

Visual Impacts Minimization and Mitigation Plan

South Ripley Solar

Town of Ripley

Chautauqua County, New York

Case No. 21-00750



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July 2021

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1.0 Introduction

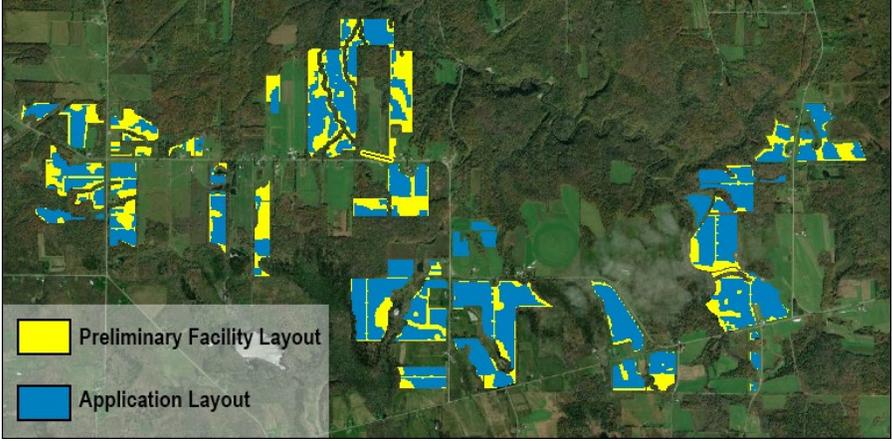
The following Visual Impact Minimization and Mitigation Plan (VIMMP) outlines the various measures proposed by the Applicant to avoid, minimize, and mitigate potential adverse visual impacts associated with the South Ripley Solar Project. The mitigation measures required for consideration by Subsection 900-2.9(d) of the Section 94-c regulations are listed in tabular format, along with an indication of whether they are being proposed, and a brief discussion regarding each proposed measure. Studies and plans that provide more detail, including those required for inclusion by the 94-c regulations, are appended as attachments. These include a Landscape Mitigation Planting Plan (Attachment 1), a Lighting Plan (Attachment 2), and a Solar Glare Analysis (Attachment 3).

2.0 Visual Impact Minimization and Mitigation Plan Table

Potential Visual Mitigation Measure ¹	Proposed (Y/N)	Notes/Discussion
Screening/Landscaping	Y	<p>The Applicant is proposing a variety of perimeter plantings intended to screen or soften views of the photovoltaic (PV) arrays. The conceptual mitigation plan developed for this Project is based on the idea that 100% opaque screening would not appear natural and is not practicable. Introduction of native vegetation in selected perimeter locations will create visual buffers that fit into the context of the existing landscape, mimicking the hedgerows, woodlots and roadside vegetation currently present on and around the Facility Site. As illustrated in the visual simulations and confirmed through the visual contrast rating (See Section 4.2.3 and Attachment D of the Visual Impact Assessment [Appendix 8-A of the Section 94-c Application]) the conceptual planting plans provide effective screening and/or integration of the installed PV arrays into the surrounding landscape.</p> <p>The Applicant has developed a comprehensive Landscape Mitigation Planting Plan (Attachment 1) that uses four different planting schemes (modules) that can be applied as appropriate, to minimize and mitigate the Facility's visual effect on the surrounding landscape. This conceptual planting plan and the individual planting modules were developed as a site-specific solution appropriate to the scale of the Facility, the sensitivity and proximity of surrounding receptors, and the degree of natural screening vegetation already present.</p> <p>As part of the Landscape Mitigation Planting Plan, substantial vegetative mitigation is also being proposed to minimize visual impacts resulting from the proposed collection substation and Battery Energy Storage System (BESS).</p>
Architectural Design	N	The proposed Facility does not include any buildings that would provide opportunities for architectural design changes.

¹ As listed in 19 NYCRR Subsection 900-2.9 Exhibit 8: Visual Impacts (d).

Potential Visual Mitigation Measure ¹	Proposed (Y/N)	Notes/Discussion
Visual Offsets	N	Correction of an existing aesthetic problem within the viewshed is a viable mitigation strategy for power generation facilities that result in significant adverse visual impact. Mitigation such as historic structure protection/restoration/maintenance activities may be undertaken to off-set potential visual impacts on cultural resources, if required by the State Historic Preservation Office (SHPO). With other proposed visual mitigation measures in place, the need for additional off-set mitigation is not anticipated for this Facility. The proposed collection substation and BESS are located adjacent to an existing transmission line and substation to minimize contrasts to the existing land use and visual environment.
Component Relocation/Rearrangement	Y	<p>The Facility has been sited to avoid or minimize visual impacts to population centers and visually sensitive resources. Due to the screening provided by vegetation and topography, and the relatively low profile of most Facility components, visibility is generally concentrated within 0.5 mile of the Facility.</p> <p>Due to the geographic extent of the Facility and the variety of viewpoints from which the Facility can be seen within the Visual Study Area (VSA), relocation of PV arrays will generally not significantly alter the visual effect of the Facility. Moving individual solar arrays to different sites will not necessarily reduce impacts, but rather relocate them. Additionally, because the Facility layout is restricted to participating parcels and has been designed to accommodate various setbacks from roads and residences, options for relocation of individual Facility components are limited. A summary of Project setback distances is provided in Section 2.2 of the visual impact assessment (VIA).</p>
Reduced Number and Profile (Height) of Facility Components	N	Based on the environmental studies included in the 94-C application, the proposed area of PV array occupation has been reduced from 1,105 acres to 833 acres. Generally, this reduction of 272 acres has been the result of landowner discussions, environmental restrictions, and to respond to the potential for visual impacts (see image, below). In some cases, the setback from public roads was increased by over 1,000 feet. This reduction in the size of the Facility footprint also had the effect of segmenting large contiguous PV arrays into smaller, discrete portions. Consequently, these smaller PV arrays combined with the screening resulting from existing, preserved woodlots and hedgerows is more effective in reducing the perceived scale of the Facility.

Potential Visual Mitigation Measure ¹	Proposed (Y/N)	Notes/Discussion
		 <p data-bbox="652 716 1544 850">Further reduction in the number of solar arrays could reduce visual impact from certain viewpoints, but from most locations where the Facility is visible, its visual impact would change only marginally unless a substantial number of PV arrays were removed.</p> <p data-bbox="652 890 1544 1024">The proposed PV modules will use a fixed-tilt mounting system and will have a maximum height of 12 to 13 feet above the ground at their highest point. This meets the requirements of the Town Zoning Law and State regulation and supports the energy generation goals of the project.</p> <p data-bbox="652 1064 1544 1234">Components within the collection substation and BESS are proposed at the heights necessary to maintain Facility reliability and safety, in accordance with applicable electrical codes and best practices. The equipment will generally not exceed 28 feet in height, with the exception of lightning masts.</p>
Alternative Technologies	N	<p data-bbox="652 1276 1544 1451">Aside from the racking being either fixed-tilt or single axis trackers, PV module technology and equipment is fairly standard, and does not offer alternatives that will significantly decrease visual impact. For the Facility Site, single axis tracker would require additional land to meet required Facility Capacity.</p>
Facility Color/Design	N	<p data-bbox="652 1486 1544 1801">Facility components use standard designs and colors which offer few, if any, alternatives. The neutral off-white color of the inverters presents minimal visual contrast with the surrounding Facility components. However, the BESS, also off-white in color, but larger in mass was found to present color contrast with the dark, muted color of the surrounding vegetation. The visual effects associated with this color contrast are substantially mitigated through the use of vegetative screening (See Section 4.2.3 and Attachment D of the Visual Impact Assessment [Appendix 8-A of the Section 94-c Application]).</p>

Potential Visual Mitigation Measure ¹	Proposed (Y/N)	Notes/Discussion
General Facility Lighting	Y	<p>The PV arrays, perimeter fences, and gates will not be lit. Some temporary lighting will be installed at the construction laydown areas and could be required at some work areas during construction. However, the only permanent light sources anticipated at the Facility are safety/security lighting to be installed at the substation and BESS. No operations and maintenance (O&M) facility is proposed, so no lighting for such a facility is proposed. All proposed lighting will be directed downward to minimize off-site light spillage. Lighting will also be kept to a minimum and will use the lowest intensity required to assure safety and security. Additionally, all lighting will be operated manually or placed on an auto-off switch to further minimize the duration of required lighting. As mentioned above, temporary lighting will be used during construction for the safety and security of staging areas and active work areas. This lighting is designed to maximize visibility and maintain a sufficient level of illumination across large areas. As such, some off-site light spillage is anticipated. The impacts associated with this lighting will be short-term, intermittent, and localized to the construction period and location. Additional detail on Facility lighting and the potential for off-site light spillage is described in the Lighting Plan included as Attachment 2.</p> <p>FAA hazard lighting is not required for the Facility, due to the lack of structures tall enough to require such lighting, or proximity to airport/runway approaches.</p>
Minimize Glare	Y	<p>The proposed PV modules will have anti-reflective coatings. To evaluate any potential glare impacts at any non-participating residences, airports or public roads, a Solar Glare Analysis was conducted using the Sandia National Laboratories Solar Glare Hazard Analysis Tool (SGHAT) model. Potential solar glare exposure that could impede traffic movements or create safety hazards are not anticipated. However, some glare effects are predicted at a limited number of adjacent residences and based on the conservative model projections, may exist at certain times to a degree that could cause temporary annoyance at these locations. It is anticipated that the proposed vegetative screening will provide a reduction in the potential for glare. In addition, the Applicant will work with residents and stakeholders in responding to concerns should they occur. See Solar Glare Analysis included as Attachment 3.</p>
Prohibit Advertising/Minimize Signage	Y	<p>Other than warning and safety signs, the placement of any signage (including commercial advertising, conspicuous lettering, or logos identifying the Facility owner or PV panel manufacturer), on the Facility will not be used.</p>
Underground Electrical Collection System	Y	<p>To the extent practicable, the electrical collection system will be buried, with minimal associated tree clearing required.</p>

Potential Visual Mitigation Measure ¹	Proposed (Y/N)	Notes/Discussion
Aboveground Electrical Collection System Pole Structure	Y	Approximately 5 miles of overhead collection line are proposed in locations where underground burial is not feasible. A majority of the overhead lines will be in relatively remote locations. Where visible, the overhead lines will be similar in appearance to existing roadside utility lines, using wood poles or steel pole structures that are either self-weathering or have a dark brown, green, or other similar non-glare finish.
Non-specular Conductor and Non-reflective Finishes	Y	Solar panels are specifically designed to absorb as much direct light as possible, which is achieved using a non-reflective coating on each panel. Metallic surfaces (e.g., PV racking system and non-intrusive substation equipment) may be reflective at first but are expected to dull quickly with exposure to the elements. All overhead transmission lines will use non-specular conductors.

Attachment 1

Landscape Mitigation Planting Plan

Attachment 2

Lighting Plan

Attachment 3

Solar Glare Analysis