)	Views Toward Facility a/ ● Not Visible ○ Visible
Resources of Statewide Significance				
Great Lakes Seaway Trail National Scenic Byway	United States Dept. of Transportation Federal Highway Administration	X	X	○
Golden Hill State Park	New York State Office of Parks, Recreation, and Historic Preservation		X	●
Thirty Mile Point Lighthouse	New York State Office of Parks, Recreation, and Historic Preservation		X	●
Resources of Local Significance				
Babcock House Museum	New York State Cultural Resource Information System	X	X	○
Our Lady of the Lake Catholic Church (Village of Barker)	New York State Cultural Resource Information System	X	X	●

[2] Based on the evaluation conducted for Exhibit 19 of this Application, no Environmental Justice Areas were identified within the study area.

Resource Name	Source	Within VSA (2 miles)	Within Inventory Area (5 miles)	Views Toward Facility a/ ● Not Visible ○ Visible
Smith Residence	New York State Cultural Resource Information System	X	X	●
Somerset Cemetery	Town of Somerset	X	X	●
Sawyer Cemetery	Town of Somerset	X	X	●
West Somerset Cemetery	Town of Somerset	X	X	●
Krull County Park	Niagara County		X	●
Somerset Town Park	Town of Somerset	X	X	●
Barker Bi-Centennial Park	Town of Somerset	X	X	●
Haight Road Residence	Representative view	X	X	○
Russel's U-Pick Blueberries	Private	X	X	○
West Somerset Baptist Church	Private	X	X	●

Notes
a/ As indicated by aerial imagery, field work, and viewshed analysis results

4.2.3 Viewers/Representative Viewpoints

Specific user groups associated with various land uses (e.g., residential or related to protected areas) may have a certain threshold for landscape change, and therefore could be adversely affected by the construction and operation of the Facility. In this regard, viewing locations are typically associated with key travel routes, recreation areas, and residential areas. Representative viewpoints represent critical or typical viewpoints within, or along, an identified viewing location and are used to assess the visual effect of a proposed project. The tolerance of viewers at each representative viewpoint is based on the type of use and expected concern for aesthetics. Identifying groups of individuals that will likely be intolerant to visual changes is an important part of the visual assessment process and helps to define specific locations from which to assess changes to the visual character of the landscape. The inventory considered: (1) views from scenic areas specifically identified in local and state planning documents; (2) views from community centers, residential areas, and recreational areas; and (3) characteristic views that represent the general landscape setting.

4.2.4 Field Visit

Two field visits to the VSA were conducted, on April 29 and June 22, 2022, to document the existing visual character of the landscape and to inventory scenic resources. 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 visited. The April fieldwork session captured photography from representative viewpoints during

"leaf-off" [3] conditions, while "leaf-on" conditions were documented in June. Viewpoints were photographed using a Nikon z6 mirrorless digital camera and a Nikor 50mm lens, which is consistent with industry best practice to most closely approximate human vision and represent objects in proportion with minimal distortion. At each representative viewpoint, a panorama (overlapping series of photos) was captured to evaluate landscape context and potential visibility at each location. Photographs taken during the field visits are included in Attachment 3.

4.3 SUMMARY OF INVENTORY RESULTS

The following sections describe the existing environment in the VSA. Existing conditions were evaluated by means of aerial photography and field reconnaissance to determine where modifications have affected natural settings.

4.3.1 Landscape Character/Existing Conditions

Understanding and describing the existing landscape character 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 and unique. The landscape character of a region creates a sense of place and describes the 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 at both a regional level and at a project-specific level.

4.3.1.1 Regional Landscape Character

Ecoregions identified by Bryce (2010) were used to provide a frame of reference for describing the existing landscape character within the proposed VSA. Ecoregions provide a convenient foundation for describing visual character at the regional level because they are defined based on multiple physiographic elements such as landform, vegetation, water, and cultural modifications (i.e., human-made modifications) to the landscape. The VSA is fully within the Erie/Ontario Lake Plain (Bryce 2010). Landscape conditions within these ecoregions are discussed below.

Erie/Ontario Lake Plain

The Erie/Ontario Lake Plain ecoregion narrowly borders the lakeshores of Lakes Erie and Ontario along the northeastern border of New York. The ecoregion is noted for its flat terrain and suitable soils and climate for agriculture. The 'lake effect' experienced by the ecoregion influences weather, and by extension,

[3] Leaf-off conditions are when there is no foliage or a reduced amount of foliage on deciduous trees and shrubs, which can permit visibility of features in the landscape that would otherwise be screened by foliage.

viewing conditions: winters include increased cloudiness, which would limit viewing distances when present. Forests are typically comprised of mixed beech-maple, while evergreen conifers are also common throughout the landscape.

4.3.1.2 Landscape Similarity Zones

Landscape Similarity Zones (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 within the landscape and potential visual effects of the Facility. LSZs were defined based on like physiographic characters such as landform, water, vegetation, and land use patterns. United States Geological Survey contour and National Land Cover Database (NLCD) land cover datasets were mapped using Esri ArcGIS software and reviewed to identify areas within the VSA that had similar characteristics. Within the VSA, the following LSZs were identified:

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

LSZs are described below and shown on Figure 5. Table 3, below, provides a summary of the occurrence of LSZs within the VSA.

Agricultural LSZ

This LSZ dominates the VSA, comprising over 41% of the VSA. It is characterized by flat to gently rolling terrain covered by a patchwork of farmsteads, croplands, orchards, and pastures. In addition to cultivated fields, vegetation within the LSZ includes narrow, linear hedgerows, small, irregular patches of forested areas within agricultural parcels, and winding stream riparian channels. Data from 2017 indicates crops in Niagara County consist primarily of forage materials like hay, corn used for grain, and fruit trees (apples, peach, cherry) (USDA 2017). Rural residential development, including some small clusters of homes, occurs along a network of state and local roads.[4] Human-made features within this LSZ include sparsely spaced homes, barns and storage sheds, silos, and other ancillary structures associated with farming

[4] Some of the residential areas are classified as towns, villages, and hamlets and typically include a low population and lack a main street or designated downtown area/district.

activities, and overhead distribution lines along many of the roadways. Due to the relatively flat terrain and large tracts of open fields, there are more opportunities for expansive views within this LSZ compared with those covered by forest or structures. Views typically include open agricultural fields, (either tilled or actively growing crop) surrounded by hedge rows, woodlots, or mixed forest. Vegetation and terrain surrounding the fields typically limit views of more distant landscapes.

Mixed Forest LSZ

This LSZ includes fragmented patches of forested areas distributed through the VSA. It comprises the third highest proportion of the area within the VSA; 12.6%. It is characterized by generally flat to gently rolling hills that are covered by mature mixed hardwood deciduous forests. The Mixed Forest LSZ is strongly associated spatially with the Wetland LSZ: wooded areas frequently grow adjacent to wetland or stream corridors. Land uses within this LSZ include rural residential development located along the network of local roads. Human-made features within this LSZ include residences, barns, and other ancillary structures associated with farming activities, roads, distribution lines along roads. Views within this LSZ are limited by vegetation and varying topography along roadways and around residential development. Open, long-distance views are limited to areas adjacent to agricultural fields and small clearings. Where these views occur, they are still restricted by the surrounding forested hills.

Developed Areas and Transportation Routes (including Village Centers) LSZ

This LSZ includes the Town of Somerset, and the Villages of Barker and Appleton. The town and villages are characterized by small communities distinguished by clustered residences and commercial and civic development, typically concentrated around an intersection of the highways.

Human-made features dominate the Developed Areas LSZ, consisting of roadway corridors, colonial and country-style residential and commercial structures; parks and schools; and utility lines. Views within this LSZ are limited primarily by residential and commercial structures and vegetation along roadways and around development which screen views of the surrounding landscape. Views from the diffused edges of the Developed Areas LSZ may extend across agricultural fields or are screened by large tracts of mixed forested areas. Because agricultural fields are typically surrounded by forested areas and/or elevated terrain, views across even open fields are still restricted to the foreground.

The Developed Areas LSZ also encompasses major roadway corridors present in the VSA and is characterized as a dispersed grid of east-west and north-south highways connecting towns and villages. Primary roadways within the VSA include:

- NYS Route 18/Lake Road
- NYS Route148/Quaker Road
- County Roads: 3/W. Somerset Road; Niagara County Route 108/Hartland Road; Niagara County Route 65/Hosmer Road

The primary east-west transportation route through the VSA is NYS Route 18/Lake Road, which carries the route of Great Lakes Seaway Trail National Scenic Byway through the study area. NYS Route 18 passes directly through the Facility and would be adjacent to the panel array areas. 2019 NYSDOT data indicates average annual daily traffic along the segment of NYS Route 18 within the VSA was 1,258, which is about average for all of NYS Route 18 through Niagara County (NYSDOT 2019). This two-lane highway features views of cultivated agricultural fields, wooded wetlands and forest patches, and farmhouses and other agricultural structures characteristic of the Project Site setting. An overhead distribution line parallels the roadway. At the intersection with Niagara County Road 15/Quaker Road, NYS Route 18 passes through the town center of Somerset. Located 1.25 miles east of the Facility, NYS Route 148 is one of the primary north-south routes within the VSA and passes through the main center of the Town of Somerset and the Village of Barker 1.5 miles to the south.

Industrial LSZ

The industrial LSZ was manually categorized for the purpose of this study to differentiate it from the other development patterns. It is not included in the NLCD GIS data set. A single area comprises the Industrial LSZ; the approximately 250-acre site of the former coal plant, Somerset Station, a coal-fired power facility that was retired in 2020 and is in the process of being decommissioned. This area is located adjacent to and within the Facility Site and includes structures associated with the former coal plant, including numerous rectangular buildings up to three to four stories in height, and the open area (loop track) previously used for coal transport and storage. Although the former coal plant facility is set back from public roadways and is well screened from most views within the VSA by vegetation, its prominent exhaust tower is visible from numerous locations within the VSA and visual resource inventory area, including from NYS Route 18, Krull County Park, and from the community of West Somerset.

Lake Ontario/Open Water LSZ

Located directly north of the Facility Site, the open water of Lake Ontario comprises approximately one-third of the VSA (34.4%). This LSZ is characterized by broad expanses of open water, which changes in its scenic characteristics depending on the season, time of day, weather patterns, and lighting conditions, from bright and smooth textured to rough and choppy; its colors ranging from deep blue to silver-grey.

At the interface between Lake Ontario and upland areas, lakefront properties within the VSA are occupied by private agricultural fields, dense woodlands, the former decommissioned coal plant, or residential properties. For this reason, open views of Lake Ontario from the south are infrequent within the VSA and limited to private 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.

Table 3. Summary of Landscape Similarity Zones by Area within the 2-Mile VSA

Landscape Similarity Zone (LSZ) a/	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%

Notes:
a/ he LSZs are mapped on Figure 5

4.3.2 Viewer Types and Characteristics

This section provides a general description of the key viewer groups in the VSA who might have visibility of the proposed Facility. Distinctions among user groups and their expected tolerance for landscape changes, based on activity types and viewing characteristics, are standard components of a VIA.

Viewer reaction to visibility can vary depending on the characteristics and preferences of the viewer group. For example, residential viewers are typically expected to have high concern for changes in views from their residences. Motorists' concern generally depends on when and where travel occurs, and the type of travel involved (e.g., commuting vs. recreational travel).

Scenic views designated in land use plans adopted by federal, state, or local government entities typically formalize a widely recognized visual value of a resource and the public's desire to protect that value (e.g., a designated wilderness or scenic area). Where such official designations exist, the public expectation is

that the view at the location or of the identified resource will be preserved, and the viewer concern is considered high.

In general, the types of viewers present within the VSA are classified as local residents; travelers; and tourists and recreational users. The following discussion summarizes the composition of these groups and their characteristics that are relevant to the visual assessment.

Local Residents

The local resident viewer group consists of people who live within the VSA. Concentrations of residences are found in the towns, villages, and hamlets falling within the VSA. The largest concentration of residences is found in the Town of Somerset, with a population of 2,597 according to the 2020 census (United States Census 2020). Smaller concentrations of residences are found around Barker and Appleton. Outside of these communities, sparse rural residential uses are found throughout the VSA. Generally, residents view the landscape from their homes and yards, and from places of employment while engaged in daily activities. Residents and residential areas of primary interest for this study are located along NYS Route 18/Lake Road, Haight Road, and Niagara County Route 108/Hartland Road, where Facility components would be installed directly adjacent to the roadways. In addition, clustered residential areas in town center of Somerset and Village of Barker were also considered.

Residents' sensitivity to visual quality can be variable and may be tempered by the visual character and setting of their neighborhoods. For example, residents with a view of existing commercial or industrial facilities may be less sensitive to landscape changes than those with a view of forested areas. It is assumed, however, that local residents are familiar with the surrounding landscape and may be more sensitive to changes in particular views that are important to them.

Through-Travelers and Commuters

This viewer group consists of through-travelers and daily commuters traveling through the area on their way to work or those who are engaged in other types of business or personal travel. Travelers passing through an area typically view the landscape from motor vehicles. Through-travelers and commuters will typically be concentrated on major roads including NYS Route 18/Lake Road, Niagara County Route 65/Hosmer Road, and Quaker Road. Furthermore, they do not tend to stop along their travel routes, and though through-travelers may appreciate a scenic environment, may have a relatively narrow field of view because they are focused on traveling to their destination. Passengers in through-travel and commuter vehicles may have greater opportunities for prolonged views toward landscape features and, accordingly, may have greater perception of changes in the visual environment. It is anticipated that the level of

sensitivity of this user group will vary, with less sensitivity to visual change experienced by through-travelers or commuters passing through the VSA and higher sensitivity to visual change experienced by local commuters who are traveling through the area on a daily basis.

Tourist and Recreational Users

This viewer group includes tourists and recreational users visiting from out of the local area, as well as local and seasonal residents engaged in recreational activities. These users can be involved in outdoor recreational activities at parks and other developed recreational facilities or in undeveloped natural settings such as waterbodies. Tourists and recreational users come to the area to experience its cultural, scenic, and/or recreational resources.

The recreational user group includes those involved in active recreation (e.g., bicyclists, joggers, hunters, recreational boaters) and those involved in more passive recreational activities (e.g., traveling along a scenic route, wildlife observation or walking). For some of these viewers, scenery is a very important part of their recreational experience, and recreational users often have continuous views of landscape features over relatively long periods of time. However, most recreational viewers will only view the surrounding landscape from ground-level or water-level vantage points. Recreational users' sensitivity to visual quality and landscape character will be variable, depending on their reason for visiting the area. However, it is assumed recreators are generally considered to have relatively high sensitivity to scenic quality and landscape character.

4.3.3 Identification of Representative Viewpoints and Line-of-Sight Profiles

A list of potentially sensitive viewing locations was developed through completion of a desktop inventory, based on areas identified in state and local planning documents, geographic information system (GIS)-generated data, and additional potential locations within different categories (e.g., landscape zones, viewer exposure and types) as shown on Figure 2. After completion of the desktop inventory, preliminary representative viewpoints (field inventory viewpoints) were identified, as shown in the left column of Table 5, with a focus on those locations with potential visibility of the Facility components based on the viewshed analysis, in most cases.

Twenty-three locations were visited during the field visits completed on April 29 and June 22, 2022 (Section 4.2.4). Based upon the representative viewpoints (field inventory viewpoints), a select number of simulations (from five unique locations) and line-of-sight profiles (three) were chosen from the representative viewpoint locations as illustrated in Figures 4a and 4b. The simulations were chosen from the representative viewpoint locations where viewers could notice a change in the existing landscape setting

due to the presence of Facility components and are used to assess visual impacts of a proposed project. Of the viewpoints chosen, views were limited from middleground and background locations, therefore, all simulations were identified from foreground locations and line-of-sight profiles were selected from protected resources of state and local significance to identify potential views within the middleground and background, or to verify initial viewshed results. More details about the line-of-sight development methodology are provided in Section 5.1.2.

4.3.3.1 Line-of-Sight Profile Locations

The following line-of-sight profiles, identified in Table 4 and Attachment 4, were provided for the Facility:

- **Thirty Mile Point Lighthouse** was selected for a line-of-sight profile because, although located over 4 miles from the Project Site boundary, it is a National Register of Historic Places-(NRHP-) listed site, (built 1876) offers elevated views from the publicly accessible lens deck (approximate height 55 feet) and represents a high-use destination in the area (Lighthousefriends.com, 2022).
- **Krull County Park** was selected because it is a large, high-use public open space, and it represents background views seen from points west of the Facility.
- **The Smith Residence** was selected because it is a state-listed eligible historic building (although private) located within 0.20 miles of the Facility.

The selected line-of-sight profiles confirm no visibility to the Facility, due to distance, topography, and/or vegetation. Table 4 includes a description of representative line-of-sight profiles within the VSA, their associated existing viewing conditions and identifies whether the Facility will be visible.

4.3.3.2 Representative Viewpoint Locations

Table 5 includes a summary and description of representative viewpoints within the VSA that were visited during the field visits (see Section 4.2.4) or were selected as a line-of-sight, their associated existing viewing conditions and identifies whether the Facility is expected to be visible. Representative viewpoints are shown in Figures 4a and 4b. Visibility of the Facility is predicted before any proposed mitigation, such as vegetative screening, is applied. Mitigation is discussed in Section 7.0.

4.3.3.3 Community and Stakeholder Input

Somerset Solar, LLC (Applicant) has been in frequent and on-going coordination with the Town of Somerset throughout the Facility's evolution. A preliminary selection of the representative viewpoints was shared with the Town planning staff and historian in May 2022. The locations were approved at that time

Table 4. Line-of-Sight Viewpoints

Line-of-Sight (LOS) No. a/	Line-of-Sight Name	Resource Type/ Landscape Similarity Zone (LSZ)	Approx. Distance to Nearest Facility Component (mile) b/	Existing Landscape Characteristics and Views c/	Views Toward Facility d/ ● Not Visible ○ Potentially Visible
LOS-1	Thirty Mile Point Lighthouse	Historic, Recreation; Mixed Forest	4.5	The landscape is characterized by relatively flat terrain within a protected state park on the shore of Lake Ontario. The shoreline is steep and can be rocky. Golden Hill State Park includes extensive forested areas as well as open areas of green lawn. Views of the lake from the shoreline dominate and are regionally significant. Elevated views from the lighthouse deck are publicly accessible.	●
LOS-2	Krull County Park (Niagara County)	Recreation; Rural/ Agricultural	4.3	Within the portion of the park located south of New York State (NYS) Route 18, the landscape is characterized by open vistas across flat terrain, lawn-covered with partial views of residential areas and large trees around the perimeter of the park. Human-made features include dispersed residential development and sports facilities within the park. Heavily screened views of Lake Ontario to the north exist from Krull Park near and north of NYS Route 18.	●
LOS-3	Smith Residence	Locally important resource, State-listed eligible historic residence (private)	0.2	Historic two-story residence located west of the Facility. Property is dotted with numerous mature trees that partly screen the home from NYS Route 18. A patch of dense woods, approximately 300 feet wide, exists between the Smith Residence and the Facility, effectively screening views.	●

Notes:

a/ Line of Sight No. corresponds to graphics contained in Attachment 4 and locations shown in Figure 4a.

b/ Distance noted is from the location identified and the closest point along the nearest Facility components (perimeter fence).

c/ Distance zones are defined as foreground ground (0 to 0.5 mile), middleground to background (0.5 to 2 miles). Refer to Section 4.1.2. Background views would be those seen from 4 miles or more and were not found by this study.

d/ Visibility is based on conditions observed during the field work noted in Section 4.2.4. Proposed mitigation such as vegetative screening is not applied for this table but is discussed in Section 5.2.2.3 and Section 7.

Table 5. Representative Viewpoint Characteristics[5]

Viewpoint No.[6]	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 travelers along Hartland Road may have a brief opportunity to view the lake in the distance during clear conditions.	○

[5] Brown-shaded rows in Table 5 indicate viewpoints for which visual simulations were prepared.
[6] 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.[6]	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*
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.	●
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.	●

Viewpoint No.[6]	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*
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[7]	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.

[7] 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.

for further study, and no additional visual resources or viewpoint locations were suggested. Furthermore, coordination with the Office of Parks, Recreation, and Historic Preservation was conducted through the course of the evaluation performed for Exhibit 9 of this Application. That coordination led to the inclusion herein of historic resources present within the VSA, including the Smith Residence and our Lady of the Lake Catholic Church.

5.0 IMPACT ANALYSIS

5.1 IMPACT ANALYSIS METHODOLOGY

Public enjoyment of a scenic resource is subjective and highly dependent on the viewer's perception of beauty and scenery. The addition of the Facility into a view may be detrimental to one viewer's enjoyment of a location but may have a negligible effect or a positive effect for a different viewer. Therefore, a process using the concept of "contrast" based on the BLM VRM system is often used to objectively measure potential changes to landscape features of inventoried sensitive resources (BLM 1986a, BLM 1984). Concepts from the BLM VRM system are widely used for assessment of a variety of projects and, with some modifications, have been applied successfully to projects that do not occur on lands under the jurisdiction of the BLM. In the BLM VRM system, potential visual effects are assessed by considering the level of contrast the proposed Facility introduces to the existing landscape. The BLM's visual contrast rating process (Handbook 8431-1 Visual Resource Contrast Rating) was used as the basis for reviewing potential landscape changes resulting from the proposed Facility and is discussed below.

5.1.1 Visual Contrast Rating

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—The shape and mass of landforms or structures;
- Line—The edge of shapes or masses, silhouettes, or bands;
- Color—The property of reflecting light of a particular intensity of wavelength that the eye can see; and
- Texture—The 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, 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—The element contrast is not visible or perceived;
- Weak—The element contrast can be seen but does not attract attention;
- Weak-Moderate—The element contrast begins to attract attention and is moderately subordinate in the landscape;
- Moderate—The element contrast begins to attract attention and begins to dominate the characteristic landscape;
- Moderate-Strong—The element contrast begins to demand attention and is moderately dominant in the landscape; and
- Strong—The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Contrast ratings were prepared for each of the representative viewpoints elevated to the creation of visual simulations, using a form adapted from the BLM's Visual Contrast Rating Worksheet (Form 8400-4). Additional ratings of weak-moderate and moderate-strong were added to the BLMs core ratings. Contrast rating worksheets were completed by a rating panel of three visual resource professionals with experience in conducting visual impact assessments. These individuals included Brynn Guthrie, PLA, a Visual Resources Specialist at Tetra Tech; Shaun Brooks, an environmental planner at Tetra Tech; and Jennifer Chester, GIS and Visualization Lead formerly with Tetra Tech (see rating panel qualifications in Attachment 5).

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 Section 5.1.3. Criteria used to assist in completing the contrast rating worksheets were also based on the BLM's requirements for completing the contrast rating worksheets, as outlined in BLM Manual 8431 – Visual Resource Contrast Rating. The criteria used to complete the contrast rating worksheets along with the forms completed by the rating panel are included in Attachment 6. Results of the rating impact panel are discussed in Section 5.2.2.3.

Other environmental factors that can influence the amount of visual contrast introduced by the components of a project include (BLM 1986b):

- Angle of Observation. The angle between the viewer's line-of-sight and a project's location. Angles of observation are typically described as inferior (in which viewers are situated at a lower elevation than the proposed project), level (as described above), and superior (in which viewers are situated at a higher elevation than the proposed project). Angle of observation

influences the perception of visual contrast. Viewers at higher elevations (superior views) tend to see larger portions of a project.

- Length of Time the Facility is in View. If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.
- Relative Size or Scale. The level of visual contrast created by a project is directly related to its size and scale compared to the surrounding landscape in which it is located.
- Season of Use. The physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.
- Lighting Conditions. The direction and angle of the sun affects the color, intensity, shadow, reflection, form, and texture of visual aspects of proposed project components.
- Atmospheric Conditions. The visibility of projects due to atmospheric conditions such as air pollution, natural haze, fog, and precipitation, which could affect the visibility of an object.

5.1.2 Line-of-Sight Profiles

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 on Figure 4a. These profile lines were selected because they intersect scenic resources and portions of the Facility, such as blocks of panel arrays or the Facility Substation. Using ArcGIS software, data regarding the scenic resources, Facility components, and representative viewpoint locations were overlaid on the DEM and NLCD data. Next, lines were drawn through representative viewpoints and the 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 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, as shown in Attachment 4.

5.1.3 Photographic Simulations

Photographic simulations were created to depict the appearance of the proposed Facility components and their potential changes to the existing landscape during leaf-off conditions which simulates worst-case scenarios. The simulations were used to determine the level of contrast between the existing landscape and the expected landscape after the proposed Facility is constructed. Furthermore, simulations were also created to illustrate proposed mitigation for those representative viewpoints where landscaping is proposed

to help screen the Facility. Simulation locations are shown on Figure 4a and 4b, the simulations are included in Attachment 7. Simulations depict actual weather conditions at the time photography was taken during the field visits on April 29 and June 22, 2022.

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 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 (see 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. 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.

5.2 POTENTIAL EFFECTS TO VISUAL RESOURCES

Sections below describe potential visual effects anticipated from the construction and operation of the Facility. At the end of the Facility's operational life (35 years), it will be decommissioned in accordance with a detailed Facility Decommissioning Plan that will be developed in compliance with applicable laws, regulations, and best management practices at that time. Decommissioning activities will be similar to construction activities but will occur over a shorter period of time than initial construction. Once Facility components are removed, the Facility will return to pre-existing conditions, depending upon plans of the landowners. See Exhibit 23 for a discussion of Site Restoration and Decommissioning.

5.2.1 Construction and Installation

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 and work crews. Construction activities associated with the solar Facility will include surveying, clearing portions of the construction site, stockpiling topsoil, grading, 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 gen-tie line pole, and placement of perimeter fencing. There will also be temporary stockpiles, and stormwater management, and erosion control measures in place during construction activities, which foreground viewers could observe.

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 (50 workers are expected during average construction periods; up to 150 workers are expected during the busiest construction periods) during 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, except for 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. Further detail on expected number of trips and specific construction activity and equipment can be found in Exhibit 16.

It is anticipated that visual contrast will be introduced during Facility construction primarily for motorists and viewers associated with residences directly adjacent to the Facility, which includes homes along NYS Route 18/Lake Road, Haight Road, and a small number of residences along Niagara County Route 108/Hartland Road. During construction, views would include the presence of construction equipment, earthwork and grading, staged materials, and crews will be dominant in the foreground. However, these visual effects will be temporary because construction equipment and crews 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 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.

5.2.2 Maintenance and Operation

5.2.2.1 Facility Characteristics

Visual effects during operation of the Facility will result from the visibility of the above-ground components associated with the Facility, including the PV panels, inverters, Facility Substation, a 345-kV overhead gen-tie line, and internal infrastructure including permanent access roads and fencing.

Solar Panel Arrays

The Facility is in upland terrain ranging from approximately 275 feet to 1 mile from the shore of Lake Ontario. The Facility is sited in an area of mixed rural residential and agricultural land uses, characterized

by relatively flat to very gently rolling topography, with a small narrow creek corridor with steep wooded areas interspersed between flat agricultural fields. The PV panels will be located on parcels of land currently used for agricultural cultivation and separated into nine distributed areas separated by woodlands and wooded wetlands, which will limit opportunities to view the overall Facility from any single location. Rather, views of the Facility will occur as discrete instances where the viewer could observe a portion of the overall Facility. See Figure 1 for a depiction of how the Facility layout will affect viewing opportunities. The regular forms and strong, low-profile horizontal lines associated with the rows of PV panels will be similar to the strong horizontal lines created by the edges of the agricultural fields where they abut forested or wetland areas. The color contrast associated with the PV panels will vary throughout the day as the panels rotate to track the sun from east to west. The dark, dull color of the panels will contrast with the dull hues of the surrounding green/tan fields and the varying shades of green of the forested areas. Although the PV panels will contrast with some of the elements of the existing landscape, their overall visual effect will vary depending on the extent of PV panels visibility and distance of the PV panels from the viewer. For example, contrast is anticipated to be stronger where panels are viewed in close proximity to the viewer *and* viewed along the end of the array blocks, rather than viewing a continuous row of panel faces, which appear as a single dark 'band' in the landscape. Specific locations along NYS Route 18/Lake Road will have views toward the PV panels and will also include views of other Facility components, including the Facility Substation, inverters, and the 345-kV on-site, overhead gen-tie line – see simulations prepared for Viewpoint 2A. However, given the scale of the blocks of PV panels and the proximity to the viewer, where visible, the PV panels are anticipated to create moderate to strong contrast, depending on the viewing location. In some areas, where active agricultural fields are adjacent to the Facility, contrast will be reduced during the growing season when crops, such as corn or grains, will be at a similar height as the PV panels and therefore, may provide additional seasonal screening.

The Applicant is proposing to install hedgerow style evergreen plantings along portions of the Facility boundary in areas where residences or travelers along NYS Route 18/Lake Road will have unobstructed views towards the Facility. Landscaping will consist of a variety of evergreen trees and ornamental shrubs that will provide year-round screening, as provided in the landscape plan (Attachment 8). For this reason, visual contrast is anticipated to be significantly reduced for residential viewers in areas where landscaping is proposed, and contrast will continue to be reduced or eliminated over time as the proposed landscaping matures.

Moderate to strong contrast may also briefly occur for travelers along local roads and highways including NYS Route 18/Lake Road, Niagara County Route 108/Hartland Road, and Haight Road where PV panels will be located adjacent to the road and views toward the Facility are unobstructed. The highest volume

roadway with views toward the Facility, as described in Section 4.3.1.2 (Developed Area/Transportation Corridors LSZ), is NYS Route 18/Lake Road. However, potential impacts to travelers on adjacent roadways will be of short duration for individual viewers because travelers will be approaching and parallel to the Facility for a limited time as they travel at high speed and their primary focus will be on the road ahead.

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 former coal 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.

Power Collection System and Facility Substation

The Facility's power collection system includes inverters, underground and aboveground collector lines (low, cable trays 'sleepers' will be installed in a small number of locations within array areas within the former coal storage pile and the landfill (Solid Waste Disposal Area [SWDA] II) where no ground disturbance is permitted), the approximate 159-foot gen-tie line that will connect the Facility Substation to Kintigh Substation, and the Facility Substation. The overhead gen-tie line is shown on Figure 1 (Appendix 5-B Sheets TL-P.00.01, TL-P.01.01, and TL-P.02.01). The inverters (with integrated transformers) will be located within boxes on concrete pads and dispersed throughout the Facility (amongst the PV panels). The boxes that house the inverters will have a similar geometric shape as the PV panels and they will be treated to reduce potential visibility and reflectivity through use of dulled finishes in colors selected to blend into the backdrop. The inverters will be seen in varying degrees from local roads that pass near the Facility or from nearby residences. Views toward the inverters will also 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 visual contrast.

The Facility Substation and its short (approximately 159 ft) gen-tie line to connect to the existing Kintigh Substation will introduce vertical and geometric metal structures into a relatively flat landscape. The Facility Substation location is shown on Figure 1 and design details are provided in Attachment 9. Although the Facility Substation components will contrast with elements of the existing landscape, (metal industrial elements among an agricultural/wooded landscape) its overall visual effect will be diminished because it is set back approximately 1,075 feet from the nearest public viewing location, which is NYS Route 18/Lake Road. Visibility of the Facility Substation will be of short duration for individual viewers because travelers will approach, view, and pass the Facility Substation for a brief time and their primary focus will be on the road ahead. Furthermore, the Facility Substation will be seen directly adjacent to the existing Knight

Substation and other Facility components including arrays of PV panels. It is anticipated that views from locations located 0.5-1 mile or more from the Facility Substation will be mostly to completely screened by topography and/or vegetation.

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 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 measured 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.

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 and will, in most cases, 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, one is located along Niagara County Route 65/Hosmer Road, and two are located along Niagara County Route 108/Hartland Road (Appendix 5-A, Sheets PV-C.02.00–PV-C.02.10). 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 around the array areas will be 7-foot-high 'agriculture-style' fence consisting of wire mesh framed by wood. The Facility Substation will be surrounded by 7-foot-high chain-link fence. The agriculture style fencing will be highly transparent and allow views through it to the Facility components within the fence line. As distance between the viewer and the Facility increases, the agriculture-style fence will become less distinct, and appear as a semi-translucent band surrounding the panel arrays punctuated by wooden vertical posts. Given the transparency of the agricultural style security fence and its scale in relation to other Facility components, it is anticipated that the Facility fencing will create weak visual contrast. The photo simulations prepared for this study include the Facility fencing.

Certain locations within the Facility required mitigation measures for sound effects. Specifically, a noise barrier wall that is 28 feet high and 43 feet in length will be constructed 10 feet south of the Facility Substation transformer (Attachment 9 – Facility Substation). The wall will be painted in neutral, greyish brown color to reduce its visible contrast as seen from NYS Route 18/Lake Road. A simulation prepared for this study includes an illustration of the sound wall (Attachment 7). The sound wall will be very briefly visible to motorist along NYS Route 18/Lake Road. In addition, two modified chain link fence barriers that are 16 feet high and 100 feet in length will be constructed approximately 10 feet to the east of the two inverter skids in Area 5 of the Facility Site (Appendix 5-A, Sheet PV-C.02.05). However, the nearest of the two fence sound barrier sections would be located over 1,000 feet south of NYS Route 18, and both the fence sound barriers will be oriented perpendicular to the direction of travel on NYS Route 18/Lake Road, meaning the two sections of sound barrier fencing in PV array Area 5 would not be noticeable to most travelers along the highway.

5.2.2.2 Extent of Potential Visibility of the Facility

The geographic extent of potential visibility of the PV panels within the VSA was determined through the viewshed analysis as discussed in Section 4.1.1. Based on the vegetated viewshed analysis, views are limited to the area within 0.5 to 1 mile surrounding the PV panels, with additional areas of potential

visibility in higher-elevation areas to the south. The highest concentration of visibility to PV panels was found within and directly adjacent to the Facility, such as from public roads along an array area.

Potential locations from which the PV panels may be visible include residences adjacent to the Facility, portions of local roads adjacent to the Facility including NYS Route 18, Haight Road, Niagara County Route 65/Hosmer Road, and Niagara County Route 108/Hartland Road. Locations identified as having potential visibility of the Facility were field verified as discussed in Section 4.2.3, with the results of existing views from each representative viewpoint described in Section 4.3.3. The degree of visibility from the representative viewpoints based on the viewshed and field verification are discussed below in Section 5.2.2.3. According to the vegetated viewshed analysis and then borne out by field studies, areas not directly adjacent to the Facility will not have views of the Facility PV panel arrays because the Facility will be screened from view by dense vegetation or terrain.

Table 6 shows the theoretical visibility as it occurs within the VSA, based on the viewshed analysis for the solar panels and considering the screening effects of vegetation (data mapped on Figure 3a).

Electrical-distribution infrastructure equipment

The viewshed results of analysis of the utility equipment indicate the tallest Facility Substation feature could be visible from the immediate foreground areas to the east and west in the areas in and around the Facility. Fieldwork conducted for this study indicated that visibility of the distribution equipment will be much less, given the lack of publicly accessible areas with visibility and the small scale of the features, which will blend easily into the vegetated landscape.

Views of the Facility Substation as seen from NYS Route 18 are included in simulations shown in Attachment 7.

5.2.2.3 Visual Effects at Selected Line-of-Sight Profiles and Representative Viewpoints

Line-of-Sight 1: Thirty Mile Point Lighthouse

The nearest portion of the Facility will be located approximately 4.5 miles west of the lighthouse. As shown by the LOS graphic, and supported by fieldwork photography, views toward the Facility from the elevated lighthouse deck would be screened by multiple patches of dense woodlands. Photographs and a line-of-sight profile for this location are included in Attachment 3 and Attachment 4, respectively.

Line-of-Sight 2: Krull County Park

The nearest portion of the Facility will be located approximately 4.3 miles west of Krull County Park. Due to existing vegetation, no views of the Facility are anticipated from Krull County Park. Photographs and a line-of-sight profile for this location are included in Attachment 3 and Attachment 4, respectively.

Table 6. Theoretical Visibility by Distance Zone

Distance Zone	Total Area Comprising Distance Zone Square Miles	Visibility a/ Within Distance Zone Square Miles	% Visibility a/ Within Distance Zone	% Visibility a/ Within Full VSA	% VSA Visibility a/ on Participating Landowner Property	% VSA Visibility a/ 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 b/	-	55.3% c/	6%	49.5%

Notes
a/ 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 Figure 3b.
b/ 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.
c/ 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.

Line-of-Sight 3: Smith Residence

The nearest portion of the Facility will be located approximately 0.2 miles east of the Smith Residence. Views toward the Facility from this private site will be screened by dense existing vegetation. Photographs and a line-of-sight profile for this location are included in Attachment 3 and Attachment 4, respectively.

Representative Viewpoint Simulations

As noted in Section 5.1.1, a panel of three visual resource 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. Table 7 provides the summary of results of the contrast rating panel. Contrast rating worksheets are included in Attachment 6.

In general, contrast ratings specifically related to landform was very low, because the Facility would be installed on flat terrain and minimal grading is required or proposed. Although uncommon as seen from the public viewpoints evaluated for this study, where views of the water of Lake Ontario are present, those effects are discussed.

Table 7. Summary of Results of Contrast Rating Panel, Before Mitigation

Simulation / Representative Viewpoint No. a/	Representative Viewpoint	Distance to Nearest Facility Component	Viewer Group	Average Contrast Rating Results			
				Panelist 1	Panelist 2	Panelist 3	Contrast Rating Results b/
Viewpoint 1	Babcock House Museum	315 feet	Resident, Visitor / Recreationist	3	2.7	2.3	Moderate-Weak
Viewpoint 2A	NYS Route 18/Lake Road	620 feet	Residential / Traveler	1.7	2.7	2.3	Moderate-Weak
Viewpoint 2B	NYS Route 18/Lake Road	100 feet	Residential / 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 Residence	75 feet	Residential / Traveler	3.7	3	2.7	Moderate-Strong

Notes
a/ Viewpoint numbers correspond to viewpoints identified in Table 5
b/ Contrast rating results reflect averages without mitigation taken into consideration.

Representative Viewpoint 1: Babcock House Museum

The nearest portion of the Facility will be located approximately 315 feet west of this viewpoint location in the foreground. The Facility will be positioned behind two small red storage sheds and mature evergreen trees on the Babcock House grounds. The dark color, low profile, and uniform shape of the PV panels and ordered row of panels will contrast somewhat against the open field and bright green and natural colors of the surrounding agricultural fields and background trees. The 'agriculture-style' fence, illustrated in the simulations, will not contrast with the natural earth-tone and agricultural fields and appears to blend in with the lines of the array row and colors of the landscape setting.

Proposed Landscaping will consist of a variety of evergreen trees (e.g., white spruce, Serbian spruce, and the eastern red cedar) as shown in the simulation that will help to screen portions of the Facility and break up the uniformity of the blocks of PV panels. The panel provided moderate-weak overall contrast ratings for this viewpoint. These ratings are due to the introduction of humanmade elements filling the view of the open field and the distance of the Facility components to the viewer. With mitigation landscape screening added, the visible contrast is notably reduced. Contrast rating worksheets completed by the panel are

included in Attachment 6. Simulations representing views from this viewpoint with proposed landscaping[8] is included in Attachment 7.

Representative Viewpoint 2A: NYS Route 18/Lake Road

The Facility will be located approximately 620 feet north of this viewpoint along NYS Route 18/Lake Road, and another panel array would be located approximately 75 feet south of NYS Route 18for a short segment (approximately 390 feet). As illustrated in the simulation, solar arrays appear as a thin dark line across the contour of the open agricultural field to the north, and visual effects are tempered by the distance to the viewer. The Facility would be partially screened by existing mature evergreen trees near the roadside but would also be partly 'skylined' (i.e., seen silhouetted against the sky) for a short segment viewed between existing trees. A patch of deciduous trees, part of a long woodland, would be removed in this area north of NYS Route 18 to install the arrays, but the remaining woods maintain the wooded backdrop effect, which helps the arrays blend with the landscape setting. As depicted by the simulation shown during leaf-off conditions, Lake Ontario is minimally visible but present as a thin blue line along the horizon from this specific viewpoint. From other nearby areas along the highway, views of the lake are screened by vegetation. The panels would mostly screen views of the lake, but travelers could still catch glimpses of the water between the panel rows. However, this portion of the Facility is proposed to have landscape screening installed parallel to NYS Route 18, so with time this brief view of the lake would become fully screened by vegetation.

Eastbound travelers at this viewpoint on NYS Route 18 would have a brief opportunity to view the Facility Substation, which would similarly be seen with dense woods behind it, reducing its otherwise moderate visual contrast. Existing vegetation and topography would block views of the Facility Substation from other viewing locations along NYS Route 18.

The panel provided moderate-weak overall contrast ratings for this viewpoint. These ratings are due to the distant view of the lake becoming obscured, the distance of the Facility components to the viewer, and the generally compatible form and scale of the Facility. Although briefly visible, the Facility Substation is at such a distance and well screened and backdropped by existing vegetation, so it is mostly 'absorbed' into the landscape from this viewpoint. Contrast rating worksheets completed by the panel are included in Attachment 6. Simulations representing views from this viewpoint with proposed landscaping[9] is included in Attachment 7.

[8] The first simulation illustrates no mitigation landscape screening. The second simulation illustrates the growth of the landscaping at 5 years after installation.
[9] The first simulation illustrates no mitigation landscape screening. The final simulation illustrates the growth of the landscaping at 5 years after installation.

Representative Viewpoint 2B: NYS Route 18/Lake Road

The Facility will be located approximately 100 feet south of this viewpoint, representing views to the south from NYS Route 18/Lake Road. Viewpoint 2B is located approximately 1.3 miles east of Viewpoint 2A. As the simulations depict, solar panels and the 'agriculture style' perimeter fencing would be installed within the existing field, and clearly visible in the immediate foreground of the highway. The panels would be viewed parallel to the rows, allowing for brief, rhythmic views into the array area as motorists pass by. When these tracker panels are at full tilt, that is, their highest possible position, they remain backdropped by existing mixed vegetation surrounding the Facility area. When positioned at lower tracking rotation angles through the day, the arrays would appear lower in height and therefore more of the background vegetation would be visible.

Landscape screening is also proposed at this location to mitigate views from NYS Route 18. As described above, over time the proposed evergreen trees would fully screen views of the Facility from this viewpoint along the highway.

The panel provided moderate-strong overall contrast ratings for this viewpoint, before mitigating visual landscape screening is included. These ratings are due to the proximity of the Facility to the viewer, the introduction of humanmade features into the cultivated field, and distant landform being no longer visible. With mitigation landscape screening added, the visible contrast is notably reduced. Contrast rating worksheets completed by the panel are included in Attachment 6. Simulations representing views from this viewpoint with proposed landscaping[10] is included in Attachment 7.

Representative Viewpoint 3: Niagara County Route 108/Hartland Road

The Facility will be located approximately 50 feet west of this viewpoint, representing views seen primarily by residents and through travelers along Niagara County Route 108/Hartland Road. Like views from Viewpoint 2B, the Facility would be seen in the immediate foreground for approximately 0.25 mile along the west side of Niagara County Route 108/Hartland Road. The long, facing side of panel rows would be seen from Niagara County Route 108/Hartland Road, which effectively simplifies how the array is viewed: the closest panel row blocks views of those behind. Beyond the agriculture style fence, the panels appear as a long, dark, smooth band parallel to the roadway. When these tracker panels are at full tilt, that is, their highest possible position, they remain backdropped by existing mixed vegetation and a grassy hillslope in the background. When positioned at lower tracking rotation angles through the day, the arrays would appear lower in height and therefore more of the background vegetation and topography would be visible.

[10] The first simulation illustrates no mitigation landscape screening. The final simulation illustrates the growth of the landscaping at 5 years after installation.

Landscape screening is proposed at this location to mitigate views from nearby residences. As described above, over time the proposed evergreen trees would fully screen views of the Facility from this viewpoint.

The panel provided moderate-strong overall contrast ratings for this viewpoint. These ratings are due to the proximity of the Facility to the viewer, and the introduction of humanmade features into the cultivated field. With mitigation landscape screening added, the visible contrast is notably reduced. Contrast rating worksheets completed by the panel are included in Attachment 6. Simulations representing views from this viewpoint with proposed landscaping is included in Attachment 7.

Representative Viewpoint 5: Haight Road Residence

The Facility will be located approximately 75 feet north of Haight Road as seen from this Viewpoint, representative of static views from near a residence with direct lines of sight to an array area. As illustrated by the simulations, panels would be installed within a long agricultural field that extends north of Haight Road. The agriculture-style fence is partly skylined (silhouetted against the sky), increasing its visual contrast, however, the panels would be fully backdropped by the surrounding landscape and woods present across the background. The Facility would introduce a dominant feature as seen from representative residents at Viewpoint 5, however, for through travelers on Haight Road at this location, the Facility would be briefly visible to the north as they drive by.

Landscape screening is proposed at this location to mitigate views from the residence. As described above, over time the proposed evergreen trees would fully screen views of the Facility from this viewpoint.

The panel provided moderate-strong overall contrast ratings for this viewpoint, before mitigation screening is included. These ratings are due to the close proximity of the Facility to the viewer, the strong contrast of the dark forms of the arrays amongst the natural forms and textures of the trees and field, and the slight 'skylining' of the fence elements against the sky. With mitigation screening added, the visible contrast is notably reduced. Contrast rating worksheets completed by the panel are included in Attachment 6. Simulations representing views from this viewpoint with proposed landscaping is included in Attachment 7.

5.2.2.4 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 Attachment 9. The Lighting Plan was developed to minimize fugitive light while meeting lighting standards established

by the NESC. The proposed lighting also complies with 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.

5.2.2.5 Glare

The Facility is not anticipated to introduce a significant source of glare into the existing environment. 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.

The single-axis tracker system will rotate the panels, so they are aimed at the sun throughout most of the day, and any reflected sunlight will be aimed directly back at the sun. During morning and evening hours when the trackers cannot directly match the angle of the sun, the tilt will not be low enough to produce lower angles of reflection.

Based on the PV panel design and construction, as well as operation of the tracker system, glare resulting from sunlight reflected by the PV panels will occur to only a limited extent within the VSA. 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.

6.0 CUMULATIVE EFFECTS

Cumulative effects consider the proposed action in combination with past, present, and reasonably foreseeable future development patterns in a landscape to gauge incremental erosion of scenic quality. It was observed through the course of this analysis that past and present resource-based activity within the region surrounding the proposed Facility has changed the landscape over time by altering natural landforms and vegetation and introducing human-made features.

A noticeable change throughout much of the visual setting has been the conversion of land to agricultural fields, agricultural development (e.g., silos, barns), and residential development. The visual setting has also been modified by a number of industrial, commercial, utility, and transportation facilities. There are an existing beverage production plant and the former coal plant facility (that is in the process of being decommissioned/demolished) within the immediate proximity of the Facility. Portions of the proposed Facility, including PV panels and the Facility Substation, will be seen in combination with distribution lines located along local roads and along the edges of fields and high voltage transmission lines within the Facility. The closest existing solar facility to the Facility Site is a small solar array located south of Haight Road just west of the at the Barker Central School District, approximately 1 mile southeast of the Facility.

To address foreseeable future changes, the Applicant reviewed publicly available information and is aware of a 350-MW solar project (Ridge View Solar) that is planned in Hartland, New York, 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 2025.

Despite these changes, the primary landscape character of the VSA maintains its rural/agricultural and historic qualities. Cumulative effects for specific categories of identified visual resources are provided in Section 6.1.

6.1 CUMULATIVE EFFECTS ON DESIGNATED SCENIC RESOURCES

6.1.1 Scenic Byways

The Great Lakes Seaway Trail National Scenic Byways was identified by this analysis within the VSA. This route continues to highlight those intrinsic qualities they were originally recognized for: natural scenery, cultural significance, and historic heritage. Various 'working' agricultural and light industrial land uses are already present along the route. The Facility would be located within the foreground viewshed of the Great Lakes Seaway Trail Scenic Byway, from a short section (2 miles in length) of NYS Route 18/Lake Road. Taken together with past and present development along the identified scenic byway, negative cumulative effects are not anticipated.

6.1.2 Designated Historic Places

Designated Historic Sites are discussed in detail in Exhibit 9. In addition, State Register of Historic Places (SRHP)/NRHP eligible sites were considered in this analysis for potential visual impacts resulting from the Facility. Refer to Table 5 which notes SRHP/NRHP designations of applicable Representative Viewpoints. The Historic Architecture Investigation Report provided in Appendix 9-D concluded that there would not be any adverse visual impacts to aboveground historic properties.

7.0 MITIGATION

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

- A Visual Impacts Minimization and Mitigation Plan is provided as Attachment 8.
  - The solar panels will be located within the existing open fields within the Facility and vegetation clearing will be limited, to the maximum extent practicable. Several swaths of forested wetlands within the Facility will be retained. The design approach of breaking up the PV panel arrays into smaller sections installed within existing cultivated fields interspersed within the existing vegetated landscape will help to mitigate the visual effects from surrounding areas.
  - 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.
  - To address potential adverse visual impacts to the Babcock House as identified by the Office of Parks, Recreation and Historic Preservation, additional rows of landscape plantings have been included around the edges of the museum property that would have views of the Facility.
  - 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.
  - When construction is complete, areas disturbed during the construction process will be reseeded.
  - 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 electrical collection system for the PV arrays is located underground, to the maximum extent practicable. A small amount of aboveground sections of the electrical collection system are situated on cable trays (sleepers) where underground work is prohibited to protect groundwater liners that are in place (at the coal storage pile and SWDA II landfill). Overhead structures are limited to a 159-foot section of gen-tie line that will connect the Facility Substation to the Kintigh Substation, which include two off-take structures and an interconnection line pole.
  - Outdoor nighttime lighting will only be installed at the Facility Substation and will be kept to the minimum required for safety, security, and 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 within the Facility Substation 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.
- As an additional optional mitigation strategy, programs following the current practice of 'agrivoltaics' in which the land beneath installed solar panels are still actively cultivated with crops. Such a strategy would require an engaged partnership between the landowners, solar energy generation developer, and growers. However, if taken on, such a program could generate interest and tourism to the community, especially as related to visitors traveling NYS Route 18, along the Great Lakes Seaway Trail Scenic Byway.

8.0 CONCLUSIONS

Overall, the Facility will result in moderate change to the landscape conditions for most viewers within the VSA. Solar panel arrays will be noticeable to casual observers, primarily as they travel on the roadways adjacent to the Facility, including NYS Route 18/Lake Road, Niagara County Route 108/Hartland Road, and very briefly along Haight Road. However, these views would occur briefly as motorists pass along the Project Site at 45 to 55 mph and would be separated into distinct views of array areas punctuated by patches of existing mixed woodlands. From the few locations where the Facility would be viewed within 100 feet of the viewer, such as along NYS Route 18, the primary visual change will be experienced as seasonally open fields - which allowed long views across the landscape - becoming limited by the installation of solar panel arrays adjacent to the roadway and therefore limiting views. However, this limiting effect would be similar to the effect on views when the fields were planted with tall vegetation, such as corn or hay, which local viewers are assumed to be accustomed to. The strongest visual effect would occur from a single isolated location along NYS Route 18 where a slight view of Lake Ontario (which is only seasonally available when fields are open) would be blocked by the Facility. Numerous comparable views of the Lake would remain unchanged to the east and west of the Town of Somerset. Proposed landscape screening installed adjacent to NYS Route 18 would limit and with time fully screen the Facility from view, reducing the overall visual change to minor, when mature screening vegetation would blend with existing wooded areas.

It is anticipated that visual changes affecting residential areas within the VSA would be minor, because of required or proposed setbacks from the Facility, and existing vegetation providing visual screening. In addition, proposed landscape screening installed adjacent to specific residences would limit and with time fully screen the Facility from view from these residences.

8.1.1 Effects to Scenic Resources

The segment of NYS Route 18 within the VSA is a designated National Scenic Byway: Great Lakes Seaway Trail, recognized for its intrinsic historic, cultural, and scenic qualities. The full scenic byway route is over 500 miles, of which the segment within the VSA comprises 1.2%. Of that portion, the Facility could be viewed from approximately two miles, or 0.38% of the overall scenic byway route. While it is possible some users of the Great Lakes Seaway Trail Scenic Byway would negatively perceive these brief views of the Facility, other viewers would perceive the Facility as interesting and compatible with the working agricultural landscape.

The Babcock House Museum is a state-listed eligible historic site, notable for the residence's architectural cladding among other features. The Facility would be visible from the Babcock House grounds, when facing

west and north where panel arrays would be installed in the adjacent fields. However, the site is not designated for scenic qualities and, vegetative screening would be installed around the Facility adjacent to the Babcock House site, which would screen views from the grounds as the vegetation matures. Visual impacts to the Babcock House would be minor to negligible.

Based on the results of this assessment, other scenic resources identified in this study would not have views of and/or would be unaffected by the Facility.

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