

Mohawk Solar

Case No. 17-F-0182

1001.10 Exhibit 10

Consistency with Energy Planning Objectives

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EXHIBIT 10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES

(a) Consistency with State Energy Plan

New York has adopted strongly proactive policies to combat climate change and modernize the electric system to improve the efficiency, affordability, resiliency, and sustainability of the grid. These policies are most notably reflected in the 2015 State Energy Plan (SEP), issued June 25, 2015, by the New York State Energy Planning Board (NYSEPB). The SEP recognizes the importance of ensuring that New York's power system is modern, clean, and diverse and that "renewable resources will . . . play a significant role in shaping New York's energy future, providing resilient power, reducing fuel cost volatility, and lowering [Greenhouse Gas (GHG)] emissions." The SEP describes the State's energy future through a series of goals such as a 40% reduction in GHG emissions from 1990 levels, and procurement of 50% of electricity generation from renewable energy sources by 2030.¹ The goals directed in the SEP are ambitious and require utility-scale solar projects, such as Mohawk Solar ("the Facility"), to achieve targeted levels of new renewable generation. At an anticipated size of 90.5 MW, the Facility will contribute significantly to the State's clean energy goals and, as the State's anticipated first utility-scale solar facility, also pave the way for future projects of its size.

On August 1, 2016, in accordance with the statutory obligation that agency actions must be reasonably consistent with the most recent SEP, the New York State Public Service Commission (PSC) approved the Clean Energy Standard (the "CES"), which adopted the SEP's goals that 50% of New York's electricity be generated from renewable sources by 2030 as part of a strategy to reduce statewide greenhouse gas emissions by 40% by 2030.

This Article 10 Application explains how the Facility advances the objectives of the SEP and the CES, and assists the State in achieving its renewable energy generation objectives.

(1) Overview of State Energy Policies and Plans

Recent changes to New York's State's energy policy have focused on the need to increase competition among energy providers, lower the cost of energy to consumers, increase efficiencies, drive investments in the electric infrastructure system. Changes also include sending market signals to support broad State policy preferences for clean and renewable energy resources, energy efficiency, equal access to affordable and clean energy, and other

¹ By Executive Order, it is also a goal of the State of New York to reduce current greenhouse gas emissions from all sources within the State 80% below levels emitted in the year 1990 by the year 2050. Executive Order No. 24 (2009) [9 N.Y.C.R.R. 7.24; continued, Executive Order No. 2 (2011) 9 N.Y.C.R.R. 8.2]. In addition, during the 2019 State of the State address, Governor Cuomo announced even more aggressive renewable electric goals to ensure 70% of New York's electricity is generated from renewable resources by 2030. New York State Governor's Office, *Governor Cuomo Announces Green New Deal Included in 2019 Executive Budget*, January 17, 2019. Available at <https://www.governor.ny.gov/news/governor-cuomo-announces-green-new-deal-included-2019-executive-budget>. (Accessed February 2019).

goals. In order to advance these interests both generally and with respect to specific projects, New York State relies on the SEP, the Reforming the Energy Vision (REV) initiative--described further below--and the CES to guide State actions and initiatives. Thus, before granting a CECPN to major energy projects like the Facility the Siting Board is charged with reviewing the project's consistency with these planning tools to determine whether approval will advance one or more articulated State energy goals.

State Energy Plan

New York State Energy Law § 6-104 requires the NYSEPB to adopt a State Energy Plan at minimum every 10 years. Among other things, the SEP accomplishes the following: forecasts New York State energy supply and demand and the State's ability to satisfy that demand; projects GHG emissions; identifies and assesses energy supply source alternatives and emerging trends relating to energy supply, price, and demand; assesses current energy policies and programs and their contributions to achieving long-range energy planning objectives; analyzes energy security issues; and assesses the impacts of plan implementation on economic development, health, safety and welfare, environmental quality, and consumer energy costs. Under State law, these efforts must be guided by the following objectives: "improving the reliability of the state's energy systems; insulating consumers from volatility in market prices; reducing the overall cost of energy in the state; and minimizing public health and environmental impacts, in particular, environmental impacts related to climate change." NY Energy Law § 6-102(5).

The NYSEPB issued the most recent SEP in 2015. As discussed in greater detail below, the 2015 SEP sets forth a broad range of goals for New York's energy system, from attracting private investment in New York's energy sector and encouraging competition and innovation within the energy markets, to decarbonizing New York State's economy and putting the Empire State at the forefront in the battle against climate change, with the stated goal of reducing statewide GHG emissions 40% by 2030.

Reforming the Energy Vision Initiative

In order to transform the aspirational goals of the SEP into action, Governor Andrew Cuomo and the PSC have undertaken the REV initiative. The REV represents a broad effort by the Governor, the PSC, the New York State Energy Research and Development Authority (NYSERDA), and others to identify regulatory, infrastructure, and market-based barriers to SEP's goals. REV also proposes reforms that better align the State's regulatory schemes, utility tariffs, energy markets, incentive programs, procurement strategies, and allocation of resources with the goals of the SEP.

The specific short- and long-term goals of the REV initiative, as articulated on the rev.ny.gov website, include reducing GHG emissions by 40% from 1990 levels by 2030 and generating 50% of the energy consumed in New York through renewable sources by that same date. Additional goals include:

- Making energy more affordable for all New Yorkers
- Building a more resilient energy system
- Empowering New Yorkers to make more informed energy choices
- Creating new jobs and business opportunities
- Improving existing initiatives and infrastructure
- Cutting GHG emissions 80% by 2050
- Protecting New York's natural resources
- Helping clean energy innovation grow.

Clean Energy Standard

In furtherance of the SEP and REV goals of reaching 50% renewable energy consumption in New York by 2030, on August 1, 2016 the PSC adopted the CES, which imposes mandatory renewable procurement requirements on the State's electric utilities; establishes a system and market for awarding Renewable Energy Credits (RECs) and Zero-Emissions Credits (ZECs) to those injecting renewable or carbon-free power into the New York grid; directs certain changes to the ways in which New Yorkers are permitted to purchase or generate their own energy; and adopts a number of measures designed to send market signals to encourage investment by renewable developers and others in the State's energy sector with the goal of "transform[ing] the electric system" (PSC, 2016, p. 70). "The chief focus of the CES initiative is on building new renewable resource power generation facilities" (PSC, 2016, p. 78).

The CES is designed to encourage development of large scale economically viable renewable projects that can compete with all other generation sources in the electric market. All eligible renewable fuel types can participate in New York's new REC market—bidding to receive one REC for each megawatt hour of renewable energy generated that contributes to the State's targets—and each REC will be of more or less equal value as a commodity regardless of the fuel or project type. A solar project, a wind project, and a biomass project would each receive the same REC price, as set by the market, for each megawatt hour of energy participating in the program, regardless of how much it costs each project sponsor to produce that power. Thus, project sponsors will be incentivized to keep their costs as low as possible, and to achieve as many large-scale efficiencies as possible, in order to sell power profitably.

(2) General Consistency with State Policies

The aforementioned planning documents and policies, which are interrelated and interdependent, are collectively meant to spur progress toward diverting New York away from the monopolistic, regulated fossil fuel-based utility market and toward a cleaner, greener, cheaper, more diverse, more flexible, and more reliable market-based renewable energy future. Projects such as the Mohawk Solar Facility will play a key role in advancing this market transformation and signify the responsiveness of the private sector to the State's articulated goals and promised reforms.

The proposed Mohawk Solar Facility is consistent with State policies that encourage the development of renewable energy projects, seek solutions to fight climate change, and emphasize the need to transition New York's energy markets away from a reliance on fossil fuels for electricity generation. As proposed, the Facility would add up to 90.5 megawatts (MW) of clean, green, New York-based renewable power into the grid. The Facility thus will aid in advancing specific REV goals, including cutting State GHG emissions 40% by 2030 and 80% by 2050 and increasing renewable generation to 50% by 2030. The Facility also will protect New York's natural resources, help grow clean energy innovation, and create new jobs and business opportunities. The Facility's consistency with other overarching REV goals and related portions of the CES, particularly as it relates to GHG emissions reductions and other policies, is addressed in Section (g) below.

The Applicant has participated in transforming New York's energy sector to ensure consistency with the goals of the SEP. Through the proposed Facility and other New York State-based facilities, the Applicant seeks to increase its presence in New York State's growing green economy and to play a role in the State's high-tech, renewable energy future. Currently the Applicant's corporate-level parent, Avangrid Renewables, has three operating wind farms, with additional facilities currently in the permitting process.

Increasing Renewable Energy Generation: the 50 by 30 Goal

A core initiative in the SEP is new generation of renewable energy. The 2015 plan notes that “[c]onversations about the energy system of tomorrow often start with renewable energy production, and renewable resources will indeed play a critical role in shaping New York's energy future, providing resilient power, reducing fuel cost volatility, and lowering GHG emissions” (NYSEPB, 2015, p. 69). Not only does the SEP envision continued public investment in renewables—such as through existing or new financing programs or NYSERDA solicitations—it ultimately aims to enact regulatory reforms that increase the competitiveness of renewable energy within the market, attracting companies willing to invest private dollars in New York because it makes financial sense to do so (NYSEPB, 2015, pp. 71-72).

Aggressive pursuit of renewable generation also positions New York as a model among states in the region and across the country. As the REV proceeding has repeatedly emphasized, “New York has been at the forefront of energy leadership and innovation since the earliest days of the system,” and, through REV, New York intends to lead “the transition to a clean energy economy” (DPS, 2016a, p. 1). While acknowledging that small-scale renewable distributed generation sources “are a major focus of the REV strategy,” the SEP emphasizes that “central generation and transmission will continue to serve as the backbone of [the State’s] power grid” (NYSEPB, 2015, p. 70). Accordingly, the SEP emphasizes the need to encourage additional “large-scale renewables” (LSRs) in New York (NYSEPB, 2015, pp. 70-72). The immediate benefits of LSRs identified include economic development and jobs, greater stability in customer bills, and cleaner air (NYSEPB, 2015, p. 71). Additional direct and indirect benefits include increased property tax revenues, growth of related industries and service-based businesses, investments in modernized infrastructure, and job creation and innovation in related fields, such as training programs, manufacturing and other new opportunities in the green energy sector. Like the SEP, the CES will rely primarily on LSR to achieve its goals relating to energy production from renewable sources.

The total amount of energy needed for the State to meet the 2030 50% renewable target is 33,700,000 MW hours (MWh) of additional renewable generation (PSC, 2016, p. 36). The Facility has the potential to diversify the energy sector in New York and make a critical contribution toward meeting these goals.

Contributions from land-based energy projects will be particularly important in the short term because: the CES assumes no offshore energy development until 2023 at the earliest (PSC, 2016, p. 61); development of new large-scale hydropower dams or nuclear facilities is unlikely (PSC, 2016a, pp. 5-48 to 5-49);² and incremental contributions from technologies such as hydroelectric, nuclear, anaerobic digesters³ or biomass⁴ will not be available on a large enough scale. While energy efficiency and other behind-the-meter investments will aid in advancing the goals of the CES, ultimately the incremental renewable targets will be met largely through the

² The FSEIS points out that future hydroelectric development in New York will likely be limited to upgrades of existing dams to increase their capacity and/or efficiency, and the conversion of non-powered dams into energy-producing dams. The estimated maximum cumulative energy potential of additional hydropower is 240 MW (PSC, 2016a, pp. 5-48 to 5-49). Further, the CES does not allow any new storage impoundment for hydroelectric facilities, which limits the capacity of any new hydroelectric facilities which might be proposed (PSC, 2016, pp. 30, 106 and Appendix A).

³ The FEIS estimates that approximately 53 to 54 MW of new anaerobic digester-based generation at wastewater treatment plants, particularly in the New York City area, and between 40 and 80 MW of new anaerobic digester-based generation on farms, especially dairy farms, could be available as a result of the CES and investments in the Clean Energy Fund (PSC, 2016a, pp. 5-55 to 5-56). Thus, the total estimated potential contribution from anaerobic digestion across the State is between 93 and 134 MW—less than half the size of the proposed Facility (PSC, 2016, Appx G, pp. 36-38).

⁴ Eligible biomass projects must be sustainably harvested to qualify as renewables in New York, but they nevertheless raise concerns about air emissions, including GHGs, and potential public health problems. The CES did not set forth an estimate of how much incremental renewable capacity could be derived from biomass projects, either on the small or utility scale (PSC, 2016, Appx G, pp. 38-43).

addition of new LSR (DPS, 2016, at Appx. B). As proposed, the Facility would be constructed and operational by the end of 2021, which will help support achievement of shorter-term incremental renewable capacity targets.

Market Animation, Competition, and Innovation

Contemporary State energy policies and initiatives amount to far more than a blueprint for renewable energy procurement designed to increase renewable energy usage by New York consumers. Collectively, they represent efforts to transform and animate regional energy markets, diversify energy supplies, overhaul regulations, and invest in the future of New York State and its communities. Two of the guiding principles of the REV initiative's targeted actions are market transformation and private sector investment, both of which are advanced by the entry of projects like the Facility into the State's energy market.

The CES reiterates REV's guiding principles by setting as one of its primary goals encouraging fundamental changes in the State's energy markets to stimulate private sector investment and activity, increase competition, and send market signals that attract investment in New York's energy system (PSC, 2016, pp. 3-9). In particular, the CES Order stresses the need to encourage production of new, clean generation regardless of how and where that energy will ultimately be sold (PSC, 2016, pp. 69-70). In fact, the CES recognizes that procurement of renewable energy for use in New York is only part of the story. The portion of the REV addressing LSR, in part, was meant to be a "reassessment of New York's approach for encouraging the expansion of large scale renewable energy generation" within the State (PSC, 2016, pp. 21-22). The goal of REV/CES is to develop "large-scale, self-sustaining, private sector-driven clean energy markets" able to drive further investments on their own (DPS, 2016a, pp. 4-5).

With the emphasis on competitive electric markets necessarily comes the need to consider New York's energy market within the context of the regional energy grid. The CES requires that RECs be allocated to each megawatt hour of renewable energy generated which contributes to the State's renewable targets. New York's RECs are compatible with those of other states, allowing trading of RECs between New York and programs in nearby states, such as those in New England.

New York's State Energy Law specifically requires the State take steps to "reduce the overall cost of energy in the state." NY Energy Law § 6-102(5). To that end, both the REV and SEP stress the need to move toward a market-based future where participants see the right price signals and decide to invest private capital into the system without the need for direct governmental or utility procurement of generation, thus increasing competition, building a dynamic energy market, driving efficiencies and, ultimately, reducing costs. "Enabl[ing] private capital investment to drive self-sustaining independent clean energy markets" will allow New York State to "deliver true scale to the

clean energy sector, which in turn is an essential component for meaningful economic development” (NYSEPB, 2015, p 20). As NYSERDA states:

in-state renewable energy investments help keep New Yorkers’ money in the State, fueling economic growth and the creation of . . . jobs. . . . It is critical to note that generation displaced by the operation of new renewable energy facilities is the most expensive generation, which sets the prices for the entire market. By displacing this generation, the wholesale electricity price paid by in-state ratepayers is reduced. (NYSERDA, 2013, p. S-5)

The price of RECs will be determined by the market.⁵ This will encourage consistency and competition in the price of RECs among renewable developers and across state lines—in theory, driving down the costs and opening up competition to a broader pool of projects across the region. Each project will need to compete on its own in the electric markets, and a developer’s profits will be directly tied to its ability to contain costs so that it can offer its power on the market, or in a contract, at a competitive price. Greater competition among all types of project developers and owners will likely result in lower-cost projects, reducing electric rates for residents, businesses and industries, and freeing up capital for other purposes. Ultimately, the intention of the REV and CES is to drive additional capital investment in New York and participation in New York’s energy market—precisely what the Applicant seeks to do in proposing the Facility.

In addition, the SEP commits the State to developing “[n]ew mechanisms to facilitate voluntary market activity,” and market signals to encourage innovation and investment by private investors in New York’s economy—an objective that is reflected and refined in the CES (NYSEPB, 2015, p. 72). This will increase competition, drive down the cost of renewable projects and energy, usher in modernization of the grid, achieve additional economies of scale through increased deployment, and put LSRs “on a path to grid-parity” with other energy sources (NYSEPB, 2015, p. 72).

The necessary investor confidence and certainty in the renewable energy markets can only be achieved if investors are able to compete freely across the market to win the best contracts or prices for their products, without the imposition of artificial and arbitrary constraints on market activity between states. Thus, even if the Facility cannot find a suitable buyer in New York, or if it is not selected to receive RECs through a NYSERDA/NYPA solicitation, its investors will still be able to look to the broader regional market, such as among New York’s Regional Greenhouse Gas Initiative (RGGI) counterparts, to sell some or all of its output. This increased certainty—both that New York recognizes the monetary value of the renewable attributes of green energy and that the shift toward a more open market creates multiple opportunities for projects to succeed—will encourage companies like the

⁵ Under the CES, REC prices essentially will be capped at the amount an LSE would have to pay if it chose to make an Alternative Compliance Payment in lieu of obtaining all the necessary RECs. LSEs will have the option of choosing how to comply with the requirement—by purchasing RECs only, purchasing RECs and energy, or making Alternative Compliance Payments—most likely depending on which option carries the least cost. This also encourages competition, innovation, and efficiency among market participants.

Applicant to make these investments here and voluntarily participate in the expanding New York market, precisely as the SEP and REV intended.

Projects like the proposed Facility will continue to position New York as a leader in clean energy technology, innovation, and production, while helping to reduce costs and stimulate the markets to drive further private investments. While these projects will be eligible to bid into the New York REC market to obtain contracts to purchase the renewable attributes of their power, they also will compete with other renewable generators for favorable power purchase agreements or to sell their electricity on the wholesale market in competition with other energy generators. Consistent with the market-based vision of the SEP, REV, and CES, renewable developers like the Applicant will be provided an incentive to pursue efficient, reliable, and cost-effective projects that can perform well in a market setting in order to earn a reasonable rate of return. In designing the Facility, the Applicant will have significant incentives to innovate, draw on the latest technology and advancements in infrastructure and project design, and carefully explore the quality of the solar resource to develop the most marketable proposal. An environment which promotes such innovation by the private sector also will be ripe for secondary economic and intellectual development in New York, as related businesses, service industries, vocational programs, and research institutions are drawn here, and existing industries and tech firms are provided with new market opportunities, jobs for skilled workers, and a pool of market participants eager to invest in future advances.

Adding to the State's Generation Capacity

The Applicant currently plans to sell the power generated by the Facility to end users in the State. However, the Siting Board has recognized in the past that adding energy generation in the Northeast region is beneficial for New York—even if the power is ultimately sold to end users in neighboring states. For example, in the Athens Generating case, the Board pointed out:

Regionalization of the power market benefits all states by increasing the extent to which they can draw on other states' resources to maintain reliability, and by enhancing competition. Competitive benefits within the northeast can be increased by increasing transmission capacity between New York and other regions, in which case New York suppliers might well sell more electricity to out-of-state purchasers and vice-versa. To the extent this happens, the increased competition will benefit consumers throughout the entire multi-state region . . . [T]he development of multi-state regional markets is at the core of federal energy policy. (NYS Siting Board, 2000, p. 95)

Furthermore, the Siting Board has recognized that generation in New York is beneficial to New York regardless of whether it is consumed in New York. In the Athens Generating Case, the Siting Board held that the facility

would displace the production of other less efficient plants in New York regardless of whether [the Facility owner] has contracts to sell in New England or elsewhere. Commercial transactions do not govern the flow of electricity. [The facility's] electricity production will physically remain

in New York, requiring the [New York Independent System Operator or] NYISO to ramp down less efficient generators. (NYS Siting Board, 2000, p. 94)

Courts have affirmed this notion as well. The Northern District of New York held in a related challenge to the Athens facility that “even if the plant's electricity were to be sold outside the State, transmission of the electricity through NYISO would commit generators to minimize costs and maintain reliability and the overall amount of electricity produced in the State would be increased, thereby resulting in lower electricity prices.” *Pogliani v. US Army Corps of Engineers*, (166 F.Supp.2d 673 (2001)).

The benefits of a facility with respect to the State's generation capacity do not depend on who ultimately purchases the power it makes. Not only will the Facility provide additional renewable power for possible consumption by New Yorkers, the Facility will contribute renewable capacity to the growing competitive electricity market in New York, displace more expensive and less efficient units, reduce the amount of power the State needs to import to meet its needs, increase reliability by providing additional generation capacity which the NYISO can draw on in order to address congestion or ramp down other units, diversify the State's energy supply to reduce overdependence on natural gas generation, and provide the State with additional capacity that does not depend on imported fuels subject to price volatility and disruptions in supply, as discussed further below.

Fuel Diversity, Resiliency and Reliability

Another important SEP core initiative and REV goal is building a more sustainable, modern, and resilient energy system—one that can respond to rapidly changing weather and consumption patterns, recover quickly from problems, and does not depend excessively on a single fuel source to fulfill all of its needs. New York's energy supply system suffers from “an over-dependency on natural gas” which can create significant financial and other problems for customers during cold weather events or other times of natural gas price volatility (PSC, 2016, p. 76). Additions to the State's—and region's—renewable capacity diversifies fuel sources, increases grid reliability and resiliency, and supports the modernization of grid infrastructure (PSC, 2016, pp. 76-77). This advances the State energy planning objectives of “improving the reliability of the state's energy systems, . . . insulating customers from volatility in market prices” and “reducing the overall cost of energy in the state.” NY Energy Law § 6-102(5).

As discussed in greater detail in Section (c) below, the Facility is consistent with New York's policy of increasing fuel diversity. Currently, approximately 80% of the State's electricity is generated by fossil fuel-fired or nuclear generating facilities. The Facility will add up to 90.5 MW of solar to the State's generation capacity and so contribute to diversification of the State's energy resources.

Finally, as a generation facility that does not rely on fuels which must be sourced and delivered from other parts of the country or the world, the Facility has the ability to recover quickly, and generate energy unencumbered by transportation problems, extraction-related complications or delays, or political unrest in foreign countries—all potential issues for traditional fossil fuel facilities which rely on price-volatile commodities sourced from outside New York. This improves system resiliency and allows the State to recover more quickly from significant disruptions to the grid, such as large storms or other incidents. As noted in the SEP, siting facilities throughout the State that are capable of rapid recovery during periods of disruption allows those facilities to operate independently of the central grid until the rest of the system is able to recover.

The SEP's core sustainable and resilient communities' initiative stresses the need to ensure a more modern, reliable and resilient energy grid. Approximately 81% of the State's power generators are more than 16 years old, and 60% are more than 35 years old (NYSEPB, 2015, pp. 34-35). Projects like the Facility represent a significant opportunity to deploy new technology in an otherwise rapidly aging and often outdated energy system. As noted in the SEP, "promoting the development of clean, local energy resources" will "strengthen and improve the reliability of the grid" (NYSEPB, 2015, p. 36). In an emergency, the availability of local solar energy may offer opportunities to restore power to the community until connections to the central generation grid are reestablished.

(b) Impact on Reliability

A System Reliability Impact Study (SRIS) has been prepared and no adverse impact on reliability is anticipated as a result of the Facility. The SRIS found that the Facility does not result in any degradation of system reliability or noncompliance with the North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), or New York State Reliability Council (NYSRC) reliability standards. See Exhibit 5 for a discussion of system reliability issues.

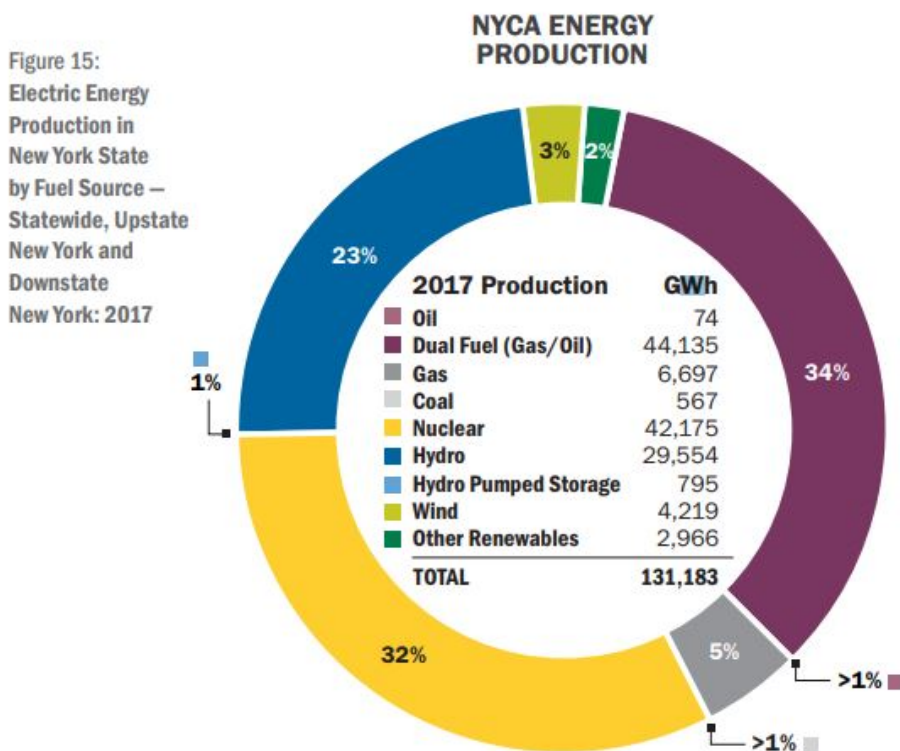
(c) Impact on Fuel Diversity

The proposed Facility will improve fuel diversity within the State by increasing the amount of electricity produced by non-fuel dependent solar power. In 2008, the NYISO found that New York's electric utility system relies on supply from numerous fuel sources, including coal, water, wind, nuclear and natural gas, as well as interconnections with its neighbors and demand-response resources. According to the NYISO, "[m]aintaining and improving fuel diversity in New York will lead to less volatile electric prices, improved reliability, and positive environmental impacts."⁶ By 2013,

⁶NYISO: FUEL DIVERSITY IN THE NEW YORK ELECTRIC MARKET, A NYISO WHITE PAPER (2008), available at: http://www.nyiso.com/public/webdocs/media_room/publications_presentations/White_Papers/White_Papers/fuel_diversity_11202008.pdf.

however, the NYISO determined that “gas has effectively displaced both coal and oil.”⁷ Since 2000, approximately 2,000 megawatts of generation fueled by coal have retired or suspended operation. Accordingly, alternative forms of electric generation such as solar, currently comprise approximately 29 percent of New York’s electric generation and are becoming increasingly important to maintain fuel diversity. Figure 10-1, from the NYISO’s 2018 Power Trends Report (Figure 15 of the Report), graphically depicts by fuel type the statewide electric energy production in New York in 2017.⁸

Figure 10-1:



Despite development in solar energy facilities over the past decade, currently solar energy comprises less than 1% of the total generating capacity in New York State. Development of the Facility would add 90.5 MW to the existing renewable sector, helping to diversify New York’s energy economy and ease New York’s overdependence on natural gas and other polluting fossil fuels.

⁷ NYISO, WHAT WILL FUEL DIVERSITY LOOK LIKE IN 2022, November 15, 2013, available at: http://www.nyiso.com/public/webdocs/markets_operations/committees/environmental_advisory_council/meeting_materials/2013-15-11/Cap_Energy_Changes_P_Carney.pdf.

⁸ NYISO’s 2018 Power Trends Report, Figure 15. Available at: <https://www.nyiso.com/documents/20142/2223020/2018-Power-Trends.pdf/4cd3a2a6-838a-bb54-f631-8982a7bdafa7a>

(d) Impact on Regional Requirements for Capacity

Since 2000, private power producers and public power authorities have added more than 11,655 megawatts of new generating capacity in New York State. This additional generation represents approximately 30 percent of New York's current generating capacity. Over 80 percent of that new generation is located in the eastern and southern regions of New York (Zones F-K) -- where power demand is greatest. New York's wholesale electricity market design, which includes locational-based pricing and regional capacity requirements, encourages investment in areas where the demand for electricity is the highest. Other additions to New York's power-producing resources resulted from upgrades to existing power plants in upstate regions, or were largely influenced by physical factors, such as the suitability of wind conditions in the northern and western regions of the state, and with respect to solar, availability of sufficient and unutilized land to site utility-scale projects. Exhibit 5 of this Application describes in detail if and/or how the Facility will impact regional electricity and capacity demands.

(e) Impact on Electric Transmission Constraints

As noted elsewhere herein, locational requirements dictate placement of renewable resources and, as such, much of the State's renewable power is and will be provided by hydroelectric projects and wind farms located in the western and northern portion of the State, with the southeastern region remaining host to power plants fueled primarily by natural gas. According to the NYISO three main issues must be addressed with respect to system reliability before SEP and CES goals can be achieved: (1) additional transmission capability necessary to reliably transport energy from renewable resources developed in remote areas, mainly western and northern New York, to New York's southeast load centers, (ii) additional energy and ancillary service requirements necessary to maintain system reliability with the level of intermittent resource penetration required by the CES, and (iii) the State's resource adequacy requirements resulting from the significant additional intermittent resource penetration required by the CES.⁹ It is anticipated that approximately 90%, or 17,000 MW, of New York's total new renewable generation will be located in Upstate New York (i.e., NYISO Zones A-F).¹⁰ According to the NYISO,

“[t]he resource mix and geographic distribution of the new renewable resources will dramatically change power flows across the New York State bulk transmission system. Significant additional volumes of renewable energy will have to move east and south across the State to serve load. In order to achieve 50% by 30, the bulk power transmission system must have the capability to deliver all renewable resources' energy production simultaneously.”

⁹ Case 12-T-0502: *Clean Energy Standard Proceeding*, Comments of the NYISO (Filed)

¹⁰ See DPS SEIS and 2016 NYISO Load and Capacity Data.

The NYISO states that it has begun analyzing potential new transmission facilities to help accommodate additional renewable resource build-out throughout western and northern New York. Based on the volume of new renewable generation resources and the locations for build-out projected in the CES SEIS, the NYISO estimates that one likely transmission development scenario could require nearly 1,000 miles of new bulk power transmission, in addition to the AC Transmission and Western New York public policy initiatives now underway, to avoid frequent west to east transmission constraints in the future.

New York State has a diverse mix of generation resources compared to many other states. However, much of the renewable power is provided by hydroelectric projects and wind farms located in western and northern localities, while the southeastern region hosts power plants fueled primarily by natural gas. Taking full advantage of statewide fuel diversity will require upgrades and enhancements of the transmission system (NYISO, 2016). These transmission enhancements will help move energy from upstate regions with a surplus of generating capacity to more populous areas with higher power demands, such as the Hudson Valley, New York City, and Long Island (NYISO, 2016).

As previously noted, the Facility is located in NYISO Zone F. According to the NYISO, the most congested transmission areas were in NYISO Zones C, D, and E (NYISO, 2010). However, these transmission constraints will continue to exist regardless of whether or not the Facility is constructed. Other proceedings, such as the AC Transmission Proceeding and proposed transmission upgrades by entrenched Transmission Owners, are intended to address some of these congestion problems, and any progress realized through those efforts will only enhance the benefits of the Facility to the electric system. At this time, the Facility will not result in new electric transmission system constraints, and current infrastructure has been shown to be sufficient to allow addition of the Facility, as discussed in Exhibits 5, 8 and 34.

(f) Impact on Fuel Delivery Constraints

The proposed Facility will generate electricity without the use of fuel. Consequently, there will be no adverse impact on fuel delivery constraints. Rather, by generating electricity without the need for fuel delivery and displacing facilities that rely on fuel for generation, it is expected that the Facility will contribute toward reducing the demand for fuel thereby alleviating fuel delivery constraints.

(g) Impact on Energy Policy

The need for additional renewable generation and a decreased reliance on fossil-fueled generation has been a mainstay of New York Energy policy for almost two decades. Notably, in 2004, the PSC implemented the RPS program to facilitate investment in renewable generation. The RPS program initially envisioned an increase in renewable energy

production in the State by 25% by the year 2013. In 2010, the PSC expanded the RPS target from 25% to 30% and extended the target date from 2013 to 2015. Renewable projects approved under the RPS are expected to reduce CO₂ emissions by 50 million tons over the life of the projects. Recent policy initiatives also include a comprehensive Clean Energy Fund (CEF) proposed by NYSERDA to ensure continuity of the State's clean energy programs. The CEF is one part of New York State's REV initiative. REV recognizes that LSRs, which require more capital and take more planning than other facilities, will be critically important to meeting greenhouse gas emissions reduction goals.

(1) Reducing GHG Emissions and Combating Climate Change; Reducing Air Pollution

The State has “adopted strongly proactive policies to combat climate change and modernize the electric system” by, among other things, reducing “total emissions of air pollutants resulting from fossil fuel combustion” (PSC, 2016, pp. 3-4) These goals are “part of the State's sweeping initiative to transform the way energy is produced, delivered and consumed,” which “places New York in a leadership position among states” to meet these challenges (PSC, 2016, pp. 6 and 10). As stated in the CES Order,

For New York, the need and ability to take steps to combat climate change is immediate. New York's vulnerability to extreme weather events was vividly illustrated in 2011 and 2012 by the storms Sandy, Irene, and Lee. These storms, however, were only the most visible warning signs. Climate change will cause not only sea level rise, heat waves, and extreme weather events, but also threatens massive economic and lifestyle disruption from damage to agriculture, water resources, public health, energy and communication systems, and the natural ecosystems that define and support communities. (PSC, 2016, p. 4)

For New York to achieve the State's GHG emissions reduction goals, the New York State Climate Action Council (NYSCAC) concluded in its 2010 Climate Action Plan that “**close to 100 percent of New York's electricity will need to come from low-carbon sources**—sources with near zero-carbon emissions—**by 2050**” (NYSCAC, 2010, p. 8-9 [emphasis added]). Further, the Plan points out that New York's goals of reducing the carbon-intensity of the transportation and buildings sectors will result in increased need for low-carbon electricity—additional electricity to power electric vehicles, for example. “Therefore, over the next 40 years, New York will need to replace most of the existing fossil fuel-fired sources of electricity—coal, gas and oil-fired power plants—with low-carbon sources of power” (NYSCAC, 2010, p. 8-9). The primary method for achieving these emissions reductions in the short term: substantially increasing renewable generation (NYSCAC, 2010, pp. 8-10).

As discussed in Section (a) above, the Facility has the potential to contribute up to 90.5 MW of solar electricity generation capacity toward achieving the State's “50 by 30” renewable energy goal. As reported in Exhibit 8, the Facility is expected to displace approximately 55,500 tons of carbon dioxide emissions from conventional power plants annually. The Facility will provide enough electricity to meet the average annual consumption of over 28,000

households, based on the average annual electric consumption of 7.2 MWh for New York State, respectively (USEIA, 2018).

The Facility will aid in protecting New York's natural resources, especially the State's air resources and resources that would otherwise be used or damaged in the extraction, processing, transportation and burning of fossil fuels. As discussed in Exhibit 17, the Facility will produce no direct emissions of pollutants such as nitrogen oxides and sulfur dioxide that contribute to regional air pollution problems such as smog and acid rain. The Facility thus will advance the CES goal of "reduc[ing] total emissions of air pollutants resulting from fossil fuel combustion" (PSC, 2016, p. 3). See Exhibit 17(d) for an analysis of pollution avoided by substituting solar for natural gas-fired electricity production.

(2) Advancing Regional Climate Change and Air Quality Goals

The Siting Board, the PSC, and courts across the country recognize that energy markets—and the environmental impacts therefrom—cross state lines. As technology has advanced, the way we generate and transmit power has evolved, to the point that "[t]ransmission grids are now largely interconnected, which means that 'any electricity that enters the grid immediately becomes a part of a vast pool of energy that is constantly moving in interstate commerce . . .'" *New Jersey Board of Public Utilities v FERC*, 744 F.3d 74, 81 (3d Cir. 2014) (quoting *New York v. FERC*, 535 U.S. 1, 7 [2002]). New Yorkers and others throughout the region will benefit as new initiatives continue to fill this energy pool with an increasing amount of low-cost renewable energy, pushing out older, less efficient, carbon and pollutant-emitting sources. Conversely, New Yorkers will benefit from similar initiatives pursued by neighboring states that share common goals. In this way, the continued leadership and contribution of New York State toward achieving regional climate and energy generation objectives will compound the benefits to New Yorkers as other states follow suit.

While the causes and impacts of air pollution and climate change extend far beyond New York's borders, the PSC's jurisdiction is constrained to actions within New York. The challenge inherent in attempting to implement the SEP, REV and CES policies is that while State actions must be limited to regulation of activities within New York State, those actions would yield the greatest benefits to New Yorkers if they extended regionally without treading on the authority of the Federal Energy Regulatory Commission (FERC) or interfering unlawfully with interstate commerce (PSC, 2016, pp. 66-69). "The mechanisms any state applies to best meet its clean energy goals are inextricably tied to the design of power markets in that state *and their participation in federally regulated wholesale markets*" (PSC, 2016, p. 10 [emphasis added]). Thus, in order to design an effective clean energy program that influences broader regional markets while remaining within the bounds of its jurisdiction, the

Commission developed a CES and REC trading program that focuses on increased production of clean generation in New York in a manner “untethered to a generator’s wholesale market participation,” while also encouraging broader renewable industry interest and market activity throughout the region (PSC, 2016, p. 69). Hence, while the CES is a New York State program, it is intended to have a broader effect, and to advance regional initiatives and goals within the confines of the PSC’s jurisdiction.

Consistent with the goals outlined above, the CES established a REC trading program for New York that operates across state lines, and invites regional cooperation and competition among developers. For example, the CES permits out-of-state renewable generators to qualify for RECs in New York so long as “the generation is accompanied by documentation of a contract path between the generator and the in-state purchaser that includes transmission right” (PSC, 2016, p. 30). The CES’s formula of awarding one REC for each megawatt hour of renewable energy is intended to express the value of a REC in universal, translatable terms. One REC equals one renewable megawatt hour is “the universal unit of measure that allows RECs to be marketed *within and among states*,” and which has the potential to expand the scope and impact of New York’s clean energy efforts beyond its borders by encouraging the formation of larger regional markets, and drawing in a broader audience of investors enticed by financial mechanisms which are “*compatible across multiple systems, policies and markets*,” such as among New York’s RGGI counterparts (PSC, 2016, p. 38 [emphasis added]).

Although the Applicant proposes to sell renewable energy from the Facility into New York, the impact of participation in New York’s energy markets will have a broader impact on the region regardless of where in the region the power is sold. Projects such as the proposed Facility advance New York’s leadership position amongst neighboring RGGI states and across the country in transitioning to a clean energy economy. As a participant in the REC market, and by selling renewable energy into a changing wholesale market, the Applicant will be among the first new renewable generators to participate in the CES, and the Facility will help New York send signals to the market and the region that the State is moving forward with the work of turning the lofty climate change and other goals articulated in the SEP into action.

(3) Advancing Environmental Justice

Development of the Facility is consistent with the SEP goal of avoiding disproportionate impacts on Environmental Justice (EJ) communities. As discussed in Exhibit 28, the nearest potential EJ area will be located approximately 10 miles from the nearest PV panel. The Facility thus will have no direct impact on any EJ community.

Indirectly, however, the power generated by the Facility will aid in reducing the need for power generation from dirtier power plants, and will aid in reducing the overall air emissions from the State’s energy system. As noted in

the SEP, fossil fuel-fired energy power generation facilities have often been located in EJ communities, which have borne a disproportionate share of the environmental impacts of these facilities. As a result, there are EJ benefits associated with transitioning away from fossil fuel generation to cleaner, renewable sources (NYSEPB, 2015, p. 39). Reducing environmental impacts to EJ communities will also aid in reducing the disproportionate public health impacts suffered by those populations, such as the higher incidence of asthma and breathing disorders among children and people of color in many urban neighborhoods where air pollution is a significant problem. In that sense, renewable energy development advances environmental justice by displacing the sources of air pollution that are frequently concentrated in EJ communities.

(4) Economic Development Opportunities Associated with Decarbonizing New York's Economy

Renewable energy development generates far more than green electricity. A guiding principle of the past decade's state energy policies, and of the 2015 SEP, is increasing private investment in New York's clean energy economy. Likewise, the REV proceeding repeatedly emphasized that "New York has been at the forefront of energy leadership and innovation since the earliest days of the system," and that, through REV, New York intends to lead "the transition to a clean energy economy" (DPS, 2016, p. 1). "Developing New York's clean energy economy offers one of the most viable means of stimulating environmentally sustainable economic activity in New York in the 21st century" (NYSCAC, 2010, p. 13-1). "New York has long been a leader in energy technology innovation and commercialization, with a well-established world-class research infrastructure, and is home to a major financial and venture capital industry. New York has a superior higher education system, the natural resources necessary to power a low-carbon economy, and a productive and skilled labor force that can readily transition into new industries and markets" (NYSCAC, 2010, p. 13-2).

Consistent with the Climate Action Plan, the SEP views the transition to a renewable, clean energy sector as an enormous economic opportunity to infuse new private sector investment across New York, to "drive sustainable direct and indirect job growth," and create a future of prosperity and progress (NYSEPB, 2015, p. 48). The SEP emphasizes the critical role energy will play in shaping the State's future economic growth, acknowledging that "a state-of-the-art energy system is an essential element for a high-caliber business environment," and that a "high-quality affordable energy system will create synergies with the State's emerging high-tech industries . . . [and] retain and attract new businesses to the State" (NYSEPB, 2015, pp. 48-49). By encouraging broad, statewide growth in green energy, the SEP posits that "New York can become a major export center for energy innovation and expertise" (NYSEPB, 2015, p. 49).

Local communities stand to reap significant direct and indirect benefits from these investments in clean energy, as discussed in greater detail in Exhibit 27. Experts and government agencies at all levels have acknowledged the myriad local public benefits derived from investment in renewable generation—from increased local tax revenues and direct lease payments to struggling farmers and rural landowners, to secondary economic gains such as the growth of related services and businesses and additional local economic activity by ratepayers paying less for power.

Even before a renewable energy project generates its first megawatt of electricity, the New York State economy—and the economies of rural communities where many renewable projects are proposed—receives an influx of investment made during the planning and development stages of a project. As projects proceed to construction and operations, economies are buoyed by purchases of local materials, employment of construction crews and transportation workers, patronage of local hospitality establishments, and investments in local infrastructure.

Further, a core initiative of the SEP is innovation and research and development, which is mirrored in the REV guiding principle of innovation and technology, and the REV goal of increasing clean energy innovation. The more LSR projects, such as the Facility, are constructed in New York, the more these goals and objectives will be advanced. The Applicant will choose the best, most efficient and advanced solar energy generation technology that makes financial sense for the facility at the time of construction. Researchers, investors, and tech companies working on PV panel technology, collection and interconnection solutions, smart grid advances, and other cutting-edge innovations will benefit from developers like the Applicant seeking out their best ideas, most powerful innovations, and greatest advances in impact avoidance for facilities like Mohawk Solar.

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

Given the unique nature and constraints associated with the siting of solar-powered electric generation facilities (i.e. adequate and unutilized land, willing land lease participants and host communities, and adequate access to the bulk power transmission system), this Application focuses on comparing alternative facility configurations within the proposed Facility Area. Such alternatives may include alternative project layouts and/or alternative project size and a no action alternative as identified in Exhibit 9.

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

According to the PSC, “[f]or New York, the need and ability to take steps to combat climate change is immediate.”¹¹ “Climate change will cause not only sea level rise, heat waves, and extreme weather events, but also threatens massive

¹¹ CES Order at 4.

economic and lifestyle disruption from damage to agriculture, water resources, public health, energy and communication systems, and the natural ecosystems that define and support communities.” The Facility will assist in combatting climate change and have a positive impact on public health and welfare by producing enough electricity to power almost 20,000 homes and displacing significant quantities of air pollutants such as CO₂, NO_x, SO₂, mercury compounds, and lead compounds.

Despite the significant amount of undeveloped land in upstate New York, the number of viable sites for utility-scale solar development are relatively few. Optimally, as with the case of this Facility, utility-scale solar projects should be sited on unutilized land or land that could be deemed for dual use, when feasible. Relative to the rest of Montgomery County, the proposed location (2-mile Study Area) contains a higher-than-average amount of vacant land (see 1001.4(a) for a more detailed analysis). In addition to its consistency with the rural agricultural character in terms of land use, the Facility is also consistent with the surrounding agricultural goals of the area to protect productive agricultural soils (see 1001.4(a) for a more detailed analysis). Additionally, the Facility will provide a guaranteed revenue stream to the landowners while not taking any agricultural land out of production. Furthermore, utility-scale solar projects must be located in relatively close proximity to a suitable point of interconnection with the local utility to minimize interconnection costs. Significant interconnection costs can easily render a solar project uneconomic. This Application explains how, taking into consideration locational constraints, the proposed Facility promotes public health and welfare.

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