Visual Impact Assessment

Matter No. 24-00103

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SHEPHERD'S RUN SOLAR PROJECT

Town of Copake, New York

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1.0 INTRODUCTION

Hecate Energy Columbia County 1 LLC (Applicant), a subsidiary of Hecate Energy LLC (Hecate Energy), is proposing to construct, operate, and maintain the Shepherd's Run Solar Project (Project), and is submitting an application with the Office of Renewable Energy Siting for a Permit for a Major Renewable Energy Facility pursuant to Article VIII of the New York State Public Service Law. As required for Exhibit 8 of the application, a Visual Impact Assessment (VIA) must be provided to determine the extent and assess the significance of Project visibility. This VIA tracks the requirements of requirements of 19 New York Codes, Rules and Regulations (NYCRR) § 900-2.9.

1.1 Regulatory Requirement and Methodology

This Visual Impact Assessment (VIA) has been prepared to comply with Exhibit 8 of 19 NYCRR § 900.2-9 so that the extent and significance of the Project's visibility can be determined. This VIA will include the identification of visually sensitive resources, viewshed mapping, photographic simulations, and proposed visual mitigation. Within the framework of the Exhibit 8 requirements, this VIA will address the following:

- The character and visual quality of the existing landscape;
- The visibility of the Project (above ground elements);
- The appearance of the Project (photographic simulations) from key locations;
- The nature and degree of visual change resulting from construction and operation of the Project;
- Identification of those visual resources that will have visibility of the Project; and,
- Consistency review in the assessment of visual impacts pursuant to the requirements of adopted local laws or ordinances.

By addressing the stated requirements, this VIA will include both a quantitative and qualitative assessment that will allow reviewing agencies and the public to understand the anticipated visibility of the Project, and potential visual impacts and their significance. The study area (referred to as the "visual study area" or VSA) for this VIA will extend two miles around the fence line of the proposed Project.

1.2 Consistency Review for the Assessment of Visual Impacts Pursuant to the Requirements of Adopted Local Laws or Ordinances

The following local documents have been reviewed for consistency against ORES's regulations at 19 NYCRR Part 900 with respect to visual impact assessments. While the local laws and codes provide some requirements for visual analyses/assessments, the ORES regulations

provide the framework of requirements for visual impact assessment for the Shepherd's Run Solar Project. The ORES regulations exceed what the local codes require.

In 1996, the Town of Copake adopted its Zoning Code (Zoning Code of the Town of Copake, New York, 2018). The Zoning Code was revised in 2018 with the enactment of a Local Law entitled "Revisions to the Copake Town Code as it Pertains to Solar Energy Facilities"; this Local Law was then amended in September of 2020.

Town of Copake, Columbia County, New York (amended 2018) Zoning Code

Language or requirements specific to analyses or assessments for visual impacts are with respect to the Town of Copake, Columbia County, New York (amended 2018) Zoning Code mentions:

- A specific callout for a type of visual analysis as Item F 4(7) on page 80 which states:

  "Photo simulations shall be included showing the proposed utility-scale solar energy system in relation to the building/site along with elevation views and dimensions, and manufacturer's specs and photos of the proposed utility-scale solar energy system, solar collectors, and all other components".

However, not specific to assessing visual impacts but other guidelines and requirements related to the construction of solar systems to avoid or minimize impacts include:

- All solar collectors and related equipment shall be surfaced, designed, and sited so as not to reflect glare onto adjacent properties and roadways.
- All solar collectors and related equipment shall be designed, located, and constructed so as to minimize the migration of light or sound from the installation and to minimize the development of sight obstructions for adjacent structures or land parcels.
- Screening shall be provided when practicable from adjoining lots through the use of architectural features, earth berms, landscaping, fencing or other screening which will harmonize with the character of the property and surrounding area. The proposed screening shall not interfere with normal operation of the solar collectors.
- The Tier 4 solar energy system, including any associated fencing or proposed off-site infrastructure, shall be located and screened in such a way as to avoid or minimize visual impacts as viewed from: publicly dedicated roads and highways, including NYS Route 22 and NYS Route 23; existing residential dwelling located on contiguous parcels, and routes commonly used by bicyclists, both local and bicycle tourists visiting the town.

- A berm, landscape screen, or other opaque enclosure, or any combination thereof acceptable to the Town of Copake capable of substantially screening the site, shall be provided.
- The design, construction, operation, and maintenance of any Tier 4 solar energy system shall prevent the misdirection and/or reflection of solar rays onto neighboring properties,
- All structures and devices used to support solar collectors shall be nonreflective and/or painted a subtle or earth tone color to aid in blending the facility into the existing environment.
- All transmission lines and wiring associated with a Tier 4 solar energy system shall be buried and include necessary encasements in accordance with the National Electric Code and Town of Copake requirements. The applicant is required to show the locations of all proposed overhead and underground electric utility lines, including substations and junction boxes and other electrical components for the project on the site plan. All transmission lines and electrical wiring shall be in compliance with the utility company's requirements for interconnection.
- Artificial lighting of Tier 4 solar energy systems shall be limited to lighting required for safety and operational purposes only and shall be down-lighted and shielded from all neighboring properties and public roads.
- Any signage used to advertise the Tier 4 solar energy system shall be in accordance with the Town of Copake's signage regulations. The manufacturers or installer's identification and appropriate warning signage shall be posted at the site and clearly visible.
- The height of the solar panel arrays shall not exceed 15 feet, and no part of any system structure or equipment shall exceed 15 feet in height, when oriented at maximum height.
- There are also guidelines for the Scenic Corridor Overlay Zone (SCOZ) located along Route 22. The purpose of the SCOZ is to establish clear guidelines for development, and/or redevelopment and protection of the Town's Route 22 corridor which comprises the most scenic and environmentally sensitive areas of the Town and to preserve existing open land now being actively used in agriculture. The SCOZ lies outside of the Project Area and VSA.

1.3 Project Description

Hecate Energy Columbia County 1 LLC (Hecate or Applicant), a subsidiary of Hecate Energy, LLC, is proposing to construct, operate and maintain an up to 42 megawatt (MW) alternating current (AC) photovoltaic (PV) solar energy generation facility, referred to as the Shepherd's Run Solar Project (the Project). The Project will occupy approximately 215 acres of leased private land in the Town of Copake, Columbia County, New York. The Project will interconnect on-site to the New York State Electric and Gas (NYSEG)-owned Craryville 115 kilovolt (kV) substation and transmission line to deliver power to the New York State (NYS) electricity grid.

The Project is located in the northwest corner of Columbia County and is proposed within several non-contiguous areas along State Route 23 and County Route 7 (See Site Plan in Attachment 1 and Figure 1 in Attachment 2).

The Project will include utility-scale solar arrays, access roads, inverters, buried collection lines, a collection substation, fencing, and laydown areas. The Project will interconnect to the Craryville 115 kilovolt (kV) substation owned by New York State Electric and Gas (NYSEG), located just north of Main Street (Route 23) in the town of Copake. The collection substation will be owned by the Applicant and located adjacent to the Craryville substation. A 115 kV line currently extends from Craryville Substation to Klinekill Substation and Churchtown Substation.

The solar panels for the Project will be ground-mounted on a low-profile racking system that will be supported by small steel posts driven into the ground, resulting in an extremely small ground disturbance footprint associated with the panels. The Project will utilize single-axis tracking structures, which allow the panels to follow the sun from east to west throughout the day and produce additional renewable energy. The Project will consist of the following components:

- Arrays of PV panels are proposed with a maximum height profile of up to 12 feet. The panels will produce direct current electricity mounted on single-axis tracking structures that will follow the sun throughout the day.

- Inverters within weather-rated enclosures dispersed throughout the Project (amongst the solar arrays) to convert direct current electricity to alternating current electricity.

- Medium voltage transformers that will raise the low voltage from the inverters to a medium voltage cable collection system (34.5 kV) that will extend underground to collection points for connection to the transmission grid.

- New substation that will connect the Project to the NYSEG 345 kV transmission line located within the Project Footprint. The proposed substation will be sited on private land adjacent to the existing NYSEG transmission facility on approximately one acre of private land located off of NYS Route 23, just east of the intersection with County Route 11A, in the town of Copake.

- Monitoring, control, and protection systems to remotely control the Project to reliably operate on the NYS electricity grid.

- Internal civil infrastructure, including up to 20-foot-wide permanent gravel access roads (using new roads and existing farm drives), vegetated landscape screening and fencing around equipment consisting of an 8-foot-tall wire mesh wildlife-friendly fencing with wood or wood-like posts.

- Temporary laydown yards that will provide space for construction office trailers, parking and equipment staging areas during construction of the Project, all within the planned Project Footprint.

The following definitions will be used to describe various areas or boundaries of the Project:

Project: Refers to the proposed Shepherd's Run Solar Project, a utility scale solar project that will be comprised of solar arrays, inverters, access driveways, electrical collection lines, collection substation, construction staging areas, fencing and plantings, located on private land in the Town of Copake, Columbia County, New York.

Project Area: Refers to those privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant in which all Project components will be sited.

Component or Facility: an individual piece, or collection of equipment or improvement of the Project, including a solar array, access road, fencing, inverters, buried electric collection lines, electrical interconnection facilities, and laydown areas.

Point of Interconnection: Refers to the Craryville 115 kilovolt (kV) substation owned by New York State Electric and Gas (NYSEG) on the Craryville-Klinekill and Churchtown-Craryville 115 kV transmission lines.

VSA: Visual Study Area. A 2-mile radius around the fence line of the Project specifically designated for the study of visual impacts.

2.0 CHARACTER OF THE EXISTING LANDSCAPE

The Project is in the town of Copake, New York, in the southeast section of Columbia County approximately 4 miles west of the Massachusetts border, 13 miles east of the Hudson River and 32 miles south of Albany. The VSA is rural and primarily consists of mixed forest groups, wooded wetlands and open land that also includes hay/pasture and cultivated crops as well as rural residential land. The location of solar arrays lies within Agricultural District #1. Other portions of District #1 outside of the arrays lie within 0.5 miles of the Project and also are found north, south, and east of the Project between 0.5 and 2 miles. Agricultural District #6 is also present between 0.5 and 2 miles west of the Project. Most commercial uses are located in the

hamlets of Copake and Copake Falls, approximately 2.5 miles south of the Project and outside of the VSA. The Taconic Hills Central School is located adjacent to the northwestern portion of the Project.

2.1 Community/Residential

Solar panels are proposed in the Town of Copake, New York. However, the VSA is a 2-mile radius around the fence line of the proposed solar arrays and includes other communities:

- *Communities that fall within 0.5 miles*: Towns of Copake, Hillsdale, and Taghkanic.
- *Communities that fall between 0.5 and 2.0 miles*: Towns of Claverack, Copake, Hillsdale, and Taghkanic. Also, the Hamlet of Craryville and community of Copake Lake, both located within the Town of Copake.

Various views of the rural character and the nature of the area within the VSA can be obtained in the Project Photolog in Attachment 3. Much of the residential development in the VSA consists of rural residential houses along roadways. A higher density of development occurs on land area surrounding Copake Lake (VP40 in Project Photolog). VP35 shows a view towards the Project from the western side of Craryville.

Overall, the VSA contains a limited number of residents. The communities within the VSA along with population estimates sourced from The U.S. Census Bureau, 2022 American Community Survey 5-Year Estimates are provided below in Table 1:

Table 1. Population of VSA Communities

Community	Population (2022 Estimates)
Town of Claverack	6,049
Town of Copake	3,353
Town of Hillsdale	1,862
Town of Taghkanic	1,255
Hamlet of Craryville	N/A
Community of Copake Lake	N/A

2.2 Physiography and Landform

Topography is variable in the VSA with elevations ranging 545 feet above mean sea level (AMSL) to approximately 1,408 feet AMSL. Physiographically, the Project lies in the Taconic

Mountains physiographic province. However, the site itself in the Town of Copake is located in a small narrow north-south valley that follows County Routes 7 and 7A and Craryville Road. The valley is bounded by Scutt and Rheinstrom Hill to the East, Texas Hill to the north, Central Hill to the south, and small hills along Birch Hill Road to the southwest and Bloody Hill to the west. The topographic elevation difference of the arrays within the fence line in the lower lying valley area is 620 feet, ranging to a maximum of 826 feet AMSL. The elevation range in the 0.5 mile Distance Zone of the arrays is VSA is 604 feet to 1,040 feet, not varying much more than 436 feet. Topographic elevations become increasingly higher the farther out from the Project. Elevations between the 0.5 mile and 2.0 mile Distance Zone range from 545 to 1,408 feet AMSL with a difference of 863 feet.

The highest point in Columbia County is 2,180 feet AMSL at the Massachusetts state line atop the Taconic Mountains which is approximately two miles outside of the VSA and approximately 4 miles from the nearest array. Refer to VP43 of the Project Photolog for a view towards the Project from an overlook along the South Taconic Trail.

2.3 Water

Several waterbodies are surrounded by residential communities of part time and year round residence. Copake Lake is located off County Route 7 approximately 1.2 miles southwest of the site. Forest Pond in Claverack is 1.6 miles to the northwest. The primary stream in the VSA is Taghkanic Creek that runs through the VSA and is on the Nationwide Rivers Inventory (NRI). The NRI is a listing of some free-flowing rivers (or river segments), which, based on preliminary studies, are considered to meet eligibility criteria for the National Wild and Scenic Rivers System. Taghkanic Creek flows to the south of the Project and is a tributary to Claverack Creek outside of the VSA, eventually flowing into the Hudson River. There are other unnamed tributaries in the area that flow into Taghkanic Creek.

2.4 Land Use and Development

The VSA is rural in nature and as such dominated by forest and agriculture. In this setting, development is generally seen along transportation corridors and within community settings (e.g., Copake Lake and Hamlet of Craryville).

An extension of an existing recreational use multi-path is proposed near the Project. The open developed segment of the Harlem Valley Rail Trail is outside of the VSA limits to the east and travels from Wassaic Hamlet north to Hillsdale. A continuing but undeveloped segment of the trail is proposed from Hillsdale westward paralleling NYS Route 23 along an abandoned railroad through Craryville and eventually passing through the northern portion of the Project and over to Chatham. The Project is coordinating with the Harlem Valley Rail Trail Association to financially support plans to extend the trail along a northern portion of the Project Area.

2.5 Transportation

Roadways in a project vicinity are important to understand since they are one of several viewer groups that may receive Project visibility. This viewer group could consist of local community, commuter, or tourist constituency on a daily or infrequent basis. To help describe the rural nature of the area and thus provide an understanding of the quantity of viewers by road travel, annual average daily traffic (AADT) counts are provided, as available, in the Table 2 listing of roadways in the area. AADT is a measure used primarily in transportation planning and transportation engineering. Traditionally, it is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

Table 2. Available Traffic Data within the Two Mile VSA

Route/ Road Name	From	To	Town	AADT	Functional Class
SR 23	RT 987 Taconic State Parkway	RT 22 Hillsdale	Claverack, Copake Hillsdale, Taghkanic	4,501	Minor Arterial
CR 7	SR 23	CR 77	Copake	2,120	Major Collector
CR 7a	CR 55	CR55b	Copake	1,411	Major Collector
CR 11	CR35	RT 11a	Taghkanic	511	Minor Collector

Existing roadways fall into functional classifications as defined by NYSDOT Office of Technical Services. These classifications with roadway identification are useful for understanding the character of the VSA. Photographs used in this analysis are taken from places accessible to the public and include roadway rights-of-way. Several of these photographs are in the vicinity of residential areas where functional classes of roads assist in understanding the density or frequency of travel in these areas.

Arterial Roads: Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.

Under this category, NYS Route 23 with an AADT of 4,501 is classed as a Minor Arterial. Minor Arterials are often moderate length and usually provide a connection to a higher-level roadway, such as a Principal Arterial. In rural areas, such as the VSA, Minor Arterials provide high travel speeds with minimal disruption to the through traveling vehicles.

Collector Roads: Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.

- Under this category County Routes 7 and 7a are classed as a Major Collectors with an AADT of 2,120 and 1,411, respectively. Major Collectors generally have few driveways and also allow for minimal disruption to the through traveling vehicles.

- Minor Collectors generally are spaced at intervals to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road, while providing service to the remaining smaller communities and linking the locally important traffic generators with their rural areas. The Minor Collector roadway within the VSA is County Route 11 with an AADT of 511.

Local Roads: Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement. Local roads that run adjacent to the Project or are within one half mile of the arrays include Darling, Two Town, Gellert, and Craryville Roads that are located north of NYS Route 23. Local roads south of NYS Route 23 within a half mile include Bloody Hill, Birch Hill, Cambridge, and Connelly Roads as well as Schmid Lane.

In addition to the classifications, most of the roadways in the VSA are generally rural in nature and generally provide one travel lane in each direction with limited shoulder and roadside treatments.

2.6 Existing Energy Infrastructure

Infrastructure of varying heights, materials and configurations may be seen within the VSA. As noted in Section 1.3, the Project will interconnect to the Craryville 115 kilovolt (kV) substation owned by New York State Electric and Gas (NYSEG), located just north of Main Street (NYS Route 23) in the town of Copake. A 115 kV line currently extends from Craryville Substation to Klinekill Substation in Chatham and Churchtown Substation in Claverack.

Monolith Solar is located on the north side of NYS Route 23 at the corner with Two Town Road. This is a very small existing Distributed Generation (DG) sized solar installation of approximately 200 kW. Monolith Solar (doing business as Two Town Solar LLC) filed bankruptcy; however, the facility is associated with the Taconic Hills School District who currently has a power purchase agreement with this installation. Two small groups of Monolith solar arrays occupy a hillside meadow, one group each on the north and south sides of the Craryville 115 kilovolt (kV) transmission line right-of-way (ROW) that runs through the area. The north group consists of 4 array strings with varying lengths between 185 and 375 feet. The south group consists of 6 array strings with approximate lengths between 95 and 375 feet.

2.7 Publicly Known Proposed Land Uses

An extension of an existing recreational use multi-path is proposed near the Project. The open developed segment of the Harlem Valley Rail Trail is outside of the VSA limits to the east and travels from Wassaic Hamlet north to Hillsdale. A continuing but undeveloped segment of the trail is proposed from Hillsdale westward paralleling NYS Route 23 along an abandoned railroad

bed through Craryville and eventually passing through the northern portion of the Project and over to Chatham. The Project is coordinating with the Harlem Valley Rail Trail Association to financially support plans to extend the trail along a northern portion of the Project Area.

3.0 DISTANCE ZONES

Establishment of Distance Zones are required by19 NYCRR § 900-2.9(b)(1) and are based on Project 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 U.S. Forest Service or the Bureau of Land Management 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 not wind turbines or tall buildings. They are of a different character with a low vertical height profile in comparison to other larger objects found in the landscape such as houses, barns, and trees, in addition to the rolling topography in the area that could easily visually obstruct farther locations. Solar projects typically have lateral breadth but the visibility of solar projects in the northeast, because of frequent and highly vegetated narrow ridges and valleys and dense forest areas surrounding agricultural lands, often do not offer substantial far-reaching vistas of many miles. Distance zones for this Project have been reasonably modified from the US Forest Service Handbook to accommodate the VSA radius, limitations of human vision and perceptible detail of the low profile of the Project components, and how much of the Project can actually be seen. Two distance zones for this Project are applicable in relation to the two-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 2 miles from the viewer). At this distance, individual tree forms and building detail can still be distinguished at, for example, 1 mile. The outer boundary of this distance zone, however, is defined as the point where the texture and form of individual plants are no longer visibly acute in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distance normally covered by each zone. Solar panels lose their level of detail and are seen as a continuous mass of form and/or color. Typically, the concentration of predicted visibility decreases in this zone due to the more abundant screening effects of trees, buildings, and topography that lies between a viewer and the Project.

It should be noted that although limits of the two-mile VSA is presumed, § 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. There are no such resources beyond two miles and is not applicable. The Taconic Mountains and South Taconic Trail are approximately 4 miles to the west and offer higher elevation terrain. VP43 in the Attachment 3 Project Photolog illustrates a view from Sunset Rock overlook along the trail. The photo demonstrates that view would be unlikely from the Trail. The view shows Roeliff Jansen Kill in the middleground. The Project is beyond the stream on the opposite side of the hills in the middle background. Visibility of the Project does not extend generally beyond 0.5 miles to the east and therefore the SCOZ along Route 22 is unaffected.

Further discussion on the percentages of visibility for each Distance Zone can be found in Section 9.1.6 and Table 6.

4.0 LANDSCAPE SIMILARITY ZONES

Landscape Similarity Zones (LSZs) were developed per 19 NYCRR § 900-2.9(b)(1). LSZs are areas of similar landscape and character based on patterns of landform, vegetation, water resources, land use, and user activity. These zones provide additional context for evaluating viewer circumstances where relationships between viewer groups and visual experience can be made. For example, a viewer's experience will be different in a forested area compared to open water. Viewer groups, as well as potential viewer frequency and duration of view can also be related to the specific LSZ they are within.

GIS land cover classification datasets from the United States Geological Survey (USGS) National Land Cover Dataset (NLCD) were used for an initial establishment of LSZs as they provide distinct and usable landscape categories. These NLCD land cover groupings were then refined based on aerial photo interpretation and general field review. This effort resulted in the definition of five LSZs as depicted in Table 3 and on Figure 2, Attachment 2, and include the following:

- Zone 1: Agricultural – This LSZ is characteristic of open land, including that which is used for row crops, hay or pasture, or left fallow. These lands are relatively flat to rolling and may contain small, wooded areas, and hedgerows. Development would be limited and sparsely located; single family homes and farmsteads (including barns and silos) make up the majority of built structures and are likely found along the County Routes or local roads that bisect this LSZ. Where available, structures, hedgerows, vegetated lined waterways/ravines, and woodlots can screen views, whether short or long distant, toward to the proposed Project. Agricultural lands are most often privately owned and while they may be abundant in a particular area, the numbers of the viewing public, as well as the frequency and duration of viewers, is likely low.

- Zone 2: Forested – This zone includes mature deciduous and coniferous tree groups either in uplands or wetlands. Forested areas can be a large, isolated grouping of trees

or large contiguous tracts likely owned by private entities or the State. Those forested lands owned by public entities (e.g., New York State Department of Environmental Conservation [NYSDEC]) may offer the public with recreational activities such as hunting, nature viewing, hiking, camping, etc. Views may be very limited as opportunities for outward viewing of the surrounding landscape will be minimized by the tree canopy It should be noted that views through the vegetation may be available during leaf-off conditions but is likely to be confined to along the edge of a forested area.

- Zone 3: Developed - This zone includes villages, hamlets, towns, cities, suburban/urban development, rural residential abutting roadways, and transportation corridors. This LSZ is also expected to contain the majority of community viewers either as a static long duration viewer of a resident or mobile transient viewer in roadway vehicles. Generally minimal views might be experienced for viewers within the interior of villages, as existing buildings and streetside trees screen views. Rural residential may experience long duration unscreened views if adjacent to the Project. Roadway travel consists of a higher number of short duration transient users experiencing a variety of views.

- Zone 4 Open - This zone within the VSA includes miscellaneous other open land that may have minor development with less visually obstructive features such as minor expanses of barren land or land with short vegetation, golf courses, cemeteries, ballfields, or small emergent wetlands.

- Zone 5 Water - This zone includes several small waterbodies that include Forest Pond and Copake Lake. A variety of recreational opportunities may be found that includes boating and (ice) fishing; the potential duration of a particular view may be contingent on the user activity. For instance, those fishing may experience views for a longer duration of time versus those enjoying a boat ride. It also includes Taghkanic Creek, which is a Nationwide Inventory River that runs through the Project.

Table 3 summarizes the percentage of LSZs in the VSA.

Table 3. Percentage of Landscape Similarity Zones within the Two Mile VSA

	Foreground Distance Zone 1		Middleground to Background Distance Zone 2			
LSZ	Square Miles	Percent of LSZ within the VSA	Square Miles	Percent of LSZ within the VSA	Total Square Miles of LSZ	Total Percent of LSZ in VSA
Zone 1 - Agricultural	1.61	7.17%	4.01	17.82%	5.62	**24.99%**

Table 3. Percentage of Landscape Similarity Zones within the Two Mile VSA

	Foreground Distance Zone 1		Middleground to Background Distance Zone 2			
LSZ	Square Miles	Percent of LSZ within the VSA	Square Miles	Percent of LSZ within the VSA	Total Square Miles of LSZ	Total Percent of LSZ in VSA
Zone 2 - Forested	1.88	8.34%	12.28	54.61%	14.15	**62.95%**
Zone 3 - Developed	0.21	0.92%	0.94	4.16%	1.14	**5.08%**
Zone 4 - Open	0.22	0.98%	0.54	2.40%	0.76	**3.37%**
Zone 5 - Water	0.01	0.07%	0.80	3.54%	0.81	**3.61%**
Totals	**3.93**	**17.47%**	**18.55**	**82.53%**	**22.48**	**100.00%**

LSZ 2 Forested is the dominant land area in the 2-mile VSA totaling 63.0%. LSZ 1 Agricultural is the second-most abundant LSZ with discrete areas interspersed throughout, occupying 25.0% of the land area. LSZ 2 Forested also occurs at highest percentages between the Distance Zones as well. The occurrence of LSZ 3 Developed comprises 5.1% of the land area in the VSA. Zone 4 Open is land with few visual obstructions such as minor expanses of barren land, land with short scrub-shrub vegetation, and emergent wetlands, and consists of 3.4% of the VSA. Zone 5 Water (primarily as Copake Lake and Forest Pond) accounts for 3.6% of the VSA.

Forested areas are found at all compass directions in all Distance Zones. Agricultural areas are found in the VSA within 0.5 miles adjacent and in the vicinity of NYS Route 23 and County Route 7. Outside of 0.5 miles, agricultural areas are located along Martindale Road and County Route 11A to the east, primarily along West End, Rockridge, Craryville, and Bushnell Roads to the north, along County Route 7A to the south, and along Overlook and Black Grocery Roads to the southeast.

Larger acreages of Zone 3 Developed within the VSA are associated with communities associated with Copake Lake, the Hamlet of Craryville and with the Taconic Hills Central School District. There are also many distinct Zone 3 linear travel corridors crossing the VSA as well. These roadways also have intermittent rural residential homes adjacent to the roadway

Zone 4 Open LSZ occurs intermittently as does Zone 5 Water. While the Taghkanic Creek is recognized, water body area calculations have not been made. However, approximately 7.8 miles of the creek flows through the VSA.

5.0 SCENIC RESOURCE INVENTORY

An inventory of publicly available and accessible local, county, state, and federally recognized visual resources out to the 2-mile VSA were identified under 19 NYCRR § 900-2.9(b)(4)(ii). These resources were collected using various sources including local and state websites, town, county and agency reports, topographic data, and site visits along with photographic documentation were used as source data.

On April 14, 2021, an information request was sent out to stakeholders per 19 NYCRR § 900-2.9(b)(4). In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which included identified visual resources. Opportunity was provided for stakeholders to append additional visual resources of concern to the inventory in a written reply-response. Visual resources within 2 miles of the Project are listed in Table 4. In identifying appropriate resources, the following categories that are contained in the regulations were reviewed for their appearance within the VSA:

1) Landmark landscapes;
2) Wild, scenic or recreational rivers administered by NYSDEC, APA or Department of the Interior;
3) Forest preserve lands,
4) Scenic vistas specifically identified in the Adirondack Park State Land Master Plan,
5) Conservation easement lands,
6) Scenic byways designated by the federal or state governments;
7) Scenic districts and scenic roads, designated by the Commissioner of Environmental Conservation;
8) Scenic Areas of Statewide Significance;
9) State parks.
10) Historic sites listed or eligible on the National/State Registers of Historic Places (NRHP);
11) Areas covered by scenic easements, public parks or recreation areas;
12) Locally designated historic or scenic districts and scenic overlooks; and
13) High-use public areas.

5.1 Aesthetic Resource Inventory Results

Table 4 shows results of the investigatory findings of municipal village/town, or agency listed and recognized scenic resources that are required by the ORES regulations (Section 5.0). Figures 3, 4 and 5 in Attachment 2 show resulting resource locations.

Table 4. Inventory of Visual Resources within the Two Mile VSA

Fig. 4 Map No.	Map ID	Resource Name	Town	Distance	LSZ	Federal (F), State (S), or Local (L) Resource	Potential Visibility [1]
	Recreation						
B1	1	Copake Country Club	Copake	1.4 mi	4	L	No
A2, B2	N/A	The Rheinstrom Hill Audubon Sanctuary and Trails	Copake	0.6 mi	2,4	L	No
	Ponds and Lakes						
B1	2	Copake Lake (NYS Fishing Access)	Copake	1.1 mi	5	S	No
	School (Adjacent to Project)						
A1	3	Taconic Hills Central School District (& playing fields)	Copake	530 ft	3,4	L	Yes
	Nationwide Rivers Inventory						
A1	N/A	Taghkanic Creek	Copake, Hillsdale, Taghkanic	66 feet	1,2, 5	F	Yes
	Bikeways and Trails						
A1	N/A	Harlem Valley Rail Trail (Proposed)	Claverack, Copake, Hillsdale, Taghkanic	145 feet	2,3, 4	L	Yes
A1	N/A	NYS Bikeway 23 (NYS Route 23)	Claverack, Copake, Hillsdale, Taghkanic	330 feet	3	S	Yes
	Potential Environmental Justice Area [2]						
B2	N/A	Tract 16, Block Group 1	Copake	0.35 miles	1,2	F	Yes

Fig. 4 Map No.	Map ID	USN	Resource Name	Town/Village	Distance	LSZ	Federal (F), State (S), or Local (L) Resource	Potential Visibility [1]
	Historic Architectural Survey TRC Recommended NRHP Sites [3]							
A1	A	02107.000048	New York & Harlem Railroad: Craryville Depot, Route 23	Copake	287 feet	3	F	Yes

Fig. 4 Map No.	Map ID	USN	Resource Name	Town/Village	Distance	LSZ	Federal (F), State (S), or Local (L) Resource	Potential Visibility[1]
A1	B	02107.000110	North Copake Cemetery, NYS Route 23	Copake	239 feet	4	F	Yes
A1	C	02112.000129	457 Craryville Road	Hillsdale	0.6 mi	3	F	No
A1	D	02112.000127	West Hills Baptist Cemetery, Craryville Rd	Hillsdale	0.5 mi	4	F	No
A1	E	02112.000132	393 Craryville Road	Hillsdale	0.4 mi	3	F	No
	Additional SHPO Determined NRHP-Eligible Sites, April 2022[4]							
A1	F	2107.000066	4131 County Route 7	Copake	46 feet	1,3	F	Yes
A1	G	2107.000112	Sir William Farm, 44 County Route 7	Copake	732 feet	3	F	Yes
A1	H	2107.000113	Rasweiler Angus Farm LLC, 1663 State Route 23	Copake	483 feet	3	F	Yes
B2	I	2107.000115	1100 Center Hill Road	Copake	0.89 mi.	1,3	F	No
A1	J	2107.000117	4061 County Route 7	Copake	0.2 mi.	1,3	F	Yes
A1	K	2107.000120	1810 State Route 23 Federal Style House	Copake	399 feet	3	F	Yes
	Additional Historic Site Investigations Per ORES, Undetermined Historic Status Not Within VSA, December 2022[5]							
N/A	N/A	N/A	Craryville United Methodist Church	Copake	662 feet	3	F	No
N/A	N/A	N/A	Bert's Inn	Copake	626 feet	3	F	No
	[1] Potential visibility is obtained from the viewshed analysis using topography, trees, and buildings only, per §900.2.9(b)(1), simulations, or on-site observation. *[2]Current census data (2022v) do not meet the threshold for PEJA for block groups within 0.5 miles. However, Tract 16 Block 1 was previously identified as a PEJA.under 2018v data).* *[3] TRC recommended NRHP eligible sites per historic architectural resources survey conducted in June 2021.* *[4] Additional historic properties determined by SHPO for NRHP eligibility status. Please also refer to the updated Addendum Effects Report (April 19, 2022) n Attachment 7.* *[5] Additional investigations recommended by ORES. Please also refer to the Updated Letter Report (December 13, 2022) in Attachment 5.*							

Information for historic sites and districts, listed New York historic sites, NRHP, and NHRP eligible historic properties was obtained directly from New York State Historic Preservation Office (SHPO) as part of a specific Applicant request made on October 6, 2020, In June 2021, a historic architectural survey was conducted by TRC on behalf of the Applicant. The purpose of the survey is to identify the presence of historic architectural properties aged fifty years or

older within the area of potential effects (APE), evaluate these architectural resources for their eligibility for listing in the NRHP, and provide an assessment of potential effects of the Project on those resources that are listed in, previously determined eligible for listing in, or recommended eligible for listing in the NRHP. TRC recommended NRHP eligible historic sites are noted in Table 4.

In response to the field inspection report, TRC received a letter from OPRHP dated December 13, 2021, that determined ten (10) properties are NRHP eligible in the APE and requested additional information about the project to determine the Project's visual impact on those ten historic properties. TRC provided the requested information to OPRHP in a letter dated January 14, 2022. In a letter dated February 11, 2022, OPRHP requested further information related to select historic properties. The Applicant has provided OPRHP with information, mapping, and photographic simulations. In a letter dated February 15, 2022, OPRHP provided an adverse impact finding and requested further information related to select historic properties. In an Addendum Effects Report dated April 19, 2022, TRC provided additional requested information and viewshed analysis on five properties identified by OPRHP from both the February 11th letter and the February 15th letter. TRC concluded in this report that the Project will have no potential to directly or indirectly impact historic properties, thus reconfirming its original conclusion. OPRHP responded to TRC in a letter dated May 3, 2022, with an Adverse Impact Determination. In a letter dated September 27, 2022, OPRHP again determined that historic properties in the APE will be adversely impacted by this project. The adversely impacted historic properties are 02107.000066, 02107.000110, 02107.000113, 02107.000117. Please refer to the *Addendum Effects Report, April 19, 2022 and Updated Letter Report, December 13, 2022* in Attachment 5.

The following will have the potential to view the proposed Project:

Taconic Hills Central School District

The Taconic Hills School District opened in September of 1999. The school district has students enrolled in two different schools, which include a PreK – 6 Elementary, and a 7 – 12 Junior/Senior High School. The school district provides a public school education and a common link for towns that comprise the nearly 250 square miles southeastern, mostly rural, portion of Columbia County. The towns that comprise the district are Copake, Hillsdale, Village of Philmont, and parts of the Towns of Ancram, Austerlitz, Claverack, Gallatin, Ghent, Livingston, Northeast, and Taghkanic.

Taghkanic Creek

Taghkanic Creek has a Nationwide Rivers Inventory status of Recreational from the headwaters to the confluence with Claverack Creek. The Nationwide Rivers Inventory (NRI) is a listing of more than 3,200 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be at least regionally significant. Hence, NRI river segments are potential candidates for inclusion in the National Wild and Scenic River System. Included within the entire designated river reach segment is a

diversity of unique flow gradients including Class 4 rapids. These rapids do not occur near the Project.

Harlem Valley Rail Trail (Proposed)

The open segment of the Harlem Valley Rail Trail outside of the VSA limits to the east travels from Wassaic Hamlet north to Hillsdale. A continuing but undeveloped segment of the trail is proposed from Hillsdale westward paralleling NYS Route 23 along an abandoned railroad bed through Craryville and eventually passing north of the Project and over to Chatham.

NYS Bikeway 23

NYS Route 23 is one of the major highways in the VSA that crosses through the northern portion of the Project. NYS Bike Route 23 is along the highway. It is a signed, on-road bicycle route extending 49 miles in Columbia County. It begins at the Massachusetts border and ends at the Rip Van Winkle Bridge. This route connects NYS Bike Route 22 in Hillsdale and with NYS Bike Route 9 in the City of Hudson.

Potential Environmental Justice Area Tract 16 Block Group 1

A review of the Project site found that, according to 2018 census data there is one PEJA located in the southern portion of the VSA, according to the thresholds established by the State of New York under 6 NYCRR Part 487.10. PEJA Tract 16, Block Group 1 is located south of the intersection of County Route 7 and Center Hill Road in the Town of Copake. However, current changes to 2022 census data indicates that this tract and block group does not meet the threshold for PEJA.

Historic Resources

02107.000048 New York & Harlem Railroad: Craryville Depot, NYS Route 23

2107.000066 4131 County Route 7

02107.000110 North Copake Cemetery, NYS Route 23

2107.000112 Sir William Farm, 44 County Route 7

2107.000113 Rasweiler Angus Farm LLC, 1663 NYS Route 23

2107.000117 4061 County Route 7

2107.000120 1810 Federal Style House, NYS Route 23

These historic resources are further described in detail in Attachment 5. Simulations for several historic resources were previously request and provided to SHPO under a separate effort. Please refer to the *Addendum Effects Report, April 19, 2022 and Updated Letter Report, December 13, 2022* in Attachment 5.

Additional locations of visibility have been identified along roadways adjacent to the Project. These representative roadways may be of interest to local residents. Further discussion of visibility along roadways is in Section 9.1.4.

6.0 METHODOLOGY- VIEWSHED ANALYSIS, LINE-OF-SIGHT PROFILE, AND PHOTOGRAPHIC SIMULATION

6.1 Viewshed Analysis

Typically, the first step in identifying the possibility for Project visibility within the identified VSA is to complete viewshed maps. A viewshed analysis is a computerized GIS analytical technique that illustrates the predicted visibility expected for a project and allows one to determine if and where a project can geographically be seen within a larger regional area. The results of the viewshed analysis can be combined with other sensitive location information such as historic places, national forests, or state parks, etc. to understand potential Project visibility at sensitive receptors.

6.1.1 *Methodology*

In completing the necessary viewshed analysis, Light Detection and Ranging (LiDAR) point cloud data from the NYS Columbia-Rensselaer Counties New York LiDAR dataset and obtained from the New York State GIS Program website was used. LiDAR data is the best available elevation data as it contains high resolution accurate ground elevations in addition to building and tree heights that offer realistic physical visual impediments as they occur in the landscape.

The proposed panels for this Project will be up to 12 feet above ground level and will have a tracker racking system.

The viewshed analysis accounts for proposed grading and tree clearing. The model was further developed by establishing an observer height of 6 feet and with the assumption that the Project would not be visible to a viewer who is standing amongst trees in a forested area for the viewshed analysis that incorporated trees. The final resulting output identified those areas from which viewers would potentially see all or some part of the proposed solar panels. ESRI Spatial and 3D Analyst GIS software was used to develop the viewshed model.

Two viewshed analyses for the solar arrays have been produced to illustrate predicted visibility within the VSA:

1. Screened Viewshed with Vegetation and Buildings: This is the primary visibility analysis performed per §900.2.9(b)(1),as it incorporates existing trees and buildings in the study area in addition to topography and gives the most reasonable and realistic depiction of the surrounding Project landscape. The results of this analysis provide the focus of visibility discussion in visual impact assessments because of the inherent aspects of reproducing realistic conditions when LiDAR datasets are used.

2. Topography-Only Viewshed: A topography-only viewshed analysis was also performed. The viewshed analysis with only bare earth topography is not recognized as being a realistic representation of potential visibility, as it is not truly reflective of the environment due to the absence of all trees. Despite this limitation of the topography-only analysis, it can be a useful tool in allowing an understanding of how much of the Project is blocked by terrain alone. Another caveat is that the topography-only results must not be interpreted as representing visibility during leaf-off conditions, since even leaf-off bare branched tree groups act as a solid mass where lines of sight to objects can be screened. VPs 2, 3, 6, 7, 9, 17, 19, 20, 21, 30, 36, and 39 in the Attachment 3 Project Photolog, are a few examples of how much visibility can be impeded even during leaf-off conditions, and thus serve to act more like the analysis using trees than topography alone. Under certain circumstances, there may possibly be visibility through bare-branched trees only if the trees are sparse, if this sparse tree row is the only existing vegetation between the viewer and the site, and if the viewer is in fairly close proximity to the Project.

One viewshed analysis separate from the arrays was completed for the proposed collection substation.

3. Collection Substation: One viewshed analyses was produced using the same LiDAR data and the same methodology as that of the solar arrays using trees and buildings only and with proposed grading and tree clearing addressed. This analysis accounted for the tallest components of the collection substation which included a 50-foot tall H frame structure as well as a single 65.5-foot tall tap structure located on the Craryville substation property. The analysis also accounts for lower components such several 30-foot tall bus structures, several 22.5-foot tall structures such as transformers and a 20-foot tall control building.

6.1.2 *Assumptions and Limitations of the Viewshed Analysis*

The viewshed analysis identifies cells that contain elevation information and computes the differences along the terrain surface between an observer and a control point (e.g., a solar panel). Therefore, certain factors in the interpretation of results need to be considered:

1. The analysis, because of its computerized aspect, assumes that the observer has perfect vision at all distances. Therefore, it is important to be cognizant of the fact that there may be limitations of human vision at greater distances, atmospheric/meteorological conditions, such as haze or other inclement weather conditions, may impair visibility. Additionally, an object will appear smaller and less detailed with increased distance, thus having less visual impact in most instances. These aspects cannot be conveyed with this analysis.
2. Because an area may show visibility, it does not mean the entirety of the Project will be seen. The viewshed analysis depicts areas of visibility over a regional area. It can only

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

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

6.2 Line-of-Sight Profiles

Line of Sight (LOS) elevation profiles were completed to address state aesthetic resources, fulfilling 19 NYCRR § 900.2.9(b)(1). This regulation states specifically that LOS profiles be completed for resources of statewide concern . For this Project and as noted in Table 4, there are two resources of statewide concern within the VSA. These include NYS Bikeway 23 on NYS Route 23 and a NYS Fishing Rights Easement at Copake Lake. LOS analyses are able to provide the viewer with information that assists in examining the reasons why objects such as solar panels or collection station components may have impeded views or no views. The underlying topography of a sight line, in addition to vegetative obstructions, can be produced, as can an estimated amount of visibility of the upper portion of an object if it is visible.

LiDAR elevation data obtained for the Project noted in Section 6.1.1 was used for the terrain data source. ESRI 3D Analyst was used to produce the linear elevation profiles sampled across select sight lines. Section 9.2.2 provides a discussion of results and Attachment 4 contains the profiles.

6.3 Photographic Simulations

Photosimulations depicting existing conditions and what the Project will look like have been developed. A Project Photolog is presented in Attachment 3. Photo viewpoint locations are shown in Attachment 2 maps. The field photo-effort attempted to provide the most unobstructed views as possible at north, south, east, and west positions and/or in areas where the viewshed maps represent potential visibility. Proposed Project grading and tree clearing are accounted for. Simulations are presented in Attachment 4.

6.3.1 *Simulation Methodology*

To create the photographic simulations of the Project, TRC utilized Autodesk Civil 3D (CAD) to extract the proposed Project layout (site plan and grading) that was prepared by Stantec, the design engineers for the Project. This data was interfaced with Autodesk 3DS Max (MAX) visualization software to construct a three-dimensional (3D) model of the proposed Project at the precise, coordinate (x, y, z) location at which the Project is physically proposed.

For the purposes of this VIA, the proposed panels were built as bifacial single-portrait trackers with a maximum height of 12 feet above ground surface with the axis oriented north-south.

The terrain elevation data (z value) needed to place the panels correctly on the surface of the earth was derived from the LiDAR sources noted in Section 6.1.1. Proposed grading elevations from the design engineer was then incorporated into the model. Using the engineering site plan, each x, y, z coordinate location of each proposed solar array was obtained and imported into Autodesk 3DS MAX visualization software including the LiDAR point cloud data. A 3D model of every proposed individual solar array was then physically constructed according to the proposed panel specifications and tilt angle along with the proposed racking system

The simulation model was further developed to position the viewer at the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (x, y, z) positions were entered into the model along with other camera information. The arrays were further refined within the simulation photograph by referencing point cloud LiDAR data against the landscape features seen within the photo.

For the Project landscaping simulations, a CAD version of the proposed landscaping plan obtained directly from the Project Landscape Architect was imported into the MAX modeling environment where, subsequently, each proposed tree and shrub species was then translated and built into 3D, and growth heights set and placed in with the Project according to the landscape plan. The growth rate for each species was obtained from the Tree Guide at https://www.arborday.org/. Data on the Arbor Day website is a reliable and reputable source in the industry. Average annual growth rate projections can be calculated for any future year desired. Estimated mature height data for each plant species can also be obtained.

The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for the sun angle in the simulation software in order to represent lighting conditions for the time of day and year and that which is seen in the photo.

6.3.2 *Viewpoint Selection for Photographic Simulations*

Integrating the results of the GIS aesthetic inventory data along with the viewshed analysis results provided desktop reconnaissance for recognizing areas with potential visibility and identifying candidate locations for photosimulations. While focusing on inventoried locations as listed in Section 5.0, an additional objective in the viewpoint selection process is to also choose locations for simulations that represent the various LSZs as well as Distance Zones. Further, site field visits are also necessary for ground-truthing and increasing the understanding of the visual environment. It is important to note that not all locations with visibility are to be simulated, rather, representative Project views are provided per 19 NYCRR § 900.2.9(a)(6), § 900.2.9(b)(4)(1), and § 900.2.9(c)(1).

Potential visibility, as noted by the viewshed results in the Attachment 2 viewshed mapping, initially guided the candidate locations for simulation viewpoints per 19 NYCRR § 900.2.9(b)(3). Results of the viewshed analysis shows the most prominent visibility is within Distance Zone 1 (0.5 miles) of the Project, with some extremely minor predicted visibility in Distance Zone 2 (0.5 to 2 miles). It is often difficult to obtain representative simulation photos at distance because there are often minimal locations with far reaching views of solar projects in the northeast. Therefore, much of the focus for viewpoint locations are closer to the Project where there is community concern and where visibility is predicted near residences and segments of roadway. Cardinal compass directions as well as central interior locations were also considered.

Section 900.2.9(b)(4) requires consultations with affected agencies and municipalities. 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. Consultations, requests, and a final selection of simulation viewpoints were conducted.

The Applicant completed the consultations identified in the PIP Plan and had additional stakeholder meetings and communications. The results of these meetings are summarized in the Meeting Log

On April 14, 2021, an information request was sent out to stakeholders in the form of a visual studies progress report. In this request, a preliminary visual report was provided, indicating the extent and findings of visibility studies at that point in time which consisted of identified visual resources as well as the result of the trees-only viewshed analysis, Project mapping, and the Project Photolog. Opportunity was provided for stakeholders, including local municipalities, to suggest additional and reasonable candidate locations for photosimulations or to append additional visual resources of concern to the inventory. This request to stakeholders was specific to locations that were publicly accessible. As a response specific to this preliminary visual outreach report and review request, a letter dated May 3, 2021 was received from the counsel for the Town of Copake, that stated that additional time extended to June 12, 2021 was needed to review the outreach report and provide a response. The Applicant ultimately did not receive a response by June 12, 2021 specific to this exchange. A response from NY State Office of Parks, Recreation, and Historic Preservation was received on April 15, 2021 and acknowledged the report with an understanding it was a preliminary document.

Several meetings, open houses and correspondences occurred between the Applicant and the Town of Copake since May 2021. The Applicant participated in a two-hour update presentation with a local stakeholder group on November 16, 2021, a day long meeting with the Town and Town consultants on November 18, 2021, and a pre-application meeting with the Town on March 14, 2024. Additionally, Hecate held a virtual and in-person informational open houses on November 29th and 30th, 2021 respectively and an in-person community meeting/informational open house on April 3, 2024 . During these events, Hecate received substantive comments from participants, primarily relative to suggestions to utilize an alternative fencing style and inclusion

of additional plant screenings or berms, as appropriate, at residential areas along County Route 7.

In email correspondence dated Tuesday November 23, 2021, Benjamin Wisniewski, Esq. provided requests from the Town of Copake to produce four simulations at the following locations:

1. Town request for east view from 4029 County Route 7: to fulfill this request the Applicant has provided simulation VP38 as a representative view of the Project facing east along County Route 7 at the preferred address.

2. Town request for a northeast view from Freuh Road residence: this request was in regard to a previous layout that is not part of the proposed Project. Thus, this viewpoint does not provide representative views of the Project

3. Town request for a view from Cambridge Road near Fidance Road: to fulfill this request the Applicant has produced a representative view of the arrays in this area. VP11 is near Fidence Road and faces east.,

4. Town request for north view from 7 Birch Hill Road: to fulfill this request the Applicant has produced simulation VP16 as a representative view for this location. It is noted that the house location at 7 Birch Hill Road is not adjacent to the public road but has a long extended driveway approximately 420 feet long that leads south to a hillside location of the actual residence that is within a wooded area. Viewshed analysis shows that a view to north arrays from the actual house location is unlikely. Therefore, a view east from the driveway entrance showing arrays on a nearby hillslope was chosen. Furthermore, a clear unobstructed sight line representing a northerly view in the vicinity of 7 Birch Hill Road still has been provided as simulation VP51.

As required by Section §900.2.9(b)(4), the Applicant's selection of representative simulations for the Project weighed heavily towards viewpoints that were representative of community and/or listed aesthetic resource views and offered as much of a clear, unobstructed sightline as possible as well as those viewpoints suggested by the Town of Copake. Also considered are representative views of the Project with respect to LSZs, varying distance zones and compass directions as best as Project views allowed.

Outreach correspondence is included in Attachment 5.

7.0 ADDITIONAL APPLICABLE VISUAL CONCEPTS TO CONSIDER: VIEWER CHARACTERISTICS

Visual sensitivity is dependent upon user or viewer attitudes, the amount of use, and the types of activities in which people are engaged when viewing an object. Overall, a higher degree of

visual sensitivity is correlated with areas where people live, and with people who are engaged in certain outdoor recreational activities or participating in scenic driving. Conversely, areas of industrial or commercial use are considered to have low to moderate visual sensitivity because the activities conducted are not significantly affected by the quality of the environment. Views and viewer groups are discussed throughout the VIA in the context of aesthetic resources, viewshed visibility results and Project simulations.

The following concepts are applied when evaluating the visual landscape and assessing the importance of a viewpoint location if it falls in an area of visibility.

Viewer group – The type of viewers will vary within the VSA and will view the landscape differently. Viewer groups include:

- *Local Constituency*: People living in the local area and/or surrounding communities who interpret the significance of where they live and interact with others. These people may include local residents, workers, travelers, and members of groups to which the local area is important in different ways.

- *Commuter Constituency*: People who use or are generally restricted to travel corridors that are destination oriented or traveling through the VSA. These people generally have transient, short duration views.

- *Visitor or Recreational Constituency*: Individuals who visit the area to experience its natural appearance, cultural landscape qualities, or recreational opportunities. Visitors may be of local, regional, or national origin. Duration of views may be contingent on the activity.

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

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

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

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

8.0 VISUAL IMPACT RATING

TRC has developed a visual impact rating form for use in comparing project photosimulations as required by 94-c. This form is a simplified version of various federal agency visual impact rating systems. It includes concepts and applications sourced from:

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

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

TRC has developed this form for efficient and streamlined use with projects that undergo state environmental permitting processes. It is assumed that visual resource inventories, terrain analyses, development of LSZs or viewshed analyses have already been performed in the Project VIA according to state regulatory requirements or other visual policy. This form was developed to be used as a numerical rating system for the comparison of Existing Conditions (before) vs. With Project (after) photosimulations of final selected viewpoint locations and is meant to accompany the Project VIA. This form has been used in past for projects reviewed and subject to Section 94-c of the NYS Executive law and thus approved by ORES.

There are two parts of the form that evaluate visual change. Part 1 is the *Visual Contrast Rating,* which rates the Project as it contrasts against compositional visual elements of the viewpoint scene. This includes compositional contrasts against the existing and natural environment such as vegetation, water, sky, landform, or structures. The higher the rating total, the higher the contrast. Part 2 is the *Viewpoint Sensitivity Rating*. This section rates the sensitivity of the viewpoint location which inherently considers the importance of the viewpoint (if it falls within a visual resource area), viewer groups, duration of view, if it is a high use area, or if there is the

presence of water. The higher the rating total, the more sensitive the viewpoint is. A third part, Part 3, does not rate change but is an overall *General Scenic Quality of the View* which rates the view of existing conditions only, without the influence of the Project.

It should be noted that the Contrast Rating exercise is not intended to replace full public opinion or meant to declare the final opinion of Project contrast. There is nothing in the ORES regulations that state that the rating exercise is performed to project public opinion. The rating system and those developed by the aforementioned agencies are designed to guide a subjective process (visual observation) objectively, by using a developed, structured, straightforward common language that involves the assessment and discussion of compositional elements such as contrast, form, line, shape etc. for a set of existing and proposed conditions simulations. A rating system is applied from low to high with the intent to detect visual change and provide consistent comparison between or across subject matter. The data from the results highlight the trends and guides the reviewer to viewpoints that may be more or less problematic. The rating form is not meant as a public survey, to be in lieu of a public survey, or to assess or appeal to how one feels about the development at a more emotional level.

Please refer to Attachment 6 for more comprehensive guidelines on how simulation contrast was assessed and applied within each category.

The rating scale is as follows:

Rating Scale	
0	None
0.5	Very Weak
1	Weak
1.5	Weakly Moderate
2	Moderate
2.5	Moderately Strong
3	Strong

Degree of Contrast Criteria

None The element contrast is not visible or perceived.

Weak The element contrast can be seen but does not attract attention.

Moderate The element contrast begins to attract attention and begins to dominate the characteristic landscape.

Strong The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

9.0 VISUAL IMPACT ANALYSIS RESULTS

9.1 Viewshed Results and Discussion

The viewshed analysis showing areas of potential visibility can be found in Figures 3, 4, and 5 in Attachment 2). As noted in Section 6.1.1, three viewshed analyses were performed. Two analyses were completed for solar arrays: one with topography only and one with vegetation included, both with solar panel heights set at 12 feet above ground surface. The third analysis was performed regarding the collection substation that considered the tallest elements of the station such as a taller H frame structure (50 feet tall), connecting tap structure (65.5 feet tall) and other electrical components (20 to 30 feet tall).

9.1.1 *Viewshed Results for Arrays – Trees and Buildings Included*

This analysis, per §900.2.9 (b)(1), incorporates trees and buildings in the study area in addition to topography and gives the most reasonable and realistic depiction of the surrounding Project landscape. The results of this analysis provide the focus of visibility discussion in the visual impact assessment because of the inherent aspects of reproducing realistic conditions when LiDAR datasets are used. The arrays are sited in existing open land with limited tree clearing. While open areas surrounding the panels are present, the general vicinity surrounding the Project in the VSA is a mosaic of well-forested and open land, as illustrated in Figure 1 Site Location and Figure 2 Landscape Similarity Zone maps in Attachment 2. These forested areas, along with rolling topography provide much screening and preclude many views. The majority of visibility that is expected occurs mostly in a focused location inside of the 0.5-mile Distance Zone 1 within the Project parcels themselves, and in a few roadways, open fields, and nearby properties within and outside of the Project Area as seen in Figure 4 of Attachment 2. Although the panels are sited in open land surrounded by forested areas and in some cases on higher terrain, the low-profile panels set against existing hedgerows, and tree groups that frame the panel locations, are enough to obscure many outward views. Because of the maximum panel height in relation to the mature vegetation, there are minimal far-reaching views outside of the general array locations. Outside of Distance Zone 1, visibility is expected to be minimal to non-existent.

While views may inevitably be obtained from proximal local roads, the Project has been strategically sited away from population centers and most inventoried municipal/agency listed sensitive visual receptors.

Refer to Section 9.1.5 and 9.1.6 for tables and more detailed discussion of the percentages of land area that may experience visual change as a result of the viewshed visibility analysis. In summary, the viewshed analysis results show that 6.9% of the land area within the 2-mile VSA will have either a full or partial view of the Project. Visibility results also indicate that 3.1% of the total 6.9% visibility within the VSA occurs on land within the Project Area, and thus on those

properties under option to lease, purchase, easement or other real property interests with the Applicant.

9.1.2 *Viewshed Results for Arrays – Topography Only*

As described in Section 6.1, viewshed analysis with bare earth topography without trees is not recognized as being a realistic representation of potential visibility, because it is not truly reflective of the environment due to the absence of all trees. Another caveat is that the topography-only results must not be interpreted as representing visibility during leaf-off conditions, since even leaf-off bare branched tree groups act as a solid mass where lines of sight to objects can be screened as noted in much of the Project Photolog. Despite the limitations of a topography-only analysis, it is a useful tool in understanding the influence that terrain has on blocking views to the Project.

The bare earth topography-only viewshed analysis results show in Figure 3 that in a treeless environment, the Project is visible in much of the VSA and is most predominant in Distance Zone 1. Visibility beyond the 0.5-mile Distance Zone 1 is generally concentrated northeast, east, and west of the Project out to Distance Zone 2. There are topographic landscape features to the south and east preclude visibility where views of the Project are not expected.

The visibility that is present between 0.5 and 2 miles tends to occur on the Project facing slopes up to the crests of higher terrain. Such areas to the north include the hills in the vicinity of Texas Hill Road, Hereford Hills Road, and Richard Hill Road. Bloody Hill is a predominant topographic feature to the west. To the south Center Hill and the hills near Birch Hill Road preclude further southerly views. To the west Rheinstrom Hill and Scutt Hill prevent views farther west.

9.1.3 *Visibility of Solar Arrays at Identified Resources with Predicted Visibility*

The screened LiDAR viewshed incorporating trees and buildings presented in Figure 4 Attachment 2 indicates that the resources listed in Table 4, per the regulations, which have predicted visibility of the Project include:

<u>Taconic Hills Central School District</u>

The Taconic Hills School District opened in September of 1999. The school district has students enrolled in two different schools, which include a PreK – 6 Elementary, and a 7 – 12 Junior/Senior High School. The school district provides a public school education and a common link for towns that comprise the nearly 250 square miles southeastern, mostly rural, portion of Columbia County. The towns that comprise the district are Copake, Hillsdale, Village of Philmont, and parts of the Towns of Ancram, Austerlitz, Claverack, Gallatin, Ghent, Livingston, Northeast, and Taghkanic.

The school building, grounds, and playing fields are located 0.1 mile west and adjacent to the Project, separated by an existing mature tree row that lies in between. The terrain between the

school property and the eastern arrays is quite level. Thus, it is expected that the trees will screen views from the arrays sited south of NYS Route 23 and east of the tree row. However, it is likely that partial visibility of panels seen from school property as noted with the viewshed results is coming from the arrays on the north side of NYS Route 23 and seen through open gaps or panels located at higher elevation. The majority of viewers at the school would consist of workers associated with the school, local residents (parents and family members) and school children. Minimal to no views would be expected when inside with short duration views while outside. Partial, longer duration views might be obtained when there are activities at the playing fields. Simulation VP30 was developed to show a representative view of the Project from the school playing fields.

Taghkanic Creek

Taghkanic Creek, a linear water feature, flows in the vicinity of arrays. The creek has a Nationwide Rivers Inventory status of Recreational, from the headwaters to the confluence with Claverack Creek. The Nationwide Rivers Inventory (NRI) is a listing of more than 3,200 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be at least regionally significant. Hence, NRI river segments are potential candidates for inclusion in the National Wild and Scenic River System. Included within the entire designated river reach segment is a diversity of unique flow gradients including Class 4 rapids. However, these rapids do not occur near the Project.

Visibility results show limited visibility from the creek, most of which runs through forested riparian land while other parts flow through open or agricultural areas that are further from the Project. Approximately 7.8 miles of the creek is within the VSA however, only 0.49 miles of intermittent creek segments will experience visibility in total. The majority of visibility at creek areas occur as it crosses County Route 7 and on the eastern adjacent land located within the Project Area and is not accessible to the public. There will be partial and transient views to motorists from the public highway itself in the vicinity of where the creek crosses the road. Simulation VP37 was developed to show a representative view of the Project from this location.

Harlem Valley Rail Trail (Proposed)

The open developed segment of the Harlem Valley Rail Trail is outside of the VSA limits to the east and travels from Wassaic Hamlet north to Hillsdale. A continuing but undeveloped segment of the trail is proposed from Hillsdale westward, paralleling NYS Route 23 along an abandoned railroad bed through Craryville and eventually passing through the northern portion of the Project and over to Chatham.

Most of the proposed trail from Hillsdale to Chatham will not have views. The trail is either too far away, runs through forested areas, or is blocked by existing tree rows. There are expected partial and intermittent views between County Route 11A and County Route 7. While the trail is just in the proposed stage, there may be local residents who use the trail in an unofficial capacity

at this time. Simulation VP30 was developed to a representative view of the Project from a location along the trail.

NYS Bikeway 23

NYS Route 23 is one of the major highways in the VSA that crosses through the northern portion of the Project. NYS Bikeway 23 is along the highway. It is a signed, on-road bicycle route extending 49 miles in Columbia County. It begins at the Massachusetts border and ends at the Rip Van Winkle Bridge in Hudson. This route connects NYS Bikeway 22 in Hillsdale with NYS Bikeway 9 in the City of Hudson.

The bikeway along NYS Route 23 has varying distances to the Project as it is a linear feature. The closest point to the Project occurs near arrays that are located south of the highway at a bend in the road located in the vicinity of the existing Craryville substation. Partial and transient visibility is expected to occur along of the bikeway starting just west of the Hamlet of Craryville extending approximately 1 mile west to near the end of the 0.5 mile Distance Zone. Simulations VP33 and 46 was developed to show representative views along the bikeway. LOS L1 was developed to show a terrain profile from the bikeway.

Potential Environmental Justice Area Tract 16 Block Group 1

A courtesy review of vintage data was performed on behalf of DEC. A review of the 2020 PEJAs, available on the NYS GIS Clearinghouse, was done, which included a 0.5-mile radius around the Project Area. Only one Potential Environmental Justice Area is present based on the updated thresholds established by DEC and data from the most current American Community Survey data (2018-2022 vintage). Tract 16 Block Group 1 is not part of the host block group. However, there are no disadvantaged communities present according to the by the New York Climate Justice Working Group (CJWG) criteria.

PEJA Tract 16, Block Group 1 is located south of the intersection of County Route 7 and Center Hill Road in the Town of Copake.

As noted in Attachment 2 Figure 4, the entirely of the PEJA does not fall within the VSA. Less than 0.1 square miles (13.87 acres) falls within 0.5 miles of the Project while approximately 1.6 square miles (1,012 acres) falls between 0.5 and 2 miles. Most of the PEJA that falls within 0.5 is open land will have visibility but not in areas where the public will be present... No residences will receive views.

Historic Resources

The below listed sites are those with potential views and have been determined as NRHP eligible historic sites either as a result of the TRC Architectural Survey or further recommended eligible by SHPO. Please refer to the historic consultation summary with SHPO.in Section 5.1

- 02107.000048 New York & Harlem Railroad: Craryville Depot, NYS Route 23
- 2107.000066 4131 County Route 7
- 02107.000110 North Copake Cemetery, NYS Route 23
- 2107.000112 Sir William Farm, 44 County Route 7
- 2107.000113 Rasweiler Angus Farm LLC, 1663 State NYS Route 23
- 2107.000117 4061 County Route 7
- 2107.000120 1810 Federal Style House, State NYS Route 23 Federal Style House

These historic resources are also further described in detail in separate historic reports included in Attachment 5. Simulations for several historic resources were previously requested and provided to SHPO under a separate effort. Please refer to the updated *Addendum Effects Report,(April 19, 2022 and Updated Letter Report,(December 13, 2022* in Attachment 5.

The North Copake Cemetery has an additional set of simulations looking south from the cemetery south across NYS Bikeway 23 to the Project (see Attachment 4).

9.1.4 *Visibility of Solar Arrays at Local High Use Resources*

Local scenic resources are those locations that are officially listed or designated in an adopted comprehensive or master plan. Those local resources that have been recognized by document research are listed in Table 4.

However, not classed specifically as agency listed scenic resources, it is recognized that local town residents and local roadway traffic will experience views of the Project in varying locations. Views from several nearby residences and/or along these roads are represented in the Project photosimulations. Each simulation and visual change in the view is described further in Section 9.2.1. There are also other photos showing the character of roadways in the Project Photolog in Attachment 3.

In addition to the Figure 4 viewshed results in Attachment 2, an aerial photo map series in Attachment 3 Project Photolog provides large-scale zoomed in predicted visibility at all photolog viewpoints. Many of the viewpoint locations are along roadways at nearby residences. Several segments of local roadways running through the interior of the Project as well as perimeter roads may experience transient views from vehicular traffic. Much of this visibility along intermittent road segments are within 0.5 miles in Distance Zone 1.

Roads Within Distance Zone 1 of 0.5 Miles

NYS Route 23 – This highway runs east-west through the north-central portion of the Project and is a major Point A to Point B type of route. As noted for the NYS Bikeway 23 in Section 9.1.3, views to motorists are expected along a one mile stretch of the highway as it passes by

the Project. While this is a busy highway with residences along its length, the segment of road that is predicted to have visibility has relatively less residential homes that will see arrays as opposed to for example, points east on NYS Route 23 near or within Craryville.

Two Town Road – Two Town Road is at the northern portion of the Project and is generally heavily vegetated. However, minimal and partial views will be obtained from Two Town Road in two places. One segment is approximately 800 feet of road with somewhat open roadway vegetation as it meets with NYS Route 23. There are no residences near this segment. The other roadway location that will experience partial views is farther north. Views will be obtained through a gap in roadside vegetation. There are residents that are in the vicinity of this roadside gap but are not expected to experience views of the Project due to vegetative screening.

Gellert Road – Gellert Road is a dead end road at the northern portion of the Project that is essentially a long driveway leading to two houses at the terminus. There would be no reason to travel the road save for the homeowners who live there. However, a portion of the drive passes by open field where an existing transmission ROW cuts through. Approximately a quarter mile of road in the open segment near the ROW may experience partial views of the Project.

Darling Road – Darling Road is a short dead-end road approximately 0.2 miles long at the northwestern portion of the Project. Nearly the entirely of the road may see a part of the Project because it is on higher elevation ground with open fields on either side. However, there are two houses are on the road that may experience views.

Bloody Hill Road – Bloody Hill Road diverges off of County Route 11A west of the Project and runs somewhat parallel to County Route 11A but at higher elevation. The road ultimately connects with NYS Route 23. The road is generally open with adjacent fields with views to various array locations. Nearly all of the 0.6 mile road is expected to have some level of partial view of the Project.

Birch Hill Road – Birch Hill Road is located at the southern end of the Project and diverges from County Route 7 ultimately ending at Copake Lake. Approximately 0.25 miles of road segment near the junction with County Route 7 will experience views of the Project.

County Route 7 – County Route 7 meanders in a north-south orientation and connects between NYS Route 23 and Copake Lake. The road is generally on the eastern side of the Project and passes by three array groups. It is a road that travels through many open agricultural areas that will have direct views to the mitigated array groups that are proposed in fields adjacent to the road. This road is a travel route that will have abundant albeit transient views as a motorist. There are several residences along this road that will have long duration views.

County Route 7A – County Route 7 is located at the southern end of the Project and diverges from County Route 7 in a southeasterly direction. There is a small segment of visibility along the road at the junction with County Route 7. A 92 foot stretch of road segment may have views of the Project. There are no residences in this area.

County Route 11A – County Route 11A is located west of the Project. Most of the visibility along this road will be nearly contiguous from its connection point at NYS Route 23 to just beyond the Taconic Hills Regional District school heading southwesterly, although the number of panels visible is on the low range. The road segment with predicted visibility is approximately 0.8 miles long. There are no residences along this stretch of road. It is either open land or larger tracts consisting of school property.

Freuh Road – Freuh Road is a 0.5 mile dead end road and essentially acts as a long driveway leading to a residence at its terminus that is enclosed by forest and is not expected to see the Project. The 0.5 mile Freuh Road generally and partially parallels County Route 7 at the southern end of the Project but is located at higher elevation just to the west. Most of the road is vegetated but there are open roadside vegetated gaps with approximately 120 linear feet of visibility that face the Project that will experience partial views of arrays.

Cambridge Road – This road is located at the southeastern portion of the Project running in an east-west direction and connects with County Route 7. Approximately 1,287 feet of roadway as it meets with County Route 7 will have views of arrays, as well as the residences located in open areas along this segment.

Fidance Road – Fidance Road is an approximately 430 foot dead end offshoot from Cambridge Road that has several residences. The road itself will have minimal direct views down the corridor as it faces northerly towards arrays north of Cambridge Road. Several of the houses at the farther end of the road near the terminus are situated amongst forested areas. Residences closer to the Project near the junction with Cambridge Road may experience wider but partial views of arrays.

Connelly Road – Connelly Road diverges north from Cambridge Road. It is a dead end road where several segments and long driveways radiate out near the terminus to several residences. Much of the road is heavily forested. The residences along the vegetated areas as well as at points near the terminus are not expected to see the Project. Approximately 545 feet of road segment may have views from fully open areas . This stretch of road with visibility is at its southern end near the junction with Cambridge Road. The road itself will experience the most visibility. While there are houses to the east along this portion of the road on the opposite side of the open views many will have partially obscured or fragmented views due to existing vegetative screening along property frontage.

Railroad Lane – Railroad Lane is a short crossover road that diverges from NYS Route 23 and leads to Fado Road. Fado Road ultimately connects back to NYS Route 23. Railroad Lane passes through a small wooded residential area. These residences will not see the Project due to abundant screening. The views along this road will be at an area as it diverges from NYS Route 23 where there will be partial views of the northeastern array group in the vicinity. However, views would be across farmland through roadside gaps in vegetation. Several long

driveways emerging from Railroad Lane lead to hilltop houses at higher elevation. A couple of these houses may experience higher elevation views of arrays.

Roads Between Distance Zone 1 (0.5 Miles) and Distance Zone 2 (2.0 Miles)

Visibility along roads outside of 0.5 miles is minimal and minor segments of roadway visibility consisting of several hundred feet are expected to occur on each of County Routes 7A and 11, Copake Lake Road Extension, Forest Pond Road, West End Road, as well as NYS Route 23 up to the Hillsdale-Claverack town line.

Populated Areas

As noted in Section 2.0, discrete areas of low intensity populated areas exist within the VSA and include the Hamlet of Craryville and a concentrated area of residents at Copake Lake. Predicted visibility mapping indicates that these two populated areas are not expected to see the Project arrays.

9.1.5 *Visibility of Arrays Within LSZ*

For reference, a reiteration of the total percentage of each LSZ within 2 miles outlined in Table 3 of Section 4.0 is reiterated as follows:

- LSZ Percent Within 2 Miles:
    - Zone 1 Agricultural: 25.0%
    - Zone 2 Forested: 63.0%
    - Zone 3 Developed: 5.1%
    - Zone 4 Open: 3.4%
    - Zone 5 Water: 3.6%

Table 5 shows the percentages of visibility as it occurs within each LSZ.

Table 5. Percent Visibility of Arrays within Landscape Similarity Zones Within 2-Mile VSA

LSZ	Total LSZ Square Miles Within 2 Miles	LSZ Square Miles of Visibility	% Visibility within LSZ	% Visibility within VSA
Zone 1 Agricultural	5.62	1.20	21.35%	5.10%
Zone 2 Forested	14.15	0.12	0.88%	0.53%
Zone 3 Developed	1.14	0.10	9.17%	0.45%
Zone 4 Open	0.76	0.13	17.44%	0.56%
Zone 5[1] Water	0.81	0.00	0.08%	0.00%
Total	22.48	**1.56**	**6.94%**	**6.64%**

[1]*Only water body acreage for ponds and lakes such as Forest Pond and Copake Lake were calculated.*

One can use the visibility results in a variety of ways. For example, when using Table 5, one can begin to distinguish or make assumptions about which viewer types may be impacted visually. For example, Table 3 and the list above states that 5.1% of the land area within 2 miles falls in the Developed Zone, which is fairly low. Section 4.0 describes this zone as villages, towns, cities, rural residential abutting roadways, and transportation corridors.

Note that calculated percentages do not indicate the percentage or number of viewers that would be impacted. The percentage numbers indicate how much physical land area within a designated LSZ would have a visual change. Table 2 provides the types of roads and traffic counts within the VSA and indicates most roads are generally rural low traffic types of roads where vehicles would have short duration views. As Table 5 notes, there will be 9.17% visibility within all of Developed LSZ itself (all developed areas), but it accounts for 0.45% of visibility within the entire VSA.

Comparing the Zone 1 Agricultural category is a similar exercise. The Agricultural LSZ comprises 25% of the 2-mile VSA. However, only 5.10% of that LSZ land area within 2 miles may experience visibility of the Project. This visibility accounts for visibility of the Project from the agricultural land itself, and not who or what areas can see said agricultural area. As described in Section 4.0, this LSZ predominantly consists of cultivated crops, hay, or pasture. Frequently, there are hedgerows or small tree groups that provide intermittent screening. One can infer which viewer type might be affected (refer to Section 7.0 for discussion of viewer groups and other factors that assist in evaluating visual change). Much of this land is farmland

infrequently visited and not accessible to the public. It belongs to private landowners or rather, the local constituency viewer type who themselves may not access parts of their properties at all times. Although the amount of land area that receives visibility is comparatively higher than that of Developed areas, the number of viewers is likely lower. However intermittent or low the exposure is or where the constituency is from, visibility may diminish the viewer experience depending on viewer expectations or reactions to solar development.

In using the 2-mile VSA again, Table 3 shows that approximately 63% of the land area belongs to the Forested LSZ. Although this is greater than half of the 2-mile VSA, Table 5 shows that only 0.53% of the VSA will have visibility from forested areas. This low number, in part, is due to the fact that the viewshed model assumes that viewers within the interior of tree groups will not have outward views through the density of tree trunks and branches or through the canopy above.

The Zone 4 Open category includes miscellaneous other open parcels that may have minimal development as well as other open lands that have few visual obstructions such as minor expanses of open water, barren land, land with short scrub shrub vegetation, and emergent wetlands. Areas of visibility in Zone 4 comprise 0.56% of the entire VSA. Zone 5 Water locations for water bodies have negligible predicted views with <0.1% visibility. However, Taghkanic Creek, a linear water feature, flows in the vicinity of arrays. Approximately 7.8 miles of the creek is within the VSA. Several creek segments will experience visibility but only 0.49 miles in total. The majority of intermittent visible creek areas occurs east of County Route 7 within the Project Area on private landowner property that is not accessible to the public.

9.1.6 *Visibility of Arrays Within Distance Zones*

Table 6 shows that when considering visibility between Distance Zones, the highest amount of visibility occurs within the 0.5-mile radius of Zone 1, comprising 5.68% (1.28 square miles) of just the Zone 1 land area. This is because there is a concentrated amount of visibility in proximity to the Project within the 0.5-mile radius, much of it within the solar array parcels themselves in open land as well as open adjacent parcels to the Project and several roadways. There is an abrupt difference once outside of the 0.5-mile radius. Visibility within Distance Zone 2 drops to 1.27% (0.28 square miles). There is approximately 1.56 square miles of total visibility within the entire 22.48 square miles that comprises the VSA. Therefore, only 6.94% of the entire VSA is predicted to experience partial, close, intermittent, or distant views of the Project.

Furthermore, the Project Area itself consists of approximately 723 acres or 1.13 square miles.. A subsequent calculation shows that 3.1% of the total 6.9% of visibility within the VSA occurs on land within the Project Area. In other words. 44.92% of the visibility will occur on privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant. The remaining 3.8% with Project visibility within the VSA (or, 55.08% of total visibility) will occur on land outside of the Project Area.

Table 6. Percent Visibility of Arrays within Distance Zones

Distance Zone	Total Area Comprising Distance Zone Square Miles	Visibility Within Distance Zone Square Miles	% Visibility Within Distance Zone	% Visibility Within Full VSA	% VSA Visibility Within the Project Area	% VSA Visibility Not Within the Project Area
Zone 1 0-0.5 Miles	3.93	1.28	32.50%	5.68%	-	-
Zone 2 0.5-2.0 Miles	18.55	0.28	1.53%	1.27%	-	-
Total	**22.48**	**1.56**	**6.94%**	**6.94%**	**3.1%[1]**	**3.8%[1]**

[1]3.1% of the 6.9% total visibility in the VSA occurs on land belonging to privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant while 3.8% of total visibility in the VSA fall within land not under option.

9.1.7 *Viewshed Results for Collection Substation*

The new substation will interconnect the Project to the to the New York State Electric and Gas (NYSEG)-owned Craryville 115 kilovolt (kV) substation and transmission line to deliver power to the New York State (NYS) electricity grid. The proposed collections substation is in-kind development to what already exists and will be sited adjacent to the existing NYSEG substation facility on approximately two acres of private land located off of NYS Route 23, just east of the intersection with County Route 11A in the town of Copake.

Figure 5 in Attachment 2 shows visibility based on components of the collection substation which includes a 50-foot tall H frame structure, several 30-foot tall bus structures at the substation, several 22.5-foot tall structures such as transformers and a 20-foot tall control building. The point of interconnection tap structure will be a single 65.5-foot tall monopole located on the Craryville substation property and will connect to the proposed substation.

Results shows that most visibility occurs within 0.5 miles in locations that are within the existing transmission ROW and land within the VSA that is already occupied by the arrays. There is some visibility north of the substation on a couple of higher elevation hills and along an approximate 1,073 segment of Gellert Lane in the area where the existing transmission ROW travels through open land. To the west the substation is predicted to be visible in 3 expanses of open land adjacent to Bloody Hill Road. Approximately 1600 feet of Bloody Hill Road itself may see the substation. Roadway views from the southeast are expected to occur along a 0.9 mile stretch of County Route 7 between Birch Hill Road and Cambridge Road. Open land adjacent to County Route 7 may have views but will mostly be occupied by the solar arrays. Residents with views would be a mile or more away from the station.

The majority of visibility falls within the 0.5-mile radius of Zone 1. Table 7 results show 3.74% of the land area within the VSA is predicted to have a full, partial, or intermittent view of the substation. A subsequent calculation shows that 1.82% of the total 3.74% of visibility within the VSA occurs on land within the Project Area that is defined as privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant. The remaining 1.92% with Project visibility within the VSA will occur outside of the Project Area.

Table 7. Percent Visibility of the Collection Substation within Distance Zones

Distance Zone	Total Area Comprising Distance Zone Square Miles	Visibility Within Distance Zone Square Miles	% Visibility Within Distance Zone	% Visibility Within Full VSA	% VSA Visibility Within the Project Area	% VSA Visibility Not Within the Project Area
Zone 1 0-0.5 Miles	3.93	0.74	18.84%	3.29%	-	-
Zone 2 0.5-2.0 Miles	18.55	0.10	0.54%	0.44%	-	-
Total	**22.48**	**0.84**	**3.74%**	**3.74%**	**1.82%[1]**	**1.91%[1]**

[1] 1.82% of the 3.74% total substation visibility in the VSA occurs on land belonging to privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant while 1.91% of total substation visibility in the VSA falls within land not under option to lease.

9.2 Photographic Simulation and Line of Sight (LOS) Results and Discussion

The discussion of predicted visibility in Section 9.1 focuses on relative quantities of visibility (how much is seen and where) under various conditions such as within LSZs and Distance Zones, all in an effort to understand and objectively assess the amount of visual change in the landscape.

Photosimulations from representative vantage points for various array groups and varying distances and cardinal directions around the Project have been developed to provide the quality of the view that will be obtained as a result of the Project (what does it look like). Per §900.2.9 (b)(4)(i), simulation locations are based on representative or typical views showing proposed site conditions from areas predicted to have direct line-of-sight visibility of Project components based on results of viewshed mapping and therefore, where the visual change is likely to occur.

Another objective is to provide views from some of the visual aesthetic resources within the Study Area. This occurs with VP27, VP30, VP33, and VP37. Of note in the Attachment 3 Project Photolog are aesthetic resources VP40 at Copake Lake, and VP47 which is a view towards the NRHP eligible historic Craryville Depot. An LOS was performed for Copake Lake. A series of

simulations was provided to SHPO as a separate effort and can be found in the *Addendum Effects Report, April 19, 2022* in Attachment 5. The remaining representative simulations were then directed to what the immediate community would experience such as travelers on local roads and town-specific requests. Attention to residents and residential groupings with expected views located near the Project was given high priority.

Per §900.2.9 (b)(1), LOS analyses were performed for resources of statewide concern located within the VIA study area. Two LOS sites for this task include NYS Bikeway 23 and a NYS Fishing Easement at Copake Lake.

Table 8 summarizes information for each simulation viewpoint.

Table 8. Summary Table Simulation Viewpoints

Viewpoint ID	Location	Town	Approximate Distance to Project (feet)	Landscape Similarity Zone	Comment
11	County Route 7	Copake	889	1	County road that runs through Project. VP at southwest portion of Project. View northeast.
16	Birch Hill Road	Copake	1,850 (0.35 miles)	1,3	Local road. VP at southwest end of Project near residence driveway. View east.
27	North Copake Cemetery	Copake	662	4	Aesthetic resource - North Copake Cemetery (Niver). NRHP Eligible historic site. View south.
30	County Route 11A	Copake	793	2,4	Aesthetic resource - proposed Harlem Valley Rail Trail. County road, northwest end of Project and playing fields at Taconic Hills Central School District; View south.
33	NYS Route 23	Copake	495	1,3	Aesthetic resource - NYS Bikeway 23. Well-traveled state highway running through north-central portion of Project. View southwest.
37	County Route 7	Copake	1,530 (0.29 miles)	1,5	Aesthetic resource - Nationwide Rivers Inventory listing. County road that runs through Project. VP at east-central portion of Project at Taghkanic Creek

Viewpoint ID	Location	Town	Approximate Distance to Project (feet)	Landscape Similarity Zone	Comment
					crossing. View southeast.
38	County Route 7	Copake	611	1,3	County road that runs through Project. VP at southeast end of Project near residences. View northeast.
46	NYS Route 23	Copake	767	3	Aesthetic resource – NYS Bikeway 23. Most optimal and proximal view along well-traveled state highway looking towards proposed substation. View north.
46b	NYS Route 23	Copake	417	3	Aesthetic resource – NYS Bikeway 23. Most optimal and proximal view along well-traveled state highway looking towards proposed substation from access road entrance. View north
51	Birch Hill Road	Copake	228	1,3	Local road. VP at central portion of Project showing representative views of east-central array group looking northwest.
54	Two Town Road	Hillsdale	1,118 (0.21 miles)	1,2	Local road. VP at north portion of Project in most optimal location showing representative view of north array group. View southeast.
55	Railroad Lane	Copake	1,310 (0.25 miles)	1,2	Local road. VP at northeast portion of Project in most optimal location showing representative view of northeast array group. View southwest

9.2.1 *Discussion of Simulations*

The following section discusses the anticipated visibility of the Project from various representative viewpoints in the VSA. Simulations are presented as sets of Existing and Proposed Conditions and can be found in Attachment 4. Proposed simulations are shown with

the security fence only at time of construction and also with a future vegetated leaf-on and leaf-off growth interval of 1-2 years and at 5 years where landscape mitigation is proposed.

All simulations represent the panels in their maximum upright position to depict a worse-case scenario. The Project proposes a tracking racking system. The maximum height of a tracker system, however, is only sustained for a short period during daylight hours as the racking makes continuous angle adjustments to follow the sun. For example, tracker systems lay flat near mid-day when the sun is directly overhead resulting in a panel height that would be considerably lower than the maximum height of 12 feet. As a result, for the majority of the time when the panels will be visible, the tracker system will be less than 12 feet in height. Maximum heights will likely only occur for short durations in the morning and evening or overnight, when the panels are likely not even visible, if the panels are stored at full-tilt.

9.2.1.1 Viewpoint 11: County Route 7, View Northeast – Copake (LSZ 1; Distance 889 feet)

This viewpoint located in the Town of Copake and is representative of views along County Route 7 approximately 889 feet away. Those who typically use this roadway are likely to be residents, workers, and local commuters. As Section 2.0 notes, County Route 7 is a major collector roadway. Major Collectors generally have few driveways and also allow for minimal disruption to the through traveling vehicles. The view, at the southwest portion of the Project shows a large agricultural field adjacent to the road that slopes upward toward a forested hill. Existing conditions show field, forest, and sky as large dominant horizontal shapes in the view. Some roadside utility distribution line can be seen at the top of the photo.

There is no proposed mitigation at this location as the arrays are installed within a wooded area, leaving an approximate 115 foot wide swath of existing mature forest remaining to screen views between the Project and County Route 7 viewers. Proposed conditions show minimal views through a myriad of dense bare-branched vegetation where a slight color change is detected.

Overall average Part 1 Project contrast is rated as weak. Viewer groups at this location are motorists as they pass by the Project. There are no residences directly at this viewpoint. There is expected to be a moderate number of viewers because of the destination type of roadway that travels to areas south or goes north to connect with NYS Route 23.

9.2.1.2 Viewpoint 16: Birch Hill Road, View East – Copake (LSZ 1,3; Distance 1,850 feet)

VP16 is located in the Town of Copake and is representative of views that will be experienced along an agricultural area on a rural road in the vicinity of residences. The view is at the west-central portion of the Project and is looking east approximately 1,850 feet (0.35 miles) to the Project. A driveway leading to a residence can be seen in the view. Those who typically use this roadway are likely to be local travelers or commuters as Birch Hill Road leads to the Copake Lake area. The existing conditions photo shows a light-colored cultivated field in the foreground and a wooded area in the background with several open fields. Vegetation in the distance is

deciduous with few visible evergreens likely within the mass of trees. Colors within the view are dominated by natural browns, greens and blues.

With the unmitigated Project in place, the open fields in the background on the hillside would be occupied by solar panels that conform to the underlying contours. Although the Project has a similar shape and scale to existing horizontal landscape features, the rural character of the view has been altered and different materials, textures, and colors have been introduced to the existing field character. With the arrays extending length wise it appears as a prominent or co-dominant element within view.

Overall average Part 1 Project contrast is rated as moderate. Compositional contrast categories such as form, line, texture, color were generally called out to be weakly moderate to moderate. Visual acuity is low due to distance. The vertical scale as seen against the trees behind the arrays does not interruption of the horizon line.

As depicted on the Landscape Plan drawings included in Attachment 7A, the proposed mitigation landscape planting seen in the background is Module D1. Part 1 average contrast ratings for this viewpoint is moderate with no mitigation and is weakly moderate with the vegetative plantings. The landscape plantings are located along the property line at the roadway edge of County Route 7. As seen in the simulations, the mitigation is not effective in screening views at this specific location as arrays are still visible on the hillside. However, the mitigation is not intended to screen views at VP16. The vicinity of this viewpoint is fairly isolated with few residences nearby. The mitigation is actually intended to screen the views along County Route 7 which is behind the foreground field. A small glimpse of the road surface can be obtained just to the right of the right stone pillar in the foreground. Thiis roadside mitigation for the county road is effective as represented in VP38. Notwithstanding, the vegetation installed along the roadside softens and moderates the view with the introduction of natural colors and textures. Views of the Project by any motorists along this section of Birch Hill Road will be intermittent and of short duration.

9.2.1.3 Viewpoint 27: NYS Route 23, North Copake Cemetery (NRHP Eligible Site), View South – Copake (LSZ 4; Distance 662 feet)

VP27 is located in the Town of Copake and is representative of views that will be experienced at North Copake Cemetery along NYS Route 23. This site is recommended as an NRHP historic eligible site. The viewpoint was chosen to address a historic resource location that is part of the aesthetic resources inventory where a view of the Project is predicted. The view is at the northwest portion of the Project and is looking south approximately 662 feet away. The existing conditions photo shows the viewer along paved access amongst many monuments and headstones. A large barn and silo dominate the view and NYS Route 23 can be seen traversing across the middle-ground on the right side of the photo along with thick horizontal roadside distribution line. In the background south of NYS Route 23 and behind the barn is open field

and a forested hillside with a sparse group of trees to the right. Varying colors in addition to the red barn as well as varying textures, shapes, form, and line comprise the existing view.

A partial, minimal view of arrays can be seen between the barn and sparse tree group under proposed conditions without mitigation. Much of the color contrast is visually absorbed by the existing hillside trees and other features of similar color value. While some color contrast is noted, the distance from the arrays to the viewer moderates the size and scale of the arrays. The man-made structures of the farm, utility structures, and varying sized cemetery headstones offer other types of visual contrast and visual distractions. New vertical and horizontal line edges are introduced but is compatible with other horizontal and vertical lines in view.

While the arrays are visible in the field, the level of discernible detail is somewhat low. Overall, average Project Part 1 visual contrast is rated as weak for both mitigated and unmitigated conditions. Compositional contrast categories such as form, line, texture, color were generally called out to be very weak to weak. Viewer groups affected are local motorists and residences. A low number of viewers at this location is expected due to infrequent viewers at the cemetery.

As depicted on the Landscape Plan drawings included in Attachment 7A, the proposed mitigation in this simulation view is the robust planting of Module A. Although the plantings offer a moderating effect to the cemetery, this mitigation is not specifically for the cemetery but is intended to screen motorists heading east on NYS Route 23. The highway is adjacent to the cemetery and can be seen running left to right in the middleground of the simulation. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. Views from the cemetery location will be infrequent and of relatively short duration.

9.2.1.4 Viewpoint 30: County Route 11A (Proposed Harlem Valley Rail Trail and Taconic Hills Central School District and Playing Fields), View South – Copake (LSZ 2,4; Distance 793 feet)

VP30 is located in the Town of Copake and is representative of views on County Route 11A closer to the intersection with NYS Route 23. This location was also chosen to show a view of what those near the playing fields at the Taconic Hills Central School District might experience when looking east to the nearest arrays. There is also an abandoned railroad bed in the area just left of photo that is proposed to be an extension of the Harlem Valley Rail Trail that will run from Hillsdale west along the track, passing through the northern section of the Project and then northward to Chatham. VP30 was also chosen to show the type of view that might be experienced from the proposed rail trail to address a location that is part of the aesthetic resources inventory where a view of the Project is predicted. Those who typically use County Route11A are likely to be residents, workers, local commuters, and those related to the school or school activities. Those who would use the proposed rail trail would be recreationists. The view, at the northwest portion of the Project shows a large, maintained grass field with portions

of the school playing fields to the right. The middle-ground shows a mature tree row and the background shows a forested hillside.

Proposed conditions show there will be very minimal to no views of arrays located on the opposite side of the tree row even through leaf-off fragmented bare-branched vegetation. Panels that can be seen have a similar color to the existing vegetation. There are no proposed landscape plantings for this view.

Overall average Part 1 Project contrast is rated as weak. Viewer groups affected are motorists and those at the school when outside activities are occurring, each having varying degrees of short and semi-short duration views. There are expected to be a consistent and high number of viewers because of the daily action at the school.

9.2.1.5 Viewpoint 33: NYS Route 23 (NYS Bikeway 23), View Southwest – Copake (LSZ 1,3; Distance 495 feet)

VP33 is located in the Town of Copake and is representative of views from NYS Route 23 in close proximity to the Project. The viewpoint is located in the north-central portion of the Project along a busy state highway approximately 495 feet away. Views are southwest and those who typically use NYS Route 23 are likely to be residents, workers, commuters, and through travelers. This viewpoint was chosen for a simulation because it is located at a listed aesthetic resource (NYS Bikeway 23) as well as being one of the major travel corridors in the vicinity.

Existing conditions shows the roadway with short scrubby roadside vegetation, a utility pole and a couple of isolated roadside trees. Leaf-off colors are somewhat muted with browns and rusty orange. An open field with tall grasses at the margin is seen beyond the edge of the road behind the verge. A narrow band of forested vegetation can be seen in the middle of the photo. Glimpses of the nearby school can be seen through fragmented branches of bare-branches trees. As well, some tall night-time lights for the school playing fields can be seen in the background distance towering above all of the vegetation and interrupting the horizon line. Both horizontal and vertical line can be seen as prevalent in the existing view.

Proposed conditions without mitigation show the Project as being partially screened by the roadside vegetation consisting of tall herbaceous species as well as a couple of larger roadside trees. However, arrays are visible and new horizontal line and shape is introduced into landscape, but it is moderated and balanced by other features with similar lines in the foreground such as scattered vegetation, pavement and utility distribution. The backs of the bifacial arrays can be seen in shadow offering a darker color that is introduced into the landscape However, color contrasts of the arrays are moderated and are somewhat visually absorbed by the similar color and value of the forested background. The Project has lateral breadth in the view but overall is low profile, fits in the landscape and appears co-dominant in the view. The horizon line is not interrupted. The panels are diminished in size and scale due to the offset distance, especially compared to the larger foreground shapes. Distance also allows

for minimal discernible details of the panels and fence line. Overall average Part 1 Project contrast is rated as weak for unmitigated conditions.

As depicted on the Landscape Plan included in Attachment 7A, the proposed mitigation for this location is Module A and provide nearly full screening at five years. With the inclusion of vegetative mitigation, views are softened and moderated as the trees are more congruous with a natural environment. Part 1 Project contrast is rated as very weak for mitigated conditions.

Viewer groups affected are motorists as they pass by the Project in the open field. Views of the Project for motorists will be intermittent and of short duration while longer duration views of the vegetative buffer will be obtained by residences in the vicinity (to the left of the viewer).

9.2.1.6 Viewpoint 37: County Route 7 (NRI Taghkanic Creek), View Southeast – Copake (LSZ 1,5; Distance 1,530 feet)

This viewpoint located in the Town of Copake and is representative of views along County Route 7 in the vicinity of Taghkanic Creek. This viewpoint, 1,530 feet (0.29 miles) from the Project, was chosen to address a location that is part of the aesthetic resources inventory where a view of the Project is predicted. The Taghkanic Creek has a Nationwide Rivers Inventory status of Recreational from the headwaters to the confluence with Claverack Creek. Hence, NRI river segments are potential candidates for inclusion in the National Wild and Scenic River System. While the river reach of this resource is within the entire section that includes a diversity of unique flow gradients including Class 4 rapids, these rapids do not occur near the Project.

VP37 is located in the east-central portion of the Project with a view looking southeast. The existing view shows the creek along with roadside shrubs and a vegetated wetland merging with lower hillslope trees in the middle ground. The background shows several forested hills, the nearest being in the left of the photo.

Landscape mitigation is not proposed because there are several groups of mature trees and scrub vegetation that provides existing screening. Proposed conditions show visual change from the Project occurring at a lower hillslope field in the background at the center left in the simulation. The large setback from the arrays to the roadway viewer moderates the size and scale of the arrays. New form is introduced into the existing field, but the array mass is geometrically similar to horizontal shapes of existing landscape features. Array color is darker than the ochre-greenish colored field, but panel color is also somewhat similar to background trees in the view and appears less impactful. While the arrays can be perceived, the level of discernible detail is low, thereby weakening any texture contrast.

Overall average Part 1 Project contrast is rated as weak. Viewer groups affected are motorists as they pass by the Project when viewing across the open marsh. Views of the Project for motorists will be intermittent and of short duration.

9.2.1.7 Viewpoint 38: County Route 7, View Northeast – Copake (LSZ 1,3; Distance 611 feet)

VP38 is located in the Town of Copake and is representative of views along County Route 7 which is a major collector roadway that generally has few driveways while allowing for minimal disruption to the through traveling vehicles This location was chosen however, as it is representative of views that will be experienced by a group of residences that are located along the road behind the viewer. The view is at the southeast portion of the Project and is looking northeasterly approximately 611 feet from the Project. Those who typically use the roadway are likely to be residents, workers, and commuters. Existing conditions show a large open field adjacent to the road that slopes upward toward a forested hill. Generally, the existing view shows large homogeneous uninterrupted simple shapes of horizontal field or forest.

Proposed conditions without mitigation show sightlines that are unimpeded with roadside open views to the Project. New form is introduced into the existing field. The long contiguous horizontal shape and line of the arrays is consistent with existing horizontal landscape shapes, generally following the topographic contour. The road offset of 611 feet in this view helps diminish contrasts by allowing more natural foreground space, reducing size of the fence line and individual panels as well as discernible detail. The low profile of the panels does not interrupt the horizon line. However, the incongruous color of the panels shows moderate contrast against the darker trees but greater contrast against the yellow-ochre field. There is also some tree clearing occurring that slightly alters the look of the forested area on the hill as well as having a couple of tree rows in the field removed. Due to the open nature of the view and the lateral breadth seen in the simulation the Project is dominant in the view.

Overall average Part 1 Project contrast is rated as moderate for unmitigated conditions. While the arrays are a dominant focus in the view, compositional contrast categories such as form, line, texture, color were called out to be weakly moderate to moderately strong

As depicted on the Landscape Plan drawings included in Attachment 7A, the proposed mitigation landscape plantings for this location has two rows of Module D1, which is a robust planting scheme designed specifically for this location on County Route 7 in the vicinity of the residences. At this location, vegetative plantings are also placed along the side of the road to provide greater screening potential. The mitigation at 5 years blocks much of the arrays and softens the view during the leaf-off months. Part 1 Project contrast drops to weak for mitigated conditions.

Viewer groups affected are motorists and several residences that are in the vicinity behind the viewer. There are approximately nine residences that are in the vicinity that will have longer duration views, much of it being the landscape plantings.

9.2.1.8 Viewpoint 46: NYS Route 23 (NYS Bikeway 23): View of Collection Substation, View North – Copake (LSZ 3; Distance 767 feet)

VP46 is located in the Town of Copake and is representative of views looking north along NYS Route 23 located in the northerly section of the Project. This location and vantage point was chosen to represent a view to the north from an aesthetic resource (NYS Bikeway 23) and from the nearest major highway. This road has frequent motorists and thus a greater percentage of the population that could possibly have views of the proposed collection substation and is also a reason for the inclusion of this view. NYS Route 23 is classed as a minor arterial. In rural areas, such as the VSA, minor arterials provide high travel speeds with minimal disruption to the through traveling vehicles. Therefore, those who typically use this highway are likely to be residents, workers, commuters, and through travelers that typically travel with higher rates of speed over that of a local rural road but in greater numbers.

Existing conditions under seasonal leaf-on conditions shows moderately sized roadside vegetation upon a slightly elevated berm. As noted in the leaf-on simulation, proposed conditions show that from this location on NYS Route 23 central within the Project, there are no expected views of the collection substation during leaf-on months. Under leaf-off conditions, views are obtained through fragmented bare-branched shrubs present along the roadside. Topography blocks most of the lower parts of the substation.

Most of the section of NY Route 23 in the vicinity of the collection substation is lined with high shrubs and roadside foliage that minimizes views of the collection substation. Overall average Part 1 Project contrast is rated as weakly moderate. As depicted on the Landscape Plan drawings the proposed mitigation landscape planting for this location is Module A and will be placed at the substation fence line and along the access road. The proposed landscaping blocks much of the substation and softens the view during the leaf-off months, thereby minimizing visual impacts in accordance with Code § 232-16.12(F)(6)(a)(11)(a).

Viewer groups are motorists as they pass by the Project in the field. The screened views of the Project for motorists will be intermittent and of short duration, thereby minimizing visual impacts in accordance with Code § 232-16.12(F)(6)(a)(11)(a) and (c).

9.2.1.9 Viewpoint 46b: NYS Route 23 (NYS Bikeway 23): View of Collection Substation, View North – Copake (LSZ 3; Distance 417 feet)

Viewpoint 46b is a second simulation from NYS Route 23 to the collection station and interconnection line and shows a view north from where the proposed access road entrance is located. As noted for VP46, this road has frequent motorists with generally high travel speeds (~55mph).

Existing conditions under seasonal leaf-off conditions show moderately sized roadside vegetation upon a slightly elevated berm. Proposed conditions show that from this location on NYS Route 23 there will be a very narrow view of the collection substation and interconnection line when the roadside vegetation is cleared for the station access road. The clearing at the

entrance road is expected to provide a minimal view and that these views will be fleeting and transient where passing time consists of a matter of seconds. The simulation shows that topography blocks much of the lower parts of the substation.

Part 1 Project contrast is rated as moderate without mitigation and weak with the proposed landscape plantings. Module A Landscaping is proposed along the substation access road within the site, the substation access road entrance as well as at the substation and switchyard. Thus, the proposed landscaping will effectively minimize visual impacts in accordance with Code § 232-16.12(F)(6)(a)(11)(a).

Viewer groups include motorists will have short duration intermittent views that are substantially screened by proposed landscaping at the access road and substation. Thus, the proposed landscaping will screen views in accordance with Code § 232-16.12(F)(6)(a)(11)(a) and (c).

9.2.1.10 Viewpoint 51: Birch Hill Road, View Northwest – Copake (LSZ 1,3; Distance 228 feet)

VP51 is located in the Town of Copake and is a representative view in the middle portion of the Project. The photo location is at the junction of County Route 7 and Birch Hill Road with a view northwest. These two roads are fairly well-traveled. There are approximately three residences in the vicinity spaced several hundred feet apart from each other.

The existing view basically shows large narrowly banded horizontal shapes of road, verge, cornfield, and sky. There are color contrasts between blue, gray, and greens. The cornfield provides a large band of texture difference in the middle of the photo. Several roadside signs are observed as well in addition to a black utility line of roadside electric distribution.

Proposed conditions without mitigation show sightlines that are unimpeded with roadside open views to the Project where size and scale of arrays appear co-dominant in the view. The proximity, scale, discernible detail, and color changes provides visual contrasts however overall average Part 1 Project contrast is rated as moderate. The long contiguous horizontal shape and line of the arrays is consistent with existing horizontal landscape shapes, generally following the topographic contour. The dark color of the back of the panels shows moderate contrast against the darker trees but greater contrast against the existing yellow-ochre field. There is a small interruption to the horizon line.

Viewer groups affected are local motorists and potentially several residences in the vicinity. There are expected to be a moderate number of viewers because of the intersection of two roads.

As depicted on the Landscape Plan drawings included in Attachment 7A, the proposed mitigation for this location has two module types that are layered. The robust Module A planting is at the fence line of the Project while Module B plantings are nearer the roadside and serve to screen much of the view. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5

years. With the inclusion of vegetative mitigation, views are softened and moderated as the trees and shrubs are more congruous with a natural environment and the Project color and value contrasts are reduced. Part 1 Project contrast is reduced to weakly moderate under mitigated conditions. Views of the mitigation for motorists will be intermittent and of short duration while longer duration views of the vegetative buffer may be obtained by residences.

9.2.1.11 Viewpoint 54: Two Town Road, View Southeast – Hillsdale (LSZ 1,2; Distance 1,118 feet)

This viewpoint is located in the Town of Hillsdale and is representative of a view between a roadside vegetative gap along Two Town Road and shows the northernmost array groups. The Project is approximately 1,118 feet (0.21 miles) away. This road eventually merges with Gellert Road further north and terminates at a dead end. Those who typically use this roadway are likely to be restricted to nearby homeowners. The view shows an open field with meadow grasses bordered with mature forested areas in the fore to middleground. An open mowed field can be seen in the far background lined with tree rows and set against vegetated hillsides. A partial view of the existing NYSEG transmission line ROW corridor is noted by the presence of a utility structure seen in the far field. Existing conditions show field, forest, and sky as large dominant shapes in the view.

Proposed conditions show the open background field occupied by solar panels where views are the same under leaf-off or leaf-on seasonal conditions. New form is introduced into the existing field but the arrays appear as a new solid color block that contrasts against existing conditions. However, only partial views are obtained and the large setback distance diminishes size, scale, and discernible detail. The Project fits into the landscape; it is consistent in scale with the surrounding landscape due to its low profile which does not extend above the background forested land nor interrupts the horizon line. Most of this section of road has existing roadside foliage. This view is at a gap in the vegetation. The location at the roadside opening was chosen because it shows one of the few views of the northernmost arrays.

Overall average Part 1 Project contrast is rated as weak. Viewer groups affected are residents who live on the road and are in transit and therefore a low number of viewers are expected.

9.2.1.12 Viewpoint 55: Railroad Lane, View Southwest – Copake (LSZ 1,2; Distance 1,310 feet)

VP55 is located in the Town of Copake and is representative of views of the northeast arrays south of NYS Route 23 as seen from Railroad Lane. The Project is approximately 1,310 feet (0.25 miles) away. Railroad Lane is a short crossover road that diverges from NYS Route 23 and leads to Fado Road. Fado Road ultimately connects back to NYS Route 23. Typically, mostly nearby residents use this road. The views along this road will be at an area as it diverges from NYS Route 23 where there will be partial views of the northeastern array group in the vicinity through roadside gaps in vegetation, such as where VP55 is located.

Existing conditions show VP55 looking southwest across a cornfield through a vegetated gap along the road. The view beyond the roadside vegetation, despite seasonal corn during leaf-on conditions, is considered mostly open land consisting of late season transitional color variations of brown, red, yellow, and green hues. The area is forested in the left background. A distant ridgeline can be seen in the far background. Essentially any far reaching views under existing conditions will be blocked by the cornfield when tall enough to screen views.

The proposed conditions during the seasonal leaf-on months show the entire cornfield removed to represent those parts of the year when the corn is not present or high. Even with corn removed, only partial views will be obtained. Leaf-off condition simulations provide a similar result.

Under leaf-off or leaf-on seasonal conditions it is difficult to distinguish the panels located in the distance. Assisting in its moderated visibility is the large offset distance between the observer and the Project and the low-profile of the arrays. The darker back of the panels take on a color value similar with the landscape seen at that distance. The Project appears as a minor element and appears subordinate in the view. The change in Project visibility during seasonal leaf-off conditions is approximately the same and does not differ significantly from what would occur during the leaf-on months. Overall Part 1 Project contrast is rated as weak without mitigation and very weak with the proposed landscape plantings.

As depicted on the Landscape Plan drawings included in Attachment 7A, the proposed mitigation landscape planting for this location is Module C consisting only of evergreens. Accordingly, it is expected that there will be partial views as the proposed landscaping grows to maturity as demonstrated in the simulation with mitigation at 5 years. With the inclusion of vegetative mitigation, views are softened and moderated as the trees and shrubs are more congruous with a natural environment and the Project color and value contrasts are reduced.

There are no residences near this viewpoint and viewer groups affected are residents who live on the road and are in transit or those using it as a crossover avenue who may get a glimpse of the arrays through roadside vegetated gaps. Therefore, a low number of viewers with partial or intermittent views are expected. This view was chosen as it is in one of the larger open roadside gaps while also providing a representative view of the northeastern array group.

9.2.2 *Discussion – Line of Sight Results*

LOS elevation profiles were completed to address state aesthetic resources, fulfilling §900.2.9 (b)(1). This regulation states specifically that LOS only be completed for resources of concern. For this Project and as noted in Table 4, there are two resources of statewide concern within the VSA. These include NYS Bikeway 23 on NYS Route 23 and a NYS Fishing Rights Easement at Copake Lake. All remaining aesthetic resources are either local or federal/national. The profiles illustrate how the landscape setting affects visibility and the relationship that Project components may have to one another in that specific instance. In addition, these profiles assist in confirming visibility, or lack thereof.

Table 9. Line-of-Sight Profiles

ID	Location	Town	Approximate Distance to Project	Landscape Similarity Zone
L1	NYS Bikeway 23 on NYS Route 23	Copake	1,332 feet (0.25 miles)	3
L2	Copake Lake NYS Fishing Rights Easement	Copake	1.6 miles to panels and 1.8 miles to the substation	5

The two profiles are discussed below and contained in Attachment 4.

9.2.2.1 L1 – NYS Bikeway 23, View East – Copake (LSZ 3; Distance 1,332 feet)

L1 is located on NYS Route 23 which is also a designated state bikeway. As Table 2 traffic data notes, L1 is also located on one of the most well-traveled roads passing by the Project and is subject to a greater frequency and number of viewers. In addition to this LOS, further attention has been given to NYS Route 23: The Applicant has provided a simulation facing south towards solar arrays (VP33) and one facing north towards the proposed collection substation (VP46).

L1 is to the west of the Project along the road. The profile direction is to the east and targets the array groups that are located just north of NYS Route 23. The profile shows the presence of an existing transmission ROW that leads to and from nearby Craryville Station as well as existing Monolith arrays. The profile also shows an open view from the road to the panels which are situated on elevated terrain that is higher than the viewpoint location.

9.2.2.2 L2 – Copake Lake NY Fishing Rights Easement, View North – Copake (LSZ 5; Distance 1.8 miles)

This LOS profile is taken from Copake Lake which is a NYS Fishing Rights Easement. The profile location is taken from the open water away from the shoreline to represent fishing or recreation from watercraft. The LOS is directed across one of the array groups over to the highest Project component proposed at the collection substation. The profile shows there will be no views of arrays or substation components as both intervening vegetation and topography will serve to block views. Please also see VP40 in the Attachment 3 Project Photolog for a photograph at the lake.

9.3 Visual Impact Rating Results

Simulations illustrating representative views of the Project, with and without mitigation, were rated to evaluate contrasts. For further information regarding the effects of mitigation please refer to Section 9.2.1, and the simulations illustrating post-construction mitigation presented in Attachment 4.

In completing this effort, three panelists reviewed, evaluated and rated the simulations; The panelists have completed ratings on previous solar project applications. Panelists 2 and 3 each have consisted of two different individuals over time due to employment changes of the initial raters. However the rating forms are devised to maintain objectivity between panelists. A description of the methodology used in the rating process is contained in Attachment 6, as well as panelist qualifications, and the completed evaluation forms for each simulated viewpoint.

Initial training on how to use the visual forms and the intention of each category was explained to each panelist. Subsequently along with the simulations to complete Part 2, Project location information such as a Google Earth kmz file was provided as well, to allow the panelist to better understand and visualize the environment around the viewpoint that otherwise might not have been captured in the photo itself. Using the terrain features as well as Street View provided the panelist with the ability to discern if there were other residences or vegetation behind the viewer or in the vicinity while also offering the panelist to the view the camera location from different angles. The panelists then applied the contrast ratings singularly and independently without consultation with any other party.

Table 10 (below) summarizes the scores and averages for Part 1 Visual Contrast (without mitigation), Part 2 Viewpoint Sensitivity, and Part 3 Existing Scenic Quality. Trends from the rating results can be obtained for the simulations and locations with the strongest or weakest visual change in relation to each other can be assessed.

Table 11 includes contrast ratings for simulations that have proposed mitigation in the view. Table 11 further shows that contrasts are reduced at every simulation viewpoint that has proposed mitigation.

Table 10. Visual Impact Rating Results

	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	Avg Part 2	Avg Part3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3			
11	County Route 7	5	3.5	1	7.5	5	1	4	3	1	**5.5 W**	**3.8 VW**	**1.0 WM**
16	Birch Hill Road	14	7	1	16	4	1	12.5	4.5	0.5	**14.2 M**	**5.2 W**	**0.8 W**
27	NYS Route 23	9	11.5	1	4	9.5	1.5	7.5	7.5	2	**6.8 W**	**9.5 WM**	**1.5 M**
30	County Route 11A	7.5	9	1	4.5	7.5	1	4.5	13	2.5	**5.5 W**	**9.8 WM**	**1.5 M**
33	NYS Route 23	10.5	11.5	1	9	11	1	5	11.5	1.5	**8.2 W**	**11.3 WM**	**1.2 WM**
37	County Route 7	6.5	10.5	2	5	7	1.5	10.5	11.5	3	**7.3 W**	**9.7 WM**	**2.2 MS**
38	County Route 7	16.5	5.5	1	16.5	4.5	1	13	6.5	2	**15.3 M**	**5.5 W**	**1.3 WM**
46	NYS Route 23	13.5	8.0	1.0	12.5	8.5	1	12.5	8.5	1	**12.8 WM**	**8.34 WM**	**1.0 WM**
46b	NYS Route 23	15	8	1	16	9	1	13	9.5	1	**14.7 M**	**8.8 WM**	**1.0 WM**
51	Birch Hill Road	14.5	5.5	1	16	4	1	16.5	7.5	2.5	**15.7 M**	**5.7 W**	**1.5 M**

	Location	Contrast Rating Panelist 1			Contrast Rating Panelist 2			Contrast Rating Panelist 3			Avg Part 1	Avg Part 2	Avg Part3
		Part 1	Part 2	Part 3	Part 1	Part 2	Part 3	Part 1	Part 2	Part 3			
54	Two Town Road	8	4	1.5	5.5	1	1.5	9	4.5	2.5	**7.5 W**	**3.2 VW**	**1.8 M**
55	Railroad Lane	4.5	6	1	5.5	1	1	4	2.5	2	**4.7 W**	**3.2 VW**	**1.3 WM**

VW-very weak, W=weak, WM= weakly moderate, M=moderate, MS=moderately strong, S=strong

Table 11. Visual Contrast Rating Results (Part 1 Only)– With Mitigation[1]

VP	Location	Contrast Rating Panelist 1		Contrast Rating Panelist 2		Contrast Rating Panelist 3		Avg Part 1 No Mitigation[2]	Avg Part 1 With Mitigation[2]	Reduction of Contrast Rating Due to Mitigation
		Part 1 No Mitigation	Part 1 With Mitigation	Part 1 No Mitigation	Part 1 With Mitigation	Part 1 No Mitigation	Part 1 With Mitigation			
11	**County Route 7[3]**	5	NA	7.5	NA	4	NA	**5.5 W**	**NA**	**NA**
16	**Birch Hill Road**	14	11	16	15	12.5	12	**14.2 M**	**12.7 WM**	**-1.5**
27	**NYS Route 23**	9	9	4	4	7.5	6.5	**6.8 W**	**6.5 W**	**-0.3**
30	**County Route 11A**	7.5	NA	4.5	NA	4.4	NA	**5.5 W**	**NA**	**NA**
33	**NYS Route 23**	10.5	7.5	9	0.5	5	0.5	**8.2 W**	**2.8 VW**	**-5.3**
37	**County Route 7[3]**	6.5	NA	5	NA	10.5	NA	**7.3 W**	**NA**	**NA**

VP	Location	Contrast Rating Panelist 1		Contrast Rating Panelist 2		Contrast Rating Panelist 3		Avg Part 1 No Mitigation[2]	Avg Part 1 With Mitigation[2]	Reduction of Contrast Rating Due to Mitigation
		Part 1 No Mitigation	Part 1 With Mitigation	Part 1 No Mitigation	Part 1 With Mitigation	Part 1 No Mitigation	Part 1 With Mitigation			
38	**County Route 7**	16.5	13,5	16.5	8.5	13	3.5	**15.3 M**	**6.0 W**	**-9.3**
46	**NYS Route 23**	13.5	8	12.5	10	12.5	11	**12.8 WM**	**9.7 WM**	**-3.2**
46b	**NYS Route 23**	15	6.5	16	6.5	13	6.5	**14.7 M**	**6.5 W**	**-8.2**
51	**Birch Hill Road**	14.5	12.5	16	11.5	16.5	11	**15.7 M**	**11.7 WM**	**-4.0**
54	**Two Town Road[3]**	8	NA	5.5	NA	9	NA	**7.5 W**	**NA**	**NA**
55	**Railroad Lane**	4.5	4.5	5.5	3	4	3	**4.7 W**	**3.5 VW**	**-1.2**

[1]Only Part 1 is evaluated for contrast ratings, as this part rates perceived visual change due to Project Contrast. Part 2 reflects Viewer Sensitivity and will not change. Part 3 reflects existing scenic quality and will not change.

[2]VW-very weak, W=weak, WM= weakly moderate, M=moderate, MS=moderately strong, S=strong

[3]NA=Mitigation not proposed within simulation viewpoint.

9.3.1 *Part 1 Contrast Rating*

Part 1 Contrast Rating, described in Attachment 6, rates the proposed visual change against existing conditions with respect to compositional elements such as newly introduced lines, shapes, colors, Project scale, and broken horizon lines. Under Part 1, there are nine categories to rate, where the total rating ranges from 0 to 27. When the rating contrast scale outlined in Section 8.0 is rescaled to account for the averages found in Table 10, with respect to the nine categories, the scale is as follows:

Contrast Rating Scale	
0	None
0 - 4.5	Very Weak
4.5 - 9	Weak
9 - 13.5	Weakly Moderate
13.5 - 18	Moderate
18 - 22.5	Moderately Strong
22.5 - 27	Strong

9.3.1.1 Unmitigated Contrast Ratings

The viewpoints with the highest Part 1 average contrasts are VP38 on County Route 7, VP16 and VP51 both on Birch Hill Road, and VP46 and VP46b both on NYS Route 23 with averages ranging from 12.8 to 15.7. Results show in Table 10 that these five viewpoints distinctly trend towards the higher end of the rating scale compared to the remaining simulations. These averages result in a moderate rating except for VP46 which is weakly moderate. Review of the raw contrast rating forms without averaging do show moderate to moderately strong contrast recognizing new features in the landscape that are often dominant in the view with discernible detail or have high color or texture contrasts. However, panelists also felt some aspects of the view were moderated either by the low profile as compared to surrounding vegetation, lack of interruption to the horizon or in some cases similar line and shape to existing horizontal landscape features as opposed to more random scattered shapes of various sizes, colors, and verticality. These five simulations also show open direct views to the arrays or partial visibility of the substation, and in most cases are in close proximity to the Project. One is farther away but still maintained higher ratings: VP16 is 1,850 feet (0.35 miles) away and while size, scale, and discernible detail appear diminished there is a lateral breadth of panels on a hillslope that is observed.

Seven simulations, VPs 11, 27,30,33,37, 54, and 55 appear as the next similar grouping, all rated as weak with average ratings ranging between 4.7 to 8.2. These viewpoints generally are farther away but also show more partial views that are blocked by landscape features either by building structures or incidentally occurring vegetation.

9.3.1.2 Mitigated Contrast Ratings

All mitigation simulations show a reduction in contrast rating compared to unmitigated with the net difference of reduction summarized in the last column of Table 11.

VPs 38, 46b and 33 have the greatest reduction of Part 1 Project Contrast with average drop in contrast rating values ranging from 5.3 to 9.3. The next highest groupings include VPs 46 and 51 with an average rating decrease of 3.2 and 4.0, respectively. The lowest contrast ratings that decrease are VPs 16, 27, and 55 with an average value drop of 1.5, 0.3 and 1.2, respectively.

9.3.2 *Part 2 Viewer Sensitivity*

There are eight categories under Part 2 to rate where the total rating ranges from 0 to 24. When the rating contrast scale outlined in Section 8.0 is rescaled to account for the averages found in Table 10, with respect to the eight categories, the scale is as follows:

Contrast Rating Scale	
0	None
0 - 4	Very Weak
4 - 8	Weak
8 - 12	Weakly Moderate
12 - 16	Moderate
16 - 20	Moderately Strong
20 - 24	Strong

Part 2 of the contrast evaluation form considers viewer sensitivity, particularly if the viewpoint falls within or has a view of an existing visual resource. It also accounts for the character of viewer groups such as number of viewers, duration of view, presence of existing development, etc.

Part 2 Viewer Sensitivity ratings were assigned a very weak, weak, or weakly moderate rating, ranging from 3.2 to 11.3. Highest ratings resulted in locations that are aesthetic resources and include VP27, VP30, VP 33, and VP37. The highest regarded viewpoint rated as weakly moderate with an average value of 11.3 is VP33 at NYS Route 23 where this road is an aesthetic resource (NYS Bikeway 23) as well as a more heavily traveled state highway. VP30 at the proposed Harlem Valley Rail Trail/Taconic Hills Central School District and playing fields on County Route 11A, VP37 Taghkonic Creek Nationwide Rivers Inventory stream on County Route 7, and VP27 at North Copake Cemetery were assigned average ratings of 9.8, 9.7, and 9.5, respectively.

VPs 54 and 55 were assigned the lowest average ratings of very weak with a value of 3.2. These viewpoints are at distance viewed from more remote rural roads with comparatively fewer viewers and not near residences and are at a small gap amongst robust roadside vegetation.

The remaining viewpoints were rated as weak. The ratings are low comparatively as they are not listed visual resources.

9.3.3 *Part 3 Scenic Quality*

Part 3 Scenic Quality is a standalone single rating that assesses the overall scenic quality of the existing conditions for each simulated location in order to establish a baseline condition (see Attachment 6). For this rating, there is no evaluation of visual change, only a simple appraisal of the scenic quality of the view - a rating of 1 is weak, 2 is moderate, and 3 is strong.

The highest rating of scenic quality was given to VP37 at the Taghkanic Creek crossing at County Route 7. Panelists gave this simulation a moderately strong rating of 2.2, recognizing this view as being somewhat unique compared to the others and also emphasized the creek as a water feature that provided high value and contributing to greater landscape diversity at this location.

VPs 27, 30, 51, and 54 were assigned moderate ratings with averages from 1.5 to 1.8. VPs 11, 33, 38, 46b, and 55 were assigned weakly moderate ratings ranging of 1.0 to 1.3. However, this is not to imply that views are not pretty, restful, or important to the community. Although there are restful and pastoral views of open fields, panelists also felt that the particular viewpoint views were average and typical of the area and that views did not offer a high degree of landscape diversity, show distinct aesthetic focal points that enhance scenic quality, or offer other types of outstanding views according to criteria in Attachment 6. Most views have a similar large horizontal shape in the photo consisting of foreground-midground fields in the bottom half of the photo and several with a band of background trees in the middle and the upper half of the photo showing sky. However, the intent was to provide simulations of the Project from visual resources and representative views of what the community would experience from nearby residences and roadways.

VPs 16 was rated as weak. VP46 at NYS Route 23 was the only view rated as very weak due the view consisting of roadside shrubbery.

10.0 VISUAL IMPACTS MINIMIZATION AND MITIGATION PLAN

§900.2.9 (d) requires a visual impacts Minimization and Mitigation Plan (MMP) that includes proposed minimization and mitigation alternatives to avoid and minimize visual impacts to the maximum extent practicable. Appropriate and practicable measures to reduce visibility of solar development are approaches such as 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.

A visual impacts MMP is provided as Attachment 7.

10.1 Siting and Design

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

- Minimized vegetation clearing outside of the arrays in order to preserve existing trees and other vegetation for Project screening to the best extent possible.
- Panels proposed against background trees to reduce visual contrasts, as color contrasts can be visually absorbed and moderated by the background trees.
- Utilizing setbacks and offset distances are effective in reducing visibility. The Project and its components have been designed in compliance with the setback requirements identified in 19 NYCRR § 900-2.6(d), and the Town of Copake town law. The Applicant utilized a minimum setback of 100 feet from non-participating residential property lines, 150 feet to roadways (per Town of Copake Zoning Code), and 250 feet from non-participating occupied residences.
- General site location placed far from sensitive aesthetic resources as best as practicable.
- The Project has been sited away from larger population centers to minimize potential visibility by a relatively larger number of viewers.
- The collection substation is located proximal to the existing transmission right-of-way for minimally distant new interconnects.
- The collection substation is located near existing in-kind utility infrastructure.
- Collection lines have been placed underground to decrease additional aboveground Project visibility.
- Use of antireflective coatings on solar panels. Solar photovoltaic panels are also designed to absorb light and minimize reflected light and therefore, produce minimal, if any, glare.
- Racking systems consist of non-reflective metallic materials.

10.2 Downsizing and Low Profile

The size and profile of the Project in terms of dimensions is necessary to achieve the Project purpose and megawatt capacity. Panels are anticipated to have up to a maximum height of 12 feet above finished grade, inclusive of the racking system which is low-profile as compared to the typical existing trees and buildings or other types of generating infrastructure. The Project is also using tracker technology. The maximum height of a tracker system, however, is only sustained for a short period during daylight hours as the racking makes continuous angle adjustments to follow the sun. For example, tracker systems lay flat near mid-day when the sun is directly overhead resulting in a panel height considerably lower than the maximum height. If needed,

tracker arrays allow for the ability to directly program and adjust panel tilt in certain areas at certain times of day to minimize and eradicate glare in problem areas.

10.3 Alternate Technologies

Alternate technologies generally do not exist that would substantially reduce the visibility and visual impact of the proposed substation. However, regarding solar panels, some newer technology that solar facilities are using more frequently, including the Shepherd's Run Solar Project, are bifacial solar panels. Bifacial solar panels allow for light sensitivity on both sides and potentially can produce up to 30% more power from the back side. By constructing the arrays with the bifacial solar panel presentation, the Applicant is able to minimize the overall Project footprint and still meet the megawatt capacity.

10.4 Facility Color

Generally, parts of the Project such as racking systems and collection substation (gray) and their color and form cannot easily be changed as materials are standardized. Racking systems will consist of non-reflective metallic materials

Current technology of photovoltaic solar panels must be manufactured to certain specifications to function as intended. Solar panels however, are consistent in color and designed to reflect as least light as possible. Since the solar panels are manufactured to absorb light, not reflect light, they therefore, produce minimal, if any, glare. Additionally, the Project will use antireflective coatings on solar panels.

10.5 Relocation and Rearranging Project Components

The Project has undergone numerous design iterations of the Project layout in an attempt to minimize visibility in response to local feedback. Section 6.3.2 outlines several open houses and meetings that occurred. Feedback received from various stakeholders at early engagement opportunities helped inform Project design and siting of Project components, as noted in Open House Presentations from October 2020 through November 2021. Wetlands were avoided and arrays designed according to local setback restrictions.

While minor adjustments for setbacks and steep slopes have been addressed, major removals and relocations of panels have been made as a response to local input. The most prominent changes include the removal of nearly 100 acres of land at the very south of the Project boundary near the junction of County Route 7 and 7A, and Cambridge Road. Another removal consisting of approximately 14 acres to reduce visibility occurred at the top of a small hill near the terminus of Connelly Road, east of County Route 7. A third removal consists of approximately 60 acres previously along County Route 7 and Cambridge Road. Additionally, following consultations with stakeholders at the open house held in November 2021, the chain link security fence was changed to a woven wire mesh wildlife-friendly fencing with wood or wood-like posts.

10.6 Advertisements, Conspicuous Lettering, or Logos

Other than warning and safety signs, no advertisements, conspicuous lettering, or logos will be permitted on Project components.

10.7 Electrical Collection System

The collection system will be placed underground. However, should subsequent unforeseen engineering, construction, or environmental constraints dictate the need for overhead infrastructure, such apparatus will be utilized for the shortest distance possible.

10.8 Electrical Collection and Transmission Facilities

Electric collection and transmission structures shall have a non-glare finish.

10.9 Non-Specular Conductors

Non-specular conductors shall be used for any portion of the transmission line and electric collection system.

10.10 Glare for Solar Facilities

A Glare Analysis dated April 30, 2024 and performed by Capital Airspace Group has been produced as a separate study.

10.11 Planting Plan

Vegetative mitigation, or screening, can be effective in further minimizing views. To provide additional screening, a landscape plan was developed that contains sustainable, hearty and resilient plantings that primarily consist of native/indigenous species.

The screening is proposed to minimize visual impacts under §900.2.9 (d). The regulations do not state that 100% screening must be achieved. There may be areas where views are not entirely blocked. However, the proposed landscape mitigation effort is highly focused on screening and moderating long-duration views of residences and short-duration views of vehicle traffic along roadways.

The Landscaping Plan for vegetative mitigation can be found in Attachment 7 as Plan 7A. The following items and concepts were applied to the plan:

- Native/indigenous evergreen trees with some pollinator-friendly plant species were selected for the vegetative buffer. The species chosen will need to reach an adequate height and width to provide the appropriate visual screening required while also maintaining minimum mature heights that will not produce shade over the Project in later years. Several species are included that are appropriate for wetland enhancement in Module D1.

Shade tree species for Modules A, B, and C include white spruce (*Picea glauca*), eastern white pine (*Pinus strobus*), Pin Oak (*Quercus palustris*), River Birch (*Betula nigra 'Heritage'*), and Shagbark Hickory (*Carya ovata*). Shrub species include Gray Dogwood (*Cornus racemosa*), Common Ninebark (*Physocarpus opulifolius*), and American Cranberrybush (*Viburnum trilobum*)

Overstory tree species for Module D1 include white spruce (*Picea glauca*), eastern white pine (*Pinus strobus*), Red Maple (*Acer rubrum*), River Birch (*Betula nigra*), and Swamp White Oak (*Quercus bicolor*). Module D1 shrub species include Nannyberry Viburnum (*Viburnum lentago*), Red-Osier Dogwood (*Cornus sericea*), Silky Dogwood (*Cornus amomum*), Smooth Arrowwood Viburnum (*Viburnum dentatum var. Lucidum*), And Spicebush (*Lindera benzoin*).

The plantings are proposed along the outside fence line or at property boundaries in locations noted on the Landscaping Plan. Four planting modules are proposed for an approximate total of 8,600 linear feet of vegetative mitigation to screen the arrays.

- Mitigation Planting Module A: This planting scheme provides a density of plantings of evergreens and deciduous ornamental species that will be considered a robust screening effort for this Project. Module A plantings will be utilized/implemented along 3,700 linear feet (43%) of the Project.

- Mitigation Planting Module B: This planting scheme using the same species as Module A but provides a density that is considered a supplemental screening effect in areas where visual impacts do not demand as robust of a planting effort. Approximately 1,350 linear feet (16%) of Module B plantings are proposed to be used within the Project site.

- Mitigation Planting Module C: This planting scheme also is considered to provide supplemental screening but using only evergreen species. There will be 800 linear feet (9%) of the Module C plantings

- Mitigation Planting Module D1: This planting scheme is a robust screening effort designed specifically for a segment of County Route 7 consisting of 2,750 linear feet (32%) of Module D1 plantings to screen views to nearby residences that are across the road from the Project. Module D1 plantings are adjacent to a wetland. Species chosen here are appropriate for wetland enhancement. The vegetative plantings are also proposed at the road edge in order to maximize the screening effort.

- Three types of pollinator grass seed mix are proposed for the disturbed areas:
  - Seed Mix A will consist of the Ernst Fuzz and Buzz Mix (ERNMX 146 or appropriate equivalent) and will be applied to disturbed areas within the fence line. ERNST MIX - 146 was developed to address the unique nutritional needs of

sheep, while providing a low-growing, easily maintained and sustainable vegetation solution for solar installations. The plant species were chosen with guidance from the American Solar Grazing Association (ASGA). The wildflowers in this mix support pollinators.

- Seed Mix B will consist of the Ernst Northeast Solar Pollinator Buffer Mix (ERNMIX-610 or approved equal) and applied to all disturbed areas outside of the fence perimeter.

- Seed Mix C will be applied to all disturbed areas not indicated on the landscape plan to be Seed Mix A or B. Seed Mix C will be Custom Mix "NY Upland / Riparian / Wetland Mix" or approved equal.

- Expected growth heights (depending on the specific tree or shrub species) are expected to be between 6 to 15 feet at 5 years. However, fully mature heights of the year-round coniferous species may reach up to 40 to 60 feet tall.
- An annual Operations and Maintenance Plan (O&M Plan) will be prepared and provided as a compliance filing to ensure that proper care and attention is given to the proposed plantings once they have been installed. Annual O&M efforts will include, but not be limited to, selective pruning, mowing, and monitoring of plant health and invasive species. Additionally, landscaping notes in the O&M Plan will provide further direction, recommendations, insight, and guidelines to ensure a healthy, viable, and sustainable landscape throughout the life-cycle of the project to the best extent possible.

10.12 Lighting Plan

Plan 7B in Attachment 7 shows collection substation lighting plan, plan and profile drawings, lighting fixture cut sheets, as well as an oblique render of the facility. Permanent project lighting will only be used for security and safety purposes at the access gate and the control structure. As per section 111 of the NESC, outdoor substation lighting is not required for unmanned stations and portable temporary lighting is acceptable during times that personnel perform work on the station at night.

The intent of the proposed permanent lighting is to provide minimally intrusive, yet adequate lighting at the access gate and the control structure. At the access gate there will be a 74W, 3000k dark-sky compliant, LED area light with a house shield, pole mounted at 18’ with average light levels just below 1 fc. At the control structure there will be a fully cut-off and shielded 18W, 3000k dark-sky compliant, LED wall pack luminaire mounted above the substation-facing doorway to provide security and safety lighting at the steps and door. A site photometric plan that includes luminaire information, location, and site light levels is provided in the plan as well as cut sheets for the proposed luminaires.

Routine onsite O&M activity will generally be limited to daylight hours. But in the rare cases it is required after dark, temporary lighting will only be provided and aimed at the location where work is being performed and for the duration required to complete the work.

Consistent with Code § 232-16.12(F)(6)(a)(16), the proposed lighting is limited to that required for safety and operational purposes only, is down-lighted, and is shielded from all neighboring properties and public roads.

Relatively little material will be stored onsite during Project operation. In case valuable materials are stored onsite, the Project operator(s) may consider additional micro-security features (entry alarms, cameras, etc.) to secure such stored material.

11.0 VISIBILITY DURING CONSTRUCTION

Potential visibility of construction activities is anticipated to be temporary in nature. Construction of a typical facility normally involves the following major undertakings: building/upgrading roads; constructing laydown areas; removing necessary vegetation from areas of construction; transporting components and other materials and equipment to the Project Area; assembling the solar panels; constructing ancillary structures (e.g., collection substation, fences); and installing power-conducting cables (typically buried). During this time there will be an increase in vehicular traffic, equipment, and workers seen within the Project Area and the immediate surrounding area; construction may result in the temporary increase of dust and emissions.

Construction visual contrasts would vary in frequency and duration throughout the course of construction. There may be periods of intense activity followed by periods with less activity and associated visibility would vary in accordance with construction activity levels.

The peak construction workforce for this Project is expected to be approximately 119 workers which will be distributed to/from the Project Area, conservatively assuming one worker per vehicle per day. In addition to construction workforce trips for each type of construction and grading equipment and material delivery trips for the construction period estimated to be 69 trips.

Earthwork activity, construction of access roads, and fencing installation will not occur at the same time as the peak workforce and equipment installation construction period. Added trips for these activities are expected to be approximately 15 trips per day during the first three months and 13 trips per day during the final two months, which does not exceed the conservative peak workforce of 100 trips per day and equipment/installation phase of 69 trips.

Hours of construction are to be determined but are likely to be 7:00 AM to 8:00 PM Monday through Saturday and 8:00 AM to 8:00 PM on Sunday and national holidays, with the exception of construction and delivery activities, which may occur during extended hours beyond this schedule on an as-needed basis. The actual time of day and day of the week for the delivery/removal of any cut and fill as will the delineation of approach and departure routes will be determined when the construction schedule is finalized.

There will also be temporary stockpiles, and stormwater management, and erosion control measures in place during construction activities.

12.0 CUMULATIVE EFFECTS

The only cumulative effect to evaluate against is the 200 kW DG-sized Monolith Solar arrays located on the north side of NYS Route 23 at the corner with Two Town Road. This is a small existing solar installation associated with the Taconic Hills School District. Two small groups of solar arrays occupy a hillside meadow, one group each on the north and south sides of the Craryville 115 kilovolt (kV) transmission line right-of-way (ROW) that runs through the area. The north group consists of 4 array strings with varying lengths between 185 and 375 feet. The south group consists of 6 array strings with approximate lengths between 95 and 375 feet.

Cumulative effects from a spatial and regional perspective, or that of one traveling through the area, are minimal. Monolith Solar is adjacent to the Project and due to proximity, could possibly be viewed as part of the Shepherd's Run Solar Project. Therefore, due to the geographically condensed nature of both facilities there would not be repeated exposure to different solar installations in a large temporal fashion. Furthermore, the exposure to both the proposed Project and existing Monolith solar would be of short duration for vehicle traffic. As noted in the Attachment 2 viewshed maps, the majority of visibility would be experienced within a 0.5 mile radius, many of which would be partial views. Additionally, Section 9.1.4 discusses the visibility of the Project along roads. For example, views to motorists on NYS Route 23, one of the major highways in the VSA, are expected along a one mile stretch of the highway as it passes by both solar facilities. Despite short duration views, landscape mitigation is proposed along roadways to moderate views of the proposed Project and thus reduces impacts to cumulative effects.

At a more local level, the proposed Project overall adds to the cumulative effects with numbers of panels and acres. However, the cumulative effects are not necessarily evaluated using the entirety of the proposed Project but only where there is visibility of the existing Monolith solar panels and the proposed Project panels at the same time. Therefore, cumulative effects are not distributed equally, nor may they be prominent. As seen in the following examples, concurrent visibility is often not obtained within the same view but that an individual would need to orient themselves to a different compass direction to then also see the second Project.

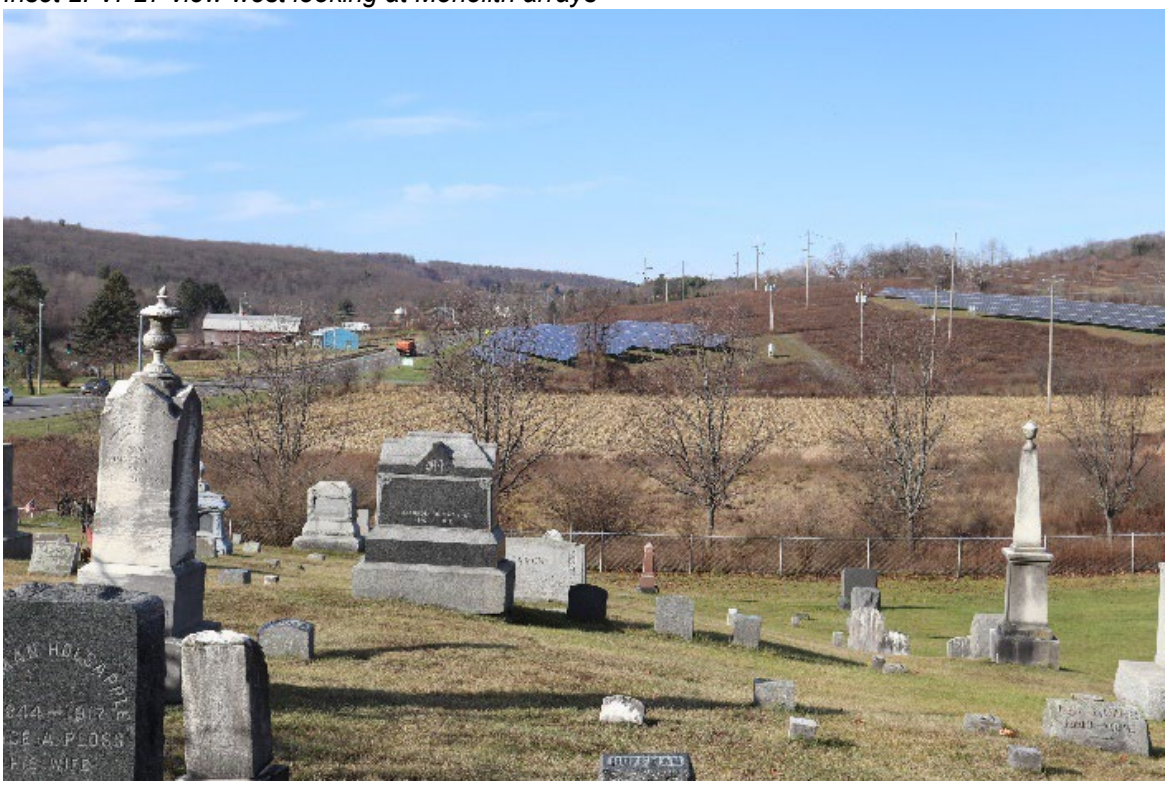
Representative example comparisons can be made by using Project simulation viewpoints that are near the two solar installations. Please also refer to location maps and simulations in Attachments 2 and 4.

1. Inset 1 shows simulation VP27 at the North Copake Cemetery with a view looking south towards the proposed Project in the field to right behind the barn. If one looks to the west while at that point, a view of the Monolith arrays is obtained as well, as seen in Inset 2. The cumulative effects by the Project are minimal at this location as there are partial views

obstructed by existing buildings. Cumulative effects are addressed by the inclusion of vegetative mitigation that is between the Project arrays and the viewer.

Inset 1. VP27 view south towards proposed Project

Inset 2. VP27 view west looking at Monolith arrays



2. Inset 3 shows simulation VP30 at a location along the proposed Harlem Valley Rail Trail overlooking the playing fields at the Taconic Hills School District. The view is southerly. with very limited visibility of the proposed Project, as the existing tree row will screen views. Inset 4 is directly behind the viewer looking northwest towards the Monolith arrays. The cumulative effects by the Project are very minimal at this location.

Inset 3. VP30 view south towards proposed Project

Inset 4. VP30 view northwest looking at Monolith arrays

Each of the simulation examples above show proposed Project views and those looking towards the Monolith arrays although with different compass orientations. An example of a location proximal to the installation can be found as L1 in Attachment 4 where the LOS profile location on NYS Route 23 is at a westerly location. Here as one travels east on the highway, both solar projects are expected to be seen in the view. Much of the highway is lined with trees and shrubs but there is minor opportunity for views through vegetated gaps along the roadside, such as where L1 is located. The view(s) will be intermittent and transient.

13.0 SUMMARY CONCLUSIONS – VISUAL IMPACTS DURING OPERATION

The information in this VIA provides an understanding of the visual relationship between the Project and its surrounding context. In depth compilation of computerized analysis results and corresponding discussion is provided in Section 9.0. The following provides a summary of findings and impacts related to the Project.

1. The viewshed analysis results objectively show that there is minimal expected visibility of solar arrays (6.9%) within the overall VSA and there would be limited areas from which the Project would be visible but, in contrast, a multitude of areas from which it would not be seen.

    a. The VSA was partitioned into 2 Distance Zones each offering its own level of visual acuity as described in Section 3.0, These zones include: Zone 1 from 0 to 0.5 miles and Zone 2 from 0.5 to 2.0 miles. Zone 1 had the highest percentage of visibility of 5.68% while there is an abrupt difference once outside of the 0.5-mile radius where percent visibility in the VSA drops to 1.27%. This can be expected as there would reasonably be a concentrated amount of visibility in proximity to the Project. Visible areas include the Project parcels themselves and at some roadways, open fields, and nearby properties. Although the panels are sited in open land, the low-profile panels set against existing tree buffers, hedgerows, and tree groups that frame the panel locations is enough to obscure distant views.

    b. There are five LSZ categories presented in Table 3. The presence of the highest LSZ percentages within the VSA are in Zone 2 Forested and Zone 1 Agricultural at 63.0% and 25.0%, respectively. The actual percentage of visibility in LSZs is highest in Zone 1. Table 5 shows that 5.1% of land area in agricultural areas within 2 miles may experience visibility of the Project followed by 0.5% from forested areas. Developed areas resulted in 0.5% of the land area that is expected to experience visibility within 2 miles.

    c. As seen in Figure 4 of Attachment 2 and further described in Section 9.1.6, slightly less than half of the visibility for the arrays occurs on properties within the Project Area. The Project Area consists of approximately 1.13 square miles and is described as land

consisting of privately-owned parcels under option to lease, purchase, easement or other real property interests with the Applicant. Visibility results indicate that 3.1% of the total 6.94% visibility within the VSA occurs within the Project Area. The remaining 3.8% of Project visibility will occur outside of the Project Area.

2. Due to surrounding forested areas and roadside vegetation, visibility analysis shows that, similar to the solar arrays, the collection substation is not expected to be highly visible outside of 0.5 miles. Section 9.1.7 discusses visibility solely from collection substation components in the absence of arrays. Substation visibility is predicted to occur in 3.74% of the land area within the VSA.

3. Several listed visual resources outlined in Table 4 will have partial views of the Project. These include Taconic Hills Central School District & playing fields, short segments of the NRI assigned Taghkanic Creek within private properties, a short segment of NYS Bikeway 23 as well as the proposed Harlem Valley Rail Trail as it passes by the Project, and several NRHP eligible historic sites listed in Table 4 (that which is further addressed in separate Historic correspondence reports with SHPO included in Attachment 5).

4. The local community will experience partial views of the Project. Several segments of local roadways running through the interior of the Project as well as perimeter roads may experience transient views from vehicular traffic. Much of this visibility along intermittent road segments is within 0.5 miles in Distance Zone 1. Entire roads will not have visibility. Please refer to Figure 4 in Attachment 2 and the aerial series map in the Attachment 3 Photolog as well as Section 9.1.4 that further illustrate or discuss which segments of road may experience views of the Project.

   It is expected that the number of static (longer duration) viewers able to see the Project is low due to the rural nature of the Project location and lack of high density residential clusters and neighborhoods as compared to a suburban or urban area. Most residences are rural residential located intermittently along roadways, save for the denser populations at Craryville and the community at Copake Lake. Craryville residences are predicted to experience very minimal to no views while residences at Copake Lake will have no views of arrays. Also, the presence of mosaicked tree groups assists in screening views. However, there will be house locations in the VSA with long duration views. The Project Landscape Plan was designed to moderate views of the Project for adjacent and nearby residences. Views at several nearby residences along these roads are represented in the Project photosimulations.

5. Attachment 4 shows two LOS profiles depicting state visual resources (those with state jurisdiction) and illustrate how or why the Project is visible or not visible. A proximal location from NYS Route 23/ NYS Bikeway 23 to the west will have a view to the Project from vehicles/bicycles traveling east on the roadway as represented by Profile L1. Profile L2 at the NYS Fishing Rights Easement on Copake Lake shows views will be blocked by both by existing forested area and topography.

6. Photosimulations for 12 viewpoint locations show existing and proposed conditions and include proposed mitigation at 1-2 year and 5 year growth intervals.. New shapes and colors incongruous to the existing environment are introduced. The general visual appearance of the low-profile panels as a group contribute to a homogenous form, which consists of new horizontal pattern often similar in shape to the landscape features found in many views. Overall Project contrast and the overall visual effect will vary depending on the extent of panel visibility (partial or full), distance of the arrays from the viewer, and if the panels are seen in the context of other existing noticeable modifications to the local natural landscape**.** In some instances, background vegetation seen behind the Project moderates visual contrast because the arrays are perceived to be visually absorbed by similar color and color value expressed by the background trees. In other instances, if in proximity with open views or depending on weather and seasonal conditions, contrasts appear greater. It is observed in several of the simulations that offset distances from a viewer or roadway are effective in moderating the effects of the Project where size and scale as well as discernible detail are diminished. Mitigation of the Project is emphasized at residential properties.

7. A discussion of Project visual contrasts in greater detail can be found in Section 9.3. Project contrast ratings were applied for the unmitigated and mitigated simulations. Under the No Mitigation scenario, four simulation viewpoints distinctly trend towards the higher end of the rating scale with average Part 1 ratings from 14.2 to 15.7. These averages result in a moderate rating. One viewpoint is rated at weakly moderate at 12.8. The remaining seven viewpoints are rated as weak ranging from 4.7 to 8.2. Eight viewpoint locations have proposed mitigation; under the With Mitigation scenario all Project contrasts drop to lower values. The highest values attributed to three viewpoints are rated as weakly moderate ranging between 9.7 to 12.7. Three viewpoints are rated as weak with average ratings between 6.0 to 6.5. Two viewpoints are rated as very weak with averages of 2.8 and 3.5.

   Average Part 2 Viewer Sensitivity ratings were assigned a very weak, weak, or weakly moderate rating, ranging from 3.2 to 11.3. Highest ratings resulted in simulation locations that are at aesthetic resources.

8. As noted in finding #4, vegetative mitigation is proposed to screen residence's views of the Project. Proposed landscaping described in Section 10.11 will consist of four planting template schemes, each with a variety of evergreen and/or deciduous species. Visual Project contrast from solar panels is minimized in areas where landscaping is proposed as noted in finding #7. The Applicant proposes approximately 8,600 linear feet of vegetative mitigation along the Project fence line, roadway, at or near residential properties.

Other factors assessing the degree of visual change from the Project can be considered other than percentages of visibility or observations and results obtained from computer-based analyses, and include:

- Through the use of efficient bifacial solar panels, the Applicant is able to limit the ground cover required to achieve its objective for a utility scale solar project. Additionally, solar facilities typically result in a minimal amount of ground disturbance for the installation of racking and mounting posts thereby preserving the ability to use the land for agricultural purposes in the future following decommissioning.

- Because a tracker racking system will be employed, panels will not appear at maximum tilt at all times. During the middle portion of the day the panels will lean towards a shorter more horizontal aspect.

- The Alternating Current (AC) collection lines will be placed underground and installed primarily via direct burial or trenching with some portions to be proposed via HDD in order to reduce aboveground visibility.

- The Project will not always appear as a dominant feature in a view within the VSA.

- There will not be interference with the general enjoyment of recreational resources in the area. Linear resources will have short-duration views. There is limited to no long-range visibility overall in the VSA.

- The Applicant has employed vegetative mitigation measures with respect to the overall design and layout of the proposed Project.

- Vertical scale of solar arrays is typically not an issue in relation to surrounding features such as trees, hills, and barns. Lateral extent may be an issue if the arrays appear to overwhelm a ridgeline, scenic water body, or cultural feature that appears diminished in prominence. Some Project solar arrays appear on open hillslopes in few areas but appear below the treeline.

- Aside from normal low local road traffic (see also AADTs in Table 2), the public areas in the vicinity to the Project with predicted visibility are not exceedingly high-use destination recreational areas.

- The Project does not have an adverse effect on a known listed scenic vista.

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

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