Mohawk Solar

Case No. 17-F-0182

1001.9 Exhibit 9

Alternatives

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EXHIBIT 9 ALTERNATIVES

The preferred alternative for the Facility[1] is to construct a utility-scale solar project that can produce up to 90.5 MW of renewable energy within the Facility Site identified in this Application. The Siting Board's regulations (16 NYCRR 1001.9), and the stipulations agreed upon by the parties, recognize that it is not practicable to procure land contracts, perform environmental and engineering due diligence studies, enter and progress through multiple interconnection permit processes, and conduct community outreach for alternative locations. Rather, the Siting Board's regulations and the stipulations provide that an applicant need only identify and describe alternative sites owned by, or under option to, the Applicant or its affiliates. In addition, the agreements the Applicant has developed with landowners within the Facility Site strictly limit the use of land to a solar energy generating facility, and as such, do not allow the Applicant to site other alternative energy production facilities (e.g., wind) within the Facility Site. These and other constraints sharply limit the alternatives that can be reasonably considered[2].

Given these constraints, the Applicant is not providing an evaluation of alternate location sites for the Facility. As described below in Sections 9(a) and 9(b), this alternatives analysis describes the general considerations taken into account by the Applicant as part of their site selection process. As described below in Section 9(c), the layout of Facility components within the Facility Site, as proposed in this Application, was designed through an iterative process where the technical and economic requirements of the Facility were weighed against impacts to aesthetics, cultural resources, environmental/ecological resources (such as wetlands and sensitive wildlife habitat), and public safety. Within the constraints of the permitting process and the inherent constraints on the Site, the proposed Facility layout avoids or minimizes environmental impacts to the greatest extent practicable while allowing the Applicant to construct a 90.5 MW solar facility in furtherance of the State's renewable energy goals. A description of the Facility layout selection process, including discussion of the design evolution and resource impact avoidance and minimization, is described in Section 9(b) and a discussion of alternative PV panel array layouts is provided in Section 9(c)(4).

(a) Description of Reasonable Alternative Location Sites

The Siting Board's regulations (16 NYCRR 1001.9) recognize that it is not practicable to procure land contracts, perform environmental and engineering due diligence studies, enter and progress through multiple interconnection permit processes, and conduct community outreach for alternative locations. Rather, the Siting Board's regulations, and the executed stipulations between the parties, provide that an applicant need only identify and describe alternative sites

[1] As defined throughout this Application, the Facility refers to all components of the proposed project, including PV panels and support structures, inverters, access roads, buried and above ground collection lines, a generation tie line (or "gen-tie"), a substation, a switching station, fences, and staging areas.
[2] The discussion of Alternatives

owned by, or under option to, the Applicant or its affiliates. Therefore, this section describes the general considerations taken into account by the Applicant as part of their site selection process.

The preliminary site selection for a utility-scale solar power project, such as the Mohawk Solar Facility, on a regional or statewide basis is constrained by several factors that are essential for the facility to operate in a manner that is viable both technically and economically. A viable site must possess appropriate weather conditions, landowners willing to participate in the project, sufficient space, favorable topography, proximity to transmission lines with sufficient capacity for interconnection to the electric grid, and ability to obtain necessary permits to construct and operate:

- Weather data for a region is a critical factor in selecting the location of renewable energy projects and plays a crucial role in the project 's financial model. For solar projects specifically, the intensity of sunlight coupled with the number of sunny days translates directly to predicted energy production capabilities. Each location's weather data must be considered prior to determining whether the site is suitable.
- There must be a sufficient number of landowners who are interested in participating in the project to host a Facility of this size. In addition, land must be affordable enough that the proposed facility is financially viable.
- Renewable energy projects generally require a large footprint (or large areas of land), which limits the number of appropriately positioned alternative sites. An additional consideration during the site selection process is the accessibility to the site and ability to easily reach all areas within the site. If areas are too remote or require road, bridge and other infrastructure modifications to accommodate construction vehicles, the site may be deemed to be unsuitable.
- Given the State's transmission constraints and power generation profile needs, a viable facility site must be located sufficiently close to load centers or available transmission capacity with the appropriate generation profile to meet the energy demand of a specific region.
- Environmental regulators will prefer that use of wetlands, forested areas, and grasslands are avoided or minimized to the extent possible, while other stakeholders disfavor the conversion of agricultural land to solar generation. Therefore, a facility site needs to be located to avoid or minimize impacts to environmentally sensitive areas.

The location of the Facility Site presented in this Application has been selected after careful evaluation to meet the conditions outlined above and minimize the impact on sensitive environmental resources. Landowners and municipalities within the Facility Site are willing to work with the Applicant, adequate areas of open land within the Facility Site are available to site components, the weather is appropriate for a viable site, and existing land uses are compatible. Access to the Facility Site for component delivery and Facility operation is suitable. The transmission

system that will receive electricity from the Facility[3] can accommodate the Applicant's proposed up to 90.5 megawatts (MW) of electric power generation (see Exhibit 5). The point of interconnection with National Grid's St. Johnsville-Marshville 115 kV transmission line occurs within the Facility Site, and therefore no new overhead transmission line will be needed (there is a short span for the gen-tie line from the Facility's collector substation to the point of interconnection[4]). This reduces costs and minimizes adverse environmental impacts associated with overhead transmission lines (such as visual impacts). In addition, the Facility Site contains many large areas devoid of significant wetland communities, and no areas of designated statewide significance or high environmental sensitivity.

(b) Comparison of Advantages and Disadvantages of Proposed and Alternative Locations

The Siting Board's regulations (16 NYCRR 1001.9) recognize that it is not practicable to simultaneously procure land contracts, perform environmental and engineering due diligence studies, enter and progress through multiple interconnection permit processes, and conduct community outreach for locations which are only being considered for purposes of assessing alternatives. Rather, the Siting Board's regulations, and the executed stipulations between the parties, provide that an applicant need only identify and describe alternative sites owned by, or under option to, the Applicant or its affiliates. Therefore, this Application provides information regarding the site selection process and the information and analyses utilized in studying the proposed Facility site as part of developing the proposed Facility layout, as summarized below.

(1) Environmental Setting

Exhibits 21, 22, and 23 of this Application provide a full description of the geology, soils, terrestrial and aquatic ecology, wetlands, and water resources found within the Facility Site. A summary of these resources is presented below.

As further described in Exhibit 21, the Facility Site is located within the Hudson-Mohawk physiographic province of New York State. In Montgomery County, the province characterized by the east-west oriented Mohawk River which is a former glacial spillway of the last ice age. South of the Mohawk River valley, the county contains rounded hills and ridges with soils derived from glacial till and outwash deposits. Elevations within the Facility Site range from approximately 600 to 900 feet above mean sea level (AMSL). The majority of Montgomery County lies on Ordovician shale and sandstone. Additionally, Cambrian-aged limestone and dolostone are found scattered throughout the county in the northeast. The underlying bedrock is characterized by a complex mixture of

[3] The St. Johnsville-Marshville 115 kV transmission line is owned and maintained by National Grid.
[4] An approximately 200-foot span of overhead transmission line is proposed between the collection and point of interconnection substations.

Schenectady shale, interbedded with Canajoharie shale (USDA, 1978). The geology and soils within the Facility Site are suitable for the construction of the Facility.

As further described in Exhibits 22 and 23, the Facility Site is located in a rural, largely agricultural area, and is characterized by a mix of hayfields, pastures, cropland, and semi-forested land. Dispersed residential development and vacant land also occur within the Facility Site. Wildlife habitat within the Facility Site is somewhat limited by the extent of agricultural disturbances, although hayfields, pastures, and recently abandoned fields provide habitat to some species, including grassland birds. Topography in the Facility Site largely confines wetlands and streams to well-defined depressional areas and drainageways. Within a 2,094-acre wetland study area, the Applicant has delineated a total of 60 wetlands. These wetlands were identified based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology, and total 150.5 acres. The Applicant also delineated 33 streams within the wetland study area, which include intermittent, perennial, and ephemeral channels, totaling approximately 30,706 linear feet. The Facility has been designed to largely avoid impacts to wetlands and streams. See Exhibit 22 for a further discussion of terrestrial ecology and wetlands and potential Facility impacts. See Exhibit 23 for a further discussion of stream impacts.

Additional description of the siting considerations that were taken into account to avoid environmental impacts (e.g., avoiding permanent impacts to water resources, avoiding flood prone areas, etc.) is outlined in Section (b)(5).

(2) Recreational, Cultural, and Other Concurrent Uses of the Site

As further described in Exhibit 4, the Applicant has identified several recreational facilities in the area around the Facility Site, including trails (i.e., hiking, snowmobile, biking, etc.), and a golf course (see Figure 4-8). Land use at the Facility Site consists of agricultural fields, scattered residential development along area roadways, and small tracts of undeveloped second-growth forest. With the exception of a network of snowmobile trails, the Facility Site does not contain significant recreational facilities. The Facility generally will be compatible with these land uses and will have primarily temporary impacts associated with construction. See Exhibit 4 of this Application for more detailed discussion of land use in the area around the Facility.

The site selection and Facility design process relative to recreational, cultural, historic, and other concurrent uses was largely centered on avoidance of impacts to sensitive resources. Early in the planning process, the preliminary Facility Site was progressively updated to avoid impacts to known recreational, cultural, and historic resources (see Section (c)(4) and Exhibit 20 for a more detailed discussion). As the design of the Facility Site evolved and the preliminary locations of Facility components were defined, these locations were compared to site-specific data collected as part of environmental field studies conducted in support of the Article 10 Application process. Where

conflicts were detected, Facility components were redesigned to avoid or minimize impacts. For example, Facility components were shifted to avoid impacts to wetlands as well as potentially significant archaeological resources (see Table 9-1, below in Section 9(c)). Where impacts were unavoidable, mitigation measures are being evaluated.

(3) Engineering Feasibility

As described above in Section 9(a), a viable site for a utility-scale solar power project, such as the Mohawk Solar Facility, must possess appropriate weather conditions, landowners willing to participate in the project, sufficient space, favorable topography, proximity to transmission lines with sufficient capacity for interconnection to the electric grid, and ability to obtain necessary permits to construct and operate. In addition, the land (topography and soils) within the site must be suitable for the construction of the Facility.

As further described in Exhibit 21 and Appendix 21-A, to evaluate the suitability of the site from a construction perspective, the Applicant conducted a geotechnical evaluation of the Facility Site. The geotechnical evaluation included a literature review of publicly available information and data pertaining to surface and subsurface soil, bedrock, and groundwater conditions near the proposed Facility, as well as preliminary field investigations at select locations within the Facility Site to obtain additional information pertaining to the subsurface soil and bedrock features to assess the general constructability of the proposed Facility. The Assessment concluded that the Facility Site is generally suitable for the proposed Facility (see Appendix 21-A).

As further described in Exhibit 5, with respect to interconnections, a System Reliability Impact Study (SRIS) was conducted that found the St. Johnsville-Marshville 115 kV transmission line can accommodate the interconnection and accept and transmit the power from the facility. See additional information in Exhibit 5, Appendix 5-A, and Section 9(b)(4) below.

(4) Reliability and Electric System Effects

As further described in Exhibit 5, the SRIS evaluated a number of power flow base cases, as provided by the NYISO, including 2020 Summer Peak, Winter Peak and Light Load system conditions. The study system included the Capital Zone (Zone F) and the Mohawk Zone (Zone E) in the New York ISO system. The SRIS indicates that there are no adverse reliability impacts caused by the Facility under N-0 and N-1 steady state analyses. Any adverse impacts initially identified in the N-1-1 steady state analysis can be managed through the normal operating procedures of the NYISO, therefore the Facility does not significantly impact any system elements with reliability criteria violations. The SRIS also concludes that the Facility does not adversely impact system reliability with respect to transient stability. The Facility meets the necessary voltage ride-through requirements and the Facility

does not adversely impact critical clearing time (CCT). The short circuit analysis performed as part of the SRIS did not identify the need to replace any circuit breakers due to the addition of the Facility. See Exhibit 5 of this Application for a more detailed description of Facility effects on the reliability of the regional transmission system.

(5) Environmental Impacts, Including Assessment of Climate Change Impacts

The proposed Facility will have long-term environmental benefits relative to climate change. The Facility will generate up to 90.5 MW of clean, renewable energy without emitting any conventional air pollutants or greenhouse gases (GHGs), or consuming cooling water or generating wastewater. The Facility is expected to displace approximately 55,500 short tons of carbon dioxide (CO_2) emissions from conventional power plants on an annual basis. This represents approximately 0.20% of all CO_2 emissions estimated to be produced by New York State in 2021. (See Exhibits 8 and 17 for a further discussion of air emissions).

Regarding potential environmental impacts, the selection of the Facility Site as the preferred alternative for the Facility does not result in undue or atypical potential impacts to the environment. The Facility Site does not include noteworthy or unique environmental constraints. In general, the Facility Site includes lands suitable for the construction of a solar facility and does not include unique environmental resources, Critical Environmental Areas, or unusual land uses relative to other locations in the surrounding region.

Although overall the Facility will result in positive long-term environmental effects from the generation of clean, renewable energy at the Facility, its construction and operation will necessarily result in minor unavoidable impacts to the environment. The vast majority of these environmental impacts will result from construction activities and will be limited and temporary in nature. Long-term unavoidable impacts associated with operation and maintenance of the Facility are likewise anticipated to be limited, but will include aesthetic visual impacts, impacts to wildlife habitat, and impacts to wetlands and streams, as further described below in Section 9(c). As described in the introduction to this exhibit, the process for designing the Facility layout involved balancing technical and economic constraints against impacts to sensitive resources. Ultimately, the Facility Site and individual Facility components were sited to avoid and minimize impacts wherever practicable.

Measures the Applicant has taken to avoid and minimize impacts to sensitive resources in the site selection/refinement process included: conducting detailed studies of environmental resources, relocating Facility components, collocating Facility components (e.g., access roads and collection lines), routing Facility components along previously disturbance corridors (e.g., farm roads and adjacent to pipeline rights-of-way), establishing a Facility Site that is compact as possible, and designing access roads to work with the native topography and minimize the need for soil disturbance (e.g., avoiding steep slopes). Specific measures that the Applicant has

undertaken to avoid and minimize impacts to sensitive environmental resources while determining the site-specific Facility design within the Facility Site are described below in Section 9(c)(4).

(6) Economic Considerations

The Applicant's intent is to create an economically viable solar-powered electrical-generating facility that will provide a significant source of renewable energy to the New York power grid. Properly siting the Facility and individual Facility components is a key part of this process. The Facility Site has the solar resource necessary to produce a profitable amount of energy. Proximity of the Facility Site to the St. Johnsville-Marshville 115 kV transmission line reduces grid connectivity costs and reduces potential costs that would be required to install a transmission line (see Exhibit 34 of this Application for additional information about the electric interconnection). The selection of efficient PV panel technology allows for maximizing energy production while minimizing potential costs associated with additional land that would be required to achieve the same energy benefits with less efficient panels.

The Applicant has refined the design of the Facility within the Facility Site throughout the development process to avoid and minimize potential environmental impacts to the greatest extent practicable, which also improves the economic considerations of constructing the project. The locations and design of individual PV panel arrays have been progressively refined to maximize capture of the solar resource, while minimizing environmental and economic costs associated with constructing and maintaining access roads, collection lines, and other Facility infrastructure. In addition, minimizing environmental impacts results in economic benefits in terms of reduced costs, such as those that would be required for tree clearing, mitigating wetland impacts, construction costs to accommodate steep slopes, and other complexities/expenses that would result from mitigating potential adverse impacts.

This Application provides an estimate of the total capital costs of the Facility in Exhibit 14. However, because capital cost information is considered confidential commercial information and is retained as a trade secret, this data has been provided in the form of an internal work paper that also describes the assumptions in estimating the total capital costs. The Applicant is requesting protection for this information as both confidential commercial information and a trade secret pursuant to New York Public Officer's Law §§ 87(2)(d) and 89(5) and 16 NYCRR § 6-1.3.

As further described in Exhibit 27 of this Application, the proposed Facility is anticipated to have local, regional, and statewide economic benefits. Solar power development, like other commercial development projects, can expand the local, regional, and statewide economies through both direct and indirect means. The Facility will

generate jobs doing both construction and operation Income generated from direct employment during the construction and operation phases of a solar energy generating facility is used to purchase local goods and services, creating a ripple effect throughout the state, as further described in Exhibit 27.

In addition, the Facility will result in direct payments to landowners having agreements with the Applicant. These payments will provide a source of funds that will supplement any income generated from the existing land use (e.g., timber harvesting, agricultural production). Taxing districts within the Facility Site include Montgomery County, the Towns of Canajoharie and Minden, and the Fort Plain and Canajoharie Central School Districts. These taxing districts will receive substantial payments through a Payment in Lieu of Taxes (PILOT) Agreement. The proposed Facility will make few, if any, demands on local government services. Therefore, the payments made to local taxing jurisdictions will be net positive gains and represent an important economic benefit to the local area. See Exhibit 27 of this Application for more detailed information on the socioeconomic effects of the proposed Facility.

(7) Environmental Justice

As indicated in the Preliminary Scoping Statement, the Facility is not expected to impact any environmental justice areas. Therefore, the selection of the Facility Site avoids any potential impacts to environmental justice areas or communities.

(8) Security, Public Safety, and Emergency Planning

As further described in Exhibit 18, overall safety and security risks associated with the Facility are anticipated to be minimal. To ensure the safety of construction and operations personnel, as well as the security of the Facility overall, the Applicant has developed, and will implement a Site Security Plan, a Health and Safety Plan, and an Emergency Action Plan (EAP). These plans are described in Exhibit 18 of this Application. The information contained in the EAP has been developed in coordination with local emergency service providers and will be made available to the employees of the Applicant and any visitors or workers to the Facility Site. This plan outlines the procedures to follow in the event of an emergency.

Risks to the community posed by solar energy generating projects such as the Facility are minimal. Access to the site will be restricted per NEC codes for electric generating facilities to ensure the public's safety. See Exhibit 15 of this Application for details about public safety.

(9) Public Health

The Facility is not expected to result in any public health concerns. Public health and safety are discussed in Exhibit 15 of this Application.

(10) Vulnerability to Seismic Disturbances and Climate Change Impacts

As described in Exhibit 21, New York is relatively tectonically inactive. Although portions of the State have moderate tectonic activity, these moderately active locations are not found proximal to the Facility Site. Within New York, areas with higher probability of earthquake occurrences are located along the northern (St. Lawrence River Valley), western (Buffalo-Attica regions), and southern (New York City region) portion of the State. The Facility Site is located within the area of lowest probability occurrence. The New York State Seismic Hazard Map (USGS, 2014) shows levels of horizontal shaking, in terms of percent of the gravitational acceleration constant (%g) that is associated with a 2% probability of occurring during a 50-year period. The Facility Site is located in an area with the lowest seismic hazard class rating in New York (2 percent probability of exceeding 0.04 to 0.08g in a 50-year period). The USGS Earthquake Hazards Program does not list any young faults, or faults that have had displacement in the Holocene epoch within the vicinity of the Facility Area (USGS, 2015. Therefore, no seismic activity-related impacts are anticipated within or immediately adjacent to the Facility Site.

In New York State, climate change is predicted to result in rising sea levels, more frequent intense precipitation events, and higher average temperatures. Although the Facility Site will not be affected by rising seas, changes in precipitation intensity could lead to more frequent flooding in low-lying areas. Federal Emergency Management Agency (FEMA) flood insurance rate maps indicate that the Facility Site does not contain any 100- or 200-year floodplains, and flood events therefore are not anticipated to impact the Facility. Temperature increases linked to climate change may drive broad shifts in ecosystems across New York State (NYSERDA, 2011). Ecological communities most vulnerable to climate change (e.g., boreal spruce-fir forests, high elevation alpine tundra communities, etc.) do not occur at the Facility Site.

(11) Objectives and Capabilities of the Applicant

With respect to capabilities, the Applicant is a wholly-owned subsidiary of Avangrid Renewables, LLC. Avangrid Renewables, LLC is headquartered in Portland, Oregon, and has more than $10 billion of operating power generation assets totaling more than 6,000 MW of owned and controlled solar and wind generation in 22 U.S. states.

Given the Applicant's capabilities, the proposed Facility best advances company objectives, as well as the State Energy Plan, Clean Energy Standard, and Reforming the Energy Vision initiative.

The Towns of Canajoharie and Minden have been selected as the location of the proposed Facility because the Applicant has determined that the area meets the company's objective of creating an economically viable solar-powered electrical-generating facility that will:

- Satisfy regional energy needs in an efficient and environmentally sound manner;
- Supplement and offset fossil-fuel energy generation in the region;
- Reduce the amount of electricity imported to New York State;
- Provide energy not coupled to commodity prices;
- Produce electricity without the generation of carbon dioxide or other greenhouse gases that contribute to climate change;
- Promote the long-term economic viability of rural areas in New York; and
- Assist New York State in meeting its proposed Renewable Portfolio Standard and State Energy Plan goals for the consumption of renewable energy in the State and the reduction of greenhouse gas emissions.

(c) Description of Reasonable Alternatives to the Proposed Facility at the Proposed Location

The Siting Board's regulations (16 NYCRR 1001.9) recognize that it is not practicable to procure land contracts, perform environmental and engineering due diligence studies, enter and progress through multiple interconnection permit processes, and conduct community outreach for alternative locations. Rather, the Siting Board's regulations, and the executed stipulations between the parties, provide that an applicant need only identify and describe alternative sites owned by, or under option to, the Applicant or its affiliates. In addition, the agreements the Applicant has developed with landowners within the Facility Site strictly limit the use of land to a solar energy generating facility, and as such, do not allow the Applicant to site other alternative energy production facilities (e.g., wind) within the Facility Site. These and other constraints sharply limit the alternatives that can be reasonably considered.

(1) General Arrangement and Design

A proposed 90.5-MW solar installation at the Facility Site would achieve the energy generation and economic goals of the Applicant regardless of the site-specific design of the Facility. Throughout the development process, the Applicant has refined the design of the Facility within the Facility Site to avoid and minimize potential environmental impacts to the greatest extent practicable. Measures the Applicant has taken to avoid and minimize

impacts to sensitive resources in the site selection/refinement process included: conducting detailed studies of environmental resources, relocating Facility components, collocating Facility components (e.g., access roads and collection lines), routing Facility components along previous disturbance corridors (e.g., farm roads and adjacent to pipeline rights-of-way), establishing a Facility Site that is compact as possible, and designing access roads to work with the native topography and minimize the need for soil disturbance (e.g., avoiding steep slopes). As further described below in Section 9(c)(4), the arrangement and design of the Facility is the preferred alternative because the currently designed Facility Layout represents the culmination of all efforts undertaken by the Applicant to develop a viable Facility within the Facility Site that meaningfully avoids and minimizes environmental impacts to the greatest extent practicable.

(2) Technology

The agreements the Applicant has developed with landowners within the Facility Site strictly limit the use of land to a solar energy generating facility, and as such, do not allow the Applicant to site other alternative energy production technologies within the Facility Site. The PV panels proposed for the Facility will utilize the latest in solar power generation technology to enhance energy production, efficiency, and safety. The selection of efficient PV panel technology allows for maximizing energy production while minimizing potential costs and environmental impacts that would be associated with additional land that would be required to achieve the same energy benefits with less efficient panels. Panels will be mounted on a single axis tracker, typically consisting of small I-beam posts driven into the ground. The proposed PV panel mounting system minimizes soil disturbance so that the land can return to its current agricultural use following decommissioning of the Facility. Given these considerations, the preferred alternative is to construct a solar generating facility using the latest, efficient technology to maximize energy production while minimizing potential costs and environmental impacts.

(3) Scale or Magnitude

As mentioned previously, numerous siting constraints dictate the size and layout of a solar energy generating facility, as do the practical constraints inherent in the limited number of technologies available to the Applicant. These constraints reduce the feasibility of constructing a facility with electric power generation capabilities above 90.5 MW within the proposed the Facility Site. Considering the Applicant is a private facility applicant, expanding the physical size of the Facility Site is not an option. National Grid has dictated that the maximum interconnection capacity at the point of interconnection is 90.5 MW ac. The facility design must be sized appropriately to both meet this capacity and to meet the energy production requirements dictated by the agreement with NYSERDA.

Constructing a facility with a reduced generating capacity would not be economically advantageous. The Applicant is doing business in a highly competitive, price sensitive wholesale electric market. Given the economies of scale involved in the development and construction of a solar project, all other things being equal, a larger scale project produces lower cost energy. Since the Facility has a 90.5 MW interconnection request with National Grid, the preferred alternative is to construct a facility that can produce up to 90.5 MW. A facility with significantly smaller production capacity would pose challenges to the economic feasibility of the Facility and would not meet its stated objectives.

In particular, if the proposed generating capacity were significantly reduced: (1) the maximum benefit of the available solar resource would not be realized; (2) the Facility would not as readily address the significant State policy considerations relating to reducing greenhouse gas emissions, increasing renewable energy generation, and de-carbonizing the electric system; (3) economies of scale related to construction costs would not be realized while fixed costs related to constructing the Facility would remain the same (e.g., mobilization costs for expensive equipment); and (4) the cost of environmental monitoring and mitigation would be proportionately higher.

With respect to the economic benefits to the community, reducing the sale/magnitude of the Facility would also reduce PILOT contributions to local taxing jurisdictions, which are typically developed per MW. In addition, if the physical extent of the Facility Site was reduced, revenues related to landowner agreements would also be reduced. Finally, the smaller the Facility, the smaller the direct and indirect economic benefits associated with its construction and operation.

(4) Alternative Layouts within the Facility Site

(i) Factors Considered During Layout Design

The proposed locations of PV panel arrays in the Facility layout have been determined based on several factors, including landowner participation/preferences, solar resource maximization, the location of existing access roads, sensitive environmental resources, constructability issues, and the consideration of adjacent land uses. Factors considered during the design of the Facility layout have included the following:

- *Solar Resource* – Utilizing existing topography within the Facility Site, PV panels have been sited to optimize exposure to solar resource. PV panel arrays are therefore sited on flat or south-facing slopes to maximize exposure to solar resource. In addition, locating PV panels arrays higher on a slope reduces the potential for shading from other nearby topographic features, such as shadows cast by a nearby hill or ridge.

- *Suitable Existing Land Use* – As further described in Exhibits 4 and 22, PV panel arrays have been preferentially sited in large, open fields to maximize the contiguous size of each array and prevent the need for tree clearing or additional activity to render an area suitable for panels.
- *Sufficient PV Panel Spacing* – Spacing between each row of PV panels must be sufficient to prevent shading effects from adjacent rows. In addition, panel row spacing must be sufficient to allow maintenance activities as needed. The minimum feasible PV panel row spacing distance results in a fixed maximum generating capacity per unit area of land that hosts PV panel arrays.
- *Wetlands, Waterbodies, and Other Sensitive Habitats* – As further described in Exhibits 22 and 23, Facility components have been sited to avoid and/or minimize impacts to wetlands, waterbodies, and other sensitive habitats to the greatest extent practicable.
- *Cultural Resources* – As further described in Exhibit 20, Facility components have been sited to avoid and/or minimize impacts to potentially significant archeological sites.

The consideration and continual refinement of the potential layout of the Facility has been ongoing since 2015, when an initial layout of the Facility was developed based on the above-mentioned siting constraints and a desktop review of site features. Since then, multiple revisions to the Facility design have been made, taking into consideration options for different technologies, the overall footprint of the Facility, and changes to the placement of certain components to avoid environmental resources. In addition, the layout of the Facility has taken into account comments received as a result of public outreach, interactions with stakeholders, and consultation with regulatory agencies (e.g., NYSDPS, NYSDEC, NYSDAM, and NYSOPRHP). The Facility design that is presented in this Application represents the culmination of multiple iterations of refinement to this initial layout in response to the results of regulatory considerations, on-site engineering, and environmental studies.

Throughout the design and development of the Facility layout, more specific measures were taken by the Applicant to avoid and minimize impacts to environmental resources. These measures are described below:

Soils and Topography

As further described in Exhibits 20 and 21, solar facilities result in minimal soil disturbance relative to other types of development projects. The Applicant has sited the Facility in a rural agricultural region in effort to reduce the need for land clearing and minimize the need for typical construction processes such as surface grading, and soil compaction. The Applicant is also choosing the least intrusive PV panel mounting systems available to minimize soil disturbance so that the land can return to its current agricultural use following the decommissioning of the Facility. Solar panels will be installed on a low-profile racking system, which typically consists of small I-beam posts driven into the ground, without the need for excavation, concrete, or other foundations. Limited

grading may be necessary in some areas, such as along the route of proposed access and maintenance roads. In those limited areas where soil disturbance is necessary, topsoil will be stripped and stockpiled for restoration purposes. Following construction, disturbed areas within the PV arrays will be restored with topsoil, and a cover of native grass species will be established underneath and around the solar panels. Areas of soil disturbance located in areas that will remain in agricultural production (such as the routes of proposed buried collection lines) will be restored to their existing condition. The Applicant is committed to minimizing soil disturbance associated with the proposed Facility as a way to minimize impacts to cultural and natural resources.

Areas proposed for development consist primarily of level to gently sloping agricultural fields. Due to the relative gentle relief, minimal grading (other than for narrow access and maintenance road corridors, as described above) will be necessary for the Facility. In general, no large areas of excavation or soil removal/disturbance are anticipated. Construction of the Facility will be accomplished with machines that are consistent in terms of size, weight, and tread with the agricultural machines that are currently used on these properties. Therefore, the existing conditions within the Facility Site, coupled with the specific construction/installation measures that will be used to construct the Facility, will serve to minimize impacts to soils, agricultural land uses, vegetation, and archaeological resources.

Wetlands and Wildlife

As further described in Exhibit 22, the Facility has been designed such that no PV panels are sited in wetlands areas. This includes wetlands jurisdictional to both the U.S. Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC). In addition, no PV panels are sited in the 100-foot adjacent area associated with NYSDEC-jurisdictional wetlands.

For wetlands where avoidance by access road or buried collection line routes was not practicable, impacts were minimized by selecting narrow and/or previously disturbed portions of the wetlands for crossing locations. Impacts to wildlife habitat have been minimized by siting access roads and collection lines in or adjacent to agricultural land, which generally provides habitat for only a limited number of wildlife species. In addition, these areas are already subject to regular periodic disturbance in the form of mowing, plowing, harvesting, etc. With respect to unavoidable impacts to wetland resources resulting from installation of access roads and buried collection lines, the Applicant will provide compensatory mitigation to offset such impacts. Specific to NYSDEC-jurisdictional wetland resources, the Applicant will develop a Conceptual Mitigation Plan in consultation with the NYSDEC, which is described in Exhibit 22 of this Application. Specific to federally-jurisdictional wetlands, the Applicant will work with the USACE to develop appropriate compensatory mitigation, which may include purchasing credits from an In-Lieu Fee mitigation program.

With respect to unavoidable impacts to sensitive grassland bird habitat, the Applicant has developed a Net Conservation Benefit Plan (see Exhibit 22 and Appendix 22-F) in consultation with NYSDEC to address potential impacts to State-listed grassland avian species. This includes the preservation and management of grassland areas throughout the Facility Site to provide a net conservation benefit to State-listed avian species potentially impacted by the Facility. Exhibit 22 of this Application provides more information on potential impacts to sensitive grassland bird habitat and measures undertaken by the Applicant to provide a net conservation benefit to sensitive species potentially affected by the Facility.

Cultural/Archaeological Resources

As further described in Exhibit 20, to identify potential archaeological sites within the Facility Site, the Applicant completed a Phase IB archaeological survey of the Facility Site. The Phase IB archaeological survey identified a total of 61 archaeological resources, 36 of which were recommended by the Applicant's archaeological consultant to be potentially significant (i.e., potentially eligible for listing on the State and/or National Registers of Historic Places, or S/NRHP). The archaeological survey was conducted in a series of site visits and mobilizations ongoing from 2016 to 2018, concurrent with evolving Facility design. Therefore, in several instances, the Facility layout was intentionally revised to avoid impacts to archaeological resources identified during the survey. As summarized in Exhibit 20(a)(3), the Applicant has revised the proposed Facility layout to avoid the locations of potentially significant archaeological sites (as well as other sensitive environmental locations, such as wetlands).

Visual and Aesthetic Resources

As described in Exhibits 20 and 24, the Applicant developed a conceptual visual mitigation planting plan for the Facility to minimize and mitigate the Facility's visual effects. While the planting modules were not designed to completely screen views of the proposed Facility, the introduction of native tree and shrub mixes interspersed with pollinator plants along the roadsides adjacent to the Facility will present natural forms and colors to divert attention from the modern materials and inorganic forms of the PV panel arrays. Following construction, the PV arrays will be replanted in low-growing grasses and screening plantings (native shrubs and grasses) will be installed along portions of the fences that enclose each PV array. In addition to aesthetic benefits, these plantings are anticipated to provide habitat for pollinators and wildlife.

Summary

The Applicant has refined the design of the Facility within the Facility Site throughout the development process to avoid and minimize potential environmental impacts (as described above) to the greatest extent practicable.

Specific measure that have been included in the Facility design to avoid and minimize environmental impacts are summarized in Table 9-1.

Table 9-1. Measures Implemented by the Applicant to Avoid Impacts to Wetlands, Public Health, and Recreational, Cultural, and Other Resources.

Facility Component	Resource(s)	Measures to Avoid Impacts
PV Panel Arrays	Wetlands	Shifted/downsized PV panel arrays in 29 locations to avoid potential impacts to wetlands and 100-foot adjacent area associated with NYSDEC-jurisdictional wetlands.
	Sensitive Wildlife Habitat	Shifted PV panel arrays to avoid potentially sensitive habitat.
	Significant Archaeological Sites	Shifted/downsized PV panel arrays to avoid potential impacts to pre-contact archaeological sites and historic-period family cemeteries.
	Visual	Applicant has developed a planting plan to minimize and mitigate visual impact of the Facility.
	Glare	Removed panels in 1 location to avoid any potential concerns about glare, based on results of glare analysis (see Exhibit 31 and Appendix 31-A).
	Sound	Transformers sited in interior of PV arrays to avoid any off-site sound impacts.
Collection Lines	Wetlands	Collection lines re-routed to avoid potential wetland impacts or cross wetland at narrowest possible location in instances where avoidance was not feasible.
	Significant Archaeological Sites	Collection lines re-routed to avoid potential impacts to pre-contact archaeological sites and historic-period family cemeteries.
	Visual	Collection lines will be buried, which avoids visual impacts that would have resulted from overhead lines.
POI and Collection Substations	Wetlands	Footprint of POI and Collection Substation have been sited to avoid impacts to nearby wetlands
	Visual	Substation sited in area screened by existing vegetation.
	Sound	Substation sited 1,850 feet from nearest residence and will therefore avoid potential sound impacts.
Access Roads	Wetlands	Access roads re-routed to avoid wetland impacts or cross wetland at narrowest possible location in instances where avoidance was not feasible.
	Soils/Stormwater	All roads designed to minimize the need for grading. Maintenance roads within PV arrays will be maintained as grassy roads, thereby avoiding impervious surfaces.

Facility Component	Resource(s)	Measures to Avoid Impacts
	Significant Archaeological Sites	Limits of grading for access roads minimized to avoid soil impacts; access roads re-routed to avoid potential impacts to pre-contact archaeological sites and historic-period family cemeteries.

(ii) Alternative Layout

A preliminary Facility layout (referred to the purposes of this discussion as the "Alternative Layout") was developed by the Applicant early in the development of the Facility (see Figure 9-1). Conversations with landowners at the time, preliminary (desktop) environmental review, and constructability analyses indicated that the Alternative Layout could be viable. The Alternative Layout was developed in support of, and presented in, the Mohawk Solar Preliminary Scoping Statement (PSS). At the time the Alternative Layout was developed, some land parcels were under consideration for Facility development that have subsequently been removed from the Facility. Consequently, some of the PV panel arrays included in the Alternative Layout now fall outside of the current Facility Site.

In the course of project development, environmental, economic, visual, and landowner participation constraints prompted the Applicant to refine the Facility to the currently proposed layout. The analysis below details the potential impacts of the Alternative Layout and makes comparisons to the potential impacts of the layout presented in this Application.

Assumptions and Limitations

Impact comparisons described below between the Alternative Layout and the currently proposed Facility Layout are based on available quantitative information, and quantitative and qualitative information that could reasonably be extrapolated or interpolated. Numbers and figures relative to the currently proposed Facility Layout presented in the comparative analysis (e.g., Tables 9-2 – 9-6) may not exactly match those found elsewhere in this Application as many of these analyses were simplified or based on basic assumptions to allow direct comparison with the Alternative Layout.

When the Facility was initially developed and the Alternative Layout was considered, a full project layout was not engineered (i.e., access roads, collection lines, etc.). Accordingly, for the purposes of direct comparison, this analysis focuses only on the potential impacts associated with PV panel arrays in the alternative and currently proposed layouts. In addition, as stated above, some of the PV panel arrays included in the Alternative Layout now fall outside of the current Facility Site. As these areas were subsequently removed from the Facility design,

a full suite of environmental studies (wetland delineations, archaeology, visual impacts assessment) was not performed in these areas. For the purpose of this analysis, the PV panel arrays in the Alternative Layout that fall outside of current Facility Site have been excluded.

Engineering details from the currently proposed Facility Layout were utilized to develop impact assumptions for the Alternative Layout. Based on final engineering for the currently proposed layout, these impact assumptions (for the purpose of the alternatives analysis) include the following:

- The areas within each PV panel array may be temporarily disturbed during construction (associated with the movement of construction vehicles and construction activities).
- In addition, each PV panel array has an approximately 60-foot-wide additional corridor of disturbance that surrounds each array to accommodate access roads and fencing. Within this 60-foot-wide corridor, approximately 25 feet of width is permanently occupied by access road, and the remaining 35 feet of width will be temporarily disturbed.

These disturbance assumptions from the currently proposed Facility Layout were applied to the PV panel arrays in the Alternative Layout. Using the assumptions described above, GIS software was utilized to calculate potential impacts to various environmental resources that would result from the development of the Alternative and currently proposed Facility Layouts. The results of this analysis are presented below.

Soil/Vegetation Disturbance

Based on the impact assumptions described above, potential temporary and permanent soil and vegetation disturbance resulting from construction of Facility components were calculated for the alternative and currently proposed layouts. These calculations are summarized in Table 9-2 below.

Table 9-2. Comparison of Temporary and Permanent Soil and Vegetation Disturbance between the Currently Proposed Facility and Alternative Layout.

Temporary Soil and Vegetation Disturbance (acres)		Permanent Soil and Vegetation Disturbance (acres)	
Currently Proposed Facility Layout	**Alternative Layout**	**Currently Proposed Facility Layout**	**Alternative Layout**
650.6	658.0	92.9	89.2

Overall, the differences between the currently proposed and Alternative Layouts with respect to temporary and permanent vegetation and ground disturbance are small. The Alternative Layout would result in a 7.4 acre (1.1%) increase in temporary soil and vegetation disturbance, and a 3.7 acre (3.9%) decrease in permanent impact

when compared to the currently proposed Facility layout. Given their similar scale the small differences between these two layouts was expected, with the differences attributable to variations in the sizes of the PV panel arrays between each of the layouts.

Ecological Communities

Based on the impact assumptions described above, potential temporary and permanent disturbance to the various ecological communities identified within the Facility Site[5] were calculated for the currently proposed Facility and Alternative Layouts. These calculations are summarized in Table 9-3 below.

Table 9-3. Comparison of Temporary and Permanent Disturbance to Ecological Communities between the Currently Proposed Facility and Alternative Layout.

Ecological Community	Temporary Soil and Vegetation Disturbance (acres)		Permanent Soil and Vegetation Disturbance (acres)	
	Currently Proposed Facility Layout	Alternative Layout	Currently Proposed Facility Layout	Alternative Layout
Agricultural Land	537.6	537.7	75.9	74.4
Disturbed/Developed Land	1	3.1	0.3	0.3
Forest	17.2	28.4	3.1	3.1
Scrub-Shrub	26.6	27.8	2.3	2.2
Successional Old Field	66.8	61.9	12.9	12.8

The currently proposed Facility and Alternative Layouts do not differ significantly in their potential impacts to many of the various ecological communities found throughout the Facility Site. This is largely expected as both layouts were designed to maximize the use of open fields to host PV panel arrays. However, the currently proposed Facility Layout reflects efforts by the Application to move PV panel arrays out of forested areas. The currently proposed Facility Layout would result in an 11.2-acre (39%) decrease to forested clearing relative to the Alternative Layout. Given the negligible differences between the two layouts with regards to other ecological communities, the 39% reduction in forest clearing associated with the currently proposed Facility Layout makes it the preferred alternative.

[5] The methods used to identify and define ecological communities within the Facility Site are described in Exhibit 22.

Wetland Impacts

Based on the impact assumptions described above, potential temporary and permanent disturbance to delineated wetland resources[6] within the Facility Site were calculated for the both the currently proposed Facility and Alternative Layouts. These calculations are summarized in Table 9-4 below.

Table 9-4. Comparison of Temporary and Permanent Disturbance to Delineated Wetlands between the Currently Proposed Facility and Alternative Layout

Temporary Wetland Disturbance (acres)		Permanent Wetland Disturbance (acres)	
Currently Proposed Facility Layout	**Alternative Layout**	**Currently Proposed Facility Layout**	**Alternative Layout**
0.051	4.03	0.015	0.75

With respect to wetland impacts, there are significant differences between the currently proposed Facility and Alternative Layouts. The currently proposed Facility layout would result in a 3.98-acre (98%) decrease in temporary wetland disturbance, and a 0.735-acre (98%) decrease in permanent wetland disturbance when compared to the Alternative Layout. These very large decreases in potential disturbance to wetlands reflect the extent to which wetland avoidance was incorporated into the later design stages of the currently proposed Facility layout and demonstrate that the currently proposed Facility Layout is the preferred alternative. See Section (b)(5) and Exhibit 22 of this Application for more detailed information on how the proposed Facility has avoided and minimized impacts to wetlands.

Sensitive Grassland Habitat for Avian Species

Based on the impact assumptions above, potential disturbance of sensitive grassland habitat for avian species[7] were calculated for both the currently proposed Facility and Alternative Layouts. Through consultation with NYSDEC, the Applicant has identified grassland areas within the Facility Site that are occupied by the New York State-listed short-eared owl (*Asio flammeus*), upland sandpiper (*Bartramia longicauda*) and northern harrier (*Circus hudsonius*). The total footprint (potential temporary and permanent disturbance) for both the currently proposed Facility and Alternative Layout within areas of occupied habitat was calculated. These calculations are summarized in Table 9-5 below.

[6] The methods used to delineate wetlands and wetland communities within the Facility Site are described in Exhibit 22.
[7] The methods used to identify sensitive avian grassland habitat within the Facility Site are described in Exhibit 22.

Table 9-5 Comparison of Potential Disturbance to Sensitive Avian Grassland Habitat between the Currently Proposed Facility and Alternative Layout

Total Layout Footprint within Sensitive Avian Grassland Habitat (acres)	
Currently Proposed Facility Layout	**Alternative Layout**
227.0	228.1

The currently proposed Facility and Alternative Layouts do not differ significantly with respect to the area of disturbance that occurs within occupied grassland habitat. The currently proposed Facility Layout would result in a 1.1 acre (0.5%) decrease in disturbance to sensitive grassland habitat relative the Alternative Layout. Given the limited quantity of open fields suitable for hosting PV panels within the Facility Site, and the Applicants preference to avoid forest clearing, the small difference between the two layouts with respect to grassland disturbance is expected. Exhibit 22 of this Application contains additional details on potential impacts to sensitive grassland habitat, and includes measures undertaken by the Applicant to provide a net conservation benefit to State-listed species potentially impacted by the Facility.

Archaeological Resources

Based on the impact assumptions described above, potential temporary and permanent impacts to significant archaeological resources identified during the Phase IB archaeological survey within the Facility Site[8] were calculated for both the currently proposed Facility and Alternative Layouts. These calculations are summarized in Table 9-6 below.

Table 9-6. Comparison of Temporary and Permanent Disturbance to Significant Archaeological Sites between the Currently Proposed Facility and Alternative Layout

Temporary Disturbance (acres)		Permanent Disturbance (acres)	
Currently Proposed Facility Layout	**Alternative Layout**	**Currently Proposed Facility Layout**	**Alternative Layout**
0.75	6.2	0.22	1.28

The avoidance of potentially significant archaeological sites was a priority consideration in the ongoing development and refinement of the Facility design. The currently proposed Facility and Alternative Layouts differ greatly in potential impacts to significant archaeological sites. The Alternative Layout would result in a 5.45 acre (727%) increase in temporary impacts, and a 1.06 acre (482%) increase in permanent impacts to significant archaeological sites when compared to the currently proposed Facility Layout. These very large differences reflect the extent to which avoidance of significant archaeological sites has been incorporated into the currently proposed layout and demonstrate that the currently proposed Facility Layout is the preferred alternative. See

[8] The methods and results of the Phase IB archaeological survey are described in Exhibit 20.

Section (b)(5) and Exhibit 20 of this Application for more detailed information on how the proposed Facility had avoided and minimized impacts to cultural resources.

Conclusion

The Alternative Layout was developed by the Applicant prior to the completion of on-site field studies, and therefore would have resulted in greater impacts to forestland, sensitive grassland habitat, wetlands, and significant archaeological resources (because the locations and extents of those resources had not yet been determined). In certain cases, these impacts would likely have been substantial. For example, both wetland impacts and disturbance to significant archaeological sites were estimated to be multiple orders of magnitude greater under the Alternative Layout when compared to the currently proposed Facility Layout. In addition, the Alternative Layout would result in 39% more impact to forests than the currently proposed layout. This alternatives analysis demonstrates the effectiveness of the methods used to identified sensitive environmental resources with the Facility Site. In addition, the analysis demonstrates the Applicant's comprehensive effort to avoid and minimize environmental impacts. Therefore, the currently proposed Facility Layout is the preferred layout within the Facility Site, because it represents the culmination of all efforts undertaken by the Applicant to develop a viable Facility within the Facility Site that meaningfully avoids and minimizes environmental impacts to the greatest extent practicable.

(5) Timing of In-service Date in Relation to Other Capacity Changes to the Electric System

The Facility is not anticipated to have any adverse effects on the New York State power grid. See Exhibit 5 for a more detailed discussion of electrical system effects.

(d) Why the Proposed Location Best Promotes Public Health and Welfare

The proposed location is best suited to promote public health and welfare because it properly balances the siting constraints discussed in Section (a) and will provide the public health benefits associated with solar energy generation. Electricity generated from zero-emission solar energy facilities like the proposed Facility can displace the electricity generated from conventional power plants, reducing emissions of conventional air pollutants, such as mercury and sulfur and nitrogen oxides, and GHGs (e.g., carbon dioxide).

(e) Why the Proposed Facility Best Promotes Public Health and Welfare

The proposed Facility will promote public health and welfare by positively impacting socioeconomics (through increased employment, increased revenues to local municipalities, and revenues to participating landowners), air quality improvements, and climate (through a reduction of GHGs that contribute to climate change). The proposed Facility

also generates electricity without using water—a valuable resource—and without requiring the extraction of fossil fuels. Also, operation of the proposed Facility will not generate any residuals—such as waste byproducts—that require management and disposal. In facilitating an overall reduction in pollutants and GHGs, the Facility will benefit sensitive environmental resources (e.g., water quality) and human health.

The proposed technology, scale, and timing of the Facility are best suited to promote public health and welfare. The PV panels proposed for the Facility will utilize the latest in solar energy generation technology to enhance project efficiency and safety and minimize impacts. If the scale of the proposed Facility (i.e., generating capacity) were significantly reduced, the maximum benefit of the available solar resource would not be realized, reducing economic and public health benefits, and potentially rendering the project non-viable.

Regarding timing, the State Energy Plan calls for reducing GHG emissions 40% from 1990 levels and generating 50% of electricity from renewable energy sources by 2030 (NYSEPB, 2015). These aggressive targets require significant new sources of renewable energy to be brought online as soon as possible. Furthermore, New York State is already experiencing adverse impacts from climate change, including rising temperatures and sea levels, decreased winter snow cover, more widespread vector-borne infections and diseases, and more extreme precipitation events and summer heat waves. Therefore, the timing of the Facility best promotes public health and welfare.

(f) No Action Alternative

The no action alternative assumes that the Facility Site would continue to exist as-is. This no action alternative would not beneficially or adversely affect current land use, ambient sound conditions, traffic or public road conditions, television/communication systems, and would maintain the area's community character, socioeconomic, and energy-generating conditions as they currently exist.

The No Action Alternative is not best suited to promote public health and welfare because it would deprive the State and the region of a major source of clean, renewable electricity. As discussed above, electricity generated from solar energy facilities can displace electricity generated from conventional power plants, reducing emissions of both conventional and GHG pollutants. On a long-term basis, increasing the production of renewable generated power will reduce the need to construct and operate new fossil fueled power plants. In addition, the No Action Alternative would deprive the State of a new source of renewable energy that would help achieve the objectives of the State Energy Plan, the Governor's Reforming the Energy Vision (REV) initiative, and the Clean Energy Standard (CES). The 2015 State Energy Plan contains a series of policy objectives to increase the use of energy systems that enable the State to significantly reduce GHG emissions while stabilizing energy costs. The State Energy Plan commits to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and reducing total carbon emissions 80% by 2050. In addition,

the State Energy Plan calls for 50% of generation of electricity from renewable energy sources by 2030 (NYSEPB, 2015). The No Action Alternative would not help advance the objectives of the State Energy Plan (i.e., it would not contribute toward reducing GHG emissions or assist the State in achieving the 50% renewable energy generation objective).

REV is a strategy to build a clean, resilient, and affordable energy system for all of New York. The Public Service Commission (PSC) issued their Order Adopting Regulatory Policy Framework and Implementation Plan on February 26, 2015 that outlines issues and tasks to resolve the technical, marketplace, and regulatory challenges necessary to achieve the REV plan and goals. As stated by the PSC in the REV Order, "A significant increase in the penetration of renewable resources is essential to meeting our objectives, state goals and proposed federal requirements" (PSC, 2015, p. 82). The REV Order recognizes that large-scale renewables (LSR), such as the proposed Facility, will be critically important to meeting GHG emissions reduction goals. In furtherance of the REV goals, on August 1, 2016 the PSC adopted the CES, which requires the procurement of at least 50% of the State's electric consumption to come from renewable resources by 2030 (PSC, 2016, p.78). The No Action Alternative would not contribute to State policy objectives, because it would not provide additional electrical capacity produced by renewable energy.

(g) Energy Supply Source Alternatives

The agreements the Applicant has developed with landowners within the Facility Site strictly limit the use of land to a solar energy generating facility, and as such, do not allow the Applicant to site other alternative energy production facilities within the Facility Site. In addition, in considering alternative energy supply sources, the objectives and capabilities of the Applicant need to be considered. The objective of the Mohawk Solar Project is to add a significant source of renewable energy to the State's electric system that will qualify for participation in the New York State Clean Energy Standard program. This objective excludes consideration of non-renewable facilities and impounded hydroelectric facilities, the only hydroelectric technology that could generate the quantity of energy the Mohawk Solar Project will produce. Wind is a potential alternative energy supply source; however, the development of a wind energy generating facility at the Facility Site is not feasible given the Applicant's agreements with participating landowners. In addition, the Facility Site may not demonstrate the necessary wind resource, topographic setting, or availability of adequate land areas to accommodate a wind energy facility of equivalent generation capacity. Overall, available alternative power generation technologies do not meet the objectives or capabilities of the Applicant.

(h) Comparison of Advantages and Disadvantages of Proposed and Alternative Energy Sources

As described above in Section 9(g), the agreements the Applicant has developed with landowners within the Facility Site strictly limit the use of land to a solar energy generating facility, and as such, do not allow the Applicant to site

other alternative energy production facilities within the Facility Site. Therefore, the comparative advantages and disadvantages of the proposed and alternative energy sources are not evaluated in this Application.

(i) Why the Proposed Project Best Promotes Public Health and Welfare

The Applicant has designed the Facility to optimize the balance between energy generation and the protection of environmental, and aesthetic resources, as well as public health and welfare. The design of the Facility has evolved through an iterative process that incorporates various siting constraints, including: local topography; landowner considerations; site accessibility; stream, wetland, habitat, cultural, and visual impact avoidance/minimization. Each of these issues are discussed in detail in this Application. The comparison of the currently proposed Facility Layout and the Alternative Layout in Section 9(c)(4) demonstrates the Applicant's comprehensive effort to avoid and minimize environmental impacts. Therefore, the currently proposed Facility Layout is the proposed project within the Facility Site that best promotes public health and welfare, because it represents the culmination of all efforts undertaken by the Applicant to develop a viable Facility within the Facility Site that meaningfully avoids and minimizes environmental impacts to the greatest extent practicable.

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