



## Baron Winds Project

Case No. 15-F-0122

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 Planning Objectives

In order to issue a Certificate of Environmental Compatibility and Public Need (CECPN), the Siting Board must find, among other things, that a proposed project (i) is a beneficial addition to the electric generation capacity of New York State and (ii) will serve the public interest. New York Public Service Law (NY PSL) § 168(3). These findings are made, in part, by determining the project's consistency with the most recent New York State Energy Plan, and with the energy policies and long-range planning objectives of the State. NY PSL § 168(4)(e). As demonstrated below, the Facility would be a beneficial addition to the electric generation capacity of the State and serve the public interest because it: increases the State's renewable energy generation capacity; advances important objectives of the State Energy Plan (SEP), the Reforming the Energy Vision (REV) initiative, the Clean Energy Standard (CES), the Regional Greenhouse Gas Initiative (RGGI), and other important state policies; and provides environmental, social, economic development and public health benefits to New Yorkers. For the reasons set forth below and elsewhere in the Application, the Applicant believes there is ample evidence upon which the Siting Board could rely in making the required findings under NY PSL § 168(3), and in determining the Facility's consistency with state energy policy.

#### (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 system, and send market signals to support broad State policy preferences for green energy, energy efficiency, equal access to affordable and clean energy, and other goals. In order to advance these interests both generally and with respect to specific projects, New York State relies on a suite of public policy planning documents, including the SEP and, more recently, the REV and CES proceedings, 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 New York State Energy Planning Board (NYSEPB) to adopt a State Energy Plan at minimum every 10 years. Among other things, the SEP: forecasts New York State energy supply and demand and the State's ability to satisfy that demand; projects greenhouse gas (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 New York State Public Service Commission (PSC) have undertaken the Reforming the Energy Vision 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 the realization of the SEP’s goals, and propose 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](http://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 date, as well as:

- 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 a comprehensive Clean Energy Standard, 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).

This system 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

These 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 Baron Wind 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 Baron Wind 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 300 megawatts (MW) of clean, green, New York-based renewable power into the grid, making it one of the largest

renewable projects in operation or proposed in New York State. 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 been a part of transforming New York's energy sector consistent with the goals of the SEP since 2011. Through the Baron Wind 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. In total, the Applicant has over 475 MWs in operation or in various stages of development in New York.

#### 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.

To encourage growth and investment in renewables, particularly LSRs, and further its role as a leader on these issues, New York adopted the CES in August 2016 (PSC, 2016). The CES, which replaced the State's expired renewable portfolio standard (RPS) program, represents the most comprehensive and ambitious clean energy mandate in the State's history to fight climate change, reduce harmful air pollution, and ensure a diverse and reliable energy supply. As previously noted, the CES requires 50% of New York's electricity to come from renewable energy sources like wind and solar by 2030, with an aggressive phase-in schedule over the next several years (PSC, 2016, pp. 154-57). Like the SEP, the CES relies 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). To reach the nearer-term and long-term CES goals, the Final Supplemental Environmental Impact Statement (FSEIS) prepared in support of the CES assumes that at least half of the incremental renewable generation needed will come from land-based wind, accounting for more than 5,000 MW in *additional* new installed renewable generation capacity through 2030 (PSC, 2016a, pp. 4-3 to 4-4). The Baron Winds Facility has the potential to make a critical contribution toward meeting these goals.

The CES set renewable energy procurement targets for Load-Serving Entities (LSEs) beginning this year, and increasing each year through 2021 (PSC, 2016, p. 92). In 2017, the percentage of LSE total load which must be sourced from *new* renewable generators is 0.6 percent, or about 974,000 MWh, which will increase to 4.8 percent of LSE load, or 7.5 million MWh, by 2021 (PSC, 2016, pp. 92-93). The Baron Winds Facility would contribute up to 300 MW, or approximately 946,080 MWh,<sup>1</sup> toward the State's achievement of this goal and the Applicant fully intends to participate in any state solicitations for energy or RECs.

Contributions from land-based wind projects, such as the Baron Winds Facility, will be particularly important in the short term because: the CES assumes no offshore wind 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);<sup>2</sup>

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<sup>1</sup> This figure was calculated assuming a net capacity factor of approximately 36%, as stated in the Baron Winds Project Public Involvement Program Plan, at page 2.

<sup>2</sup> 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

and incremental contributions from technologies such as hydroelectric, nuclear, anaerobic digesters<sup>3</sup> or biomass<sup>4</sup> 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 addition of new LSR, such as wind (DPS, 2016, at Appx. B). As proposed, the Facility would be constructed and operational by the end of 2020, in time to meet shorter-term incremental renewable capacity targets set through 2021.

### 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 Baron Winds 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).

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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).

<sup>3</sup> 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).

<sup>4</sup> 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).

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.<sup>5</sup> 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.

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<sup>5</sup> 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.

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 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 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 wind 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*, 2007 WL 983549 (NDNY 2007).

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 300 MW of wind to the State’s generation capacity and so contribute to diversification of the State’s energy resources.

By selecting a region of the State with some of the strongest, most consistent wind resources, the Facility will provide more consistent, reliable energy output than if the Facility were constructed closer to downstate load centers where wind resources are unreliable and, in many areas, uneconomical for utility purposes. The Facility will avoid fuel costs, reducing the total cost of energy production; it will also eliminate carbon emissions generated by the extraction, refining, transportation, and burning of fossil fuels for power.

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 recovering quickly 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). While the Facility is intended to operate as part of the central generation system, Steuben County and the surrounding area are relatively isolated from large traditional generation sources, such as nuclear, natural gas, or large hydroelectric facilities (USEIA, 2017, Profile Overview). In an emergency, the availability of local wind energy offers 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 that could not be resolved or reduced to insignificant levels. See Exhibit 5 for a discussion of system reliability issues.

(c) Impact on Fuel Diversity

As discussed in Section (a)(2) above, the proposed Facility will improve fuel diversity within New York State by increasing the electric capacity from wind power. The New York electric utility system relies on supply from numerous fuel sources, including natural gas, hydroelectric, nuclear, wind, oil, and coal, as well as interconnections with its neighbors and demand-response resources. According to the NYISO *2017 Load and Capacity Data* (also known as the “Gold Book”), total electricity generating capacity in New York State in the summer of 2017 was 38,778 MW (NYISO, 2016a). Table 10-1 shows the generating capacity and percent of total for each of the fuel types included in the NYISO report.

**Table 10-1. 2017 Installed Generating Capacity by Fuel Type in New York State<sup>1</sup>**

Generator Fuel Type	2017 Capacity (MW)	Percent of Total Capacity
Gas	3,588	9.3
Oil	2,499	6.4
Gas & Oil	18,529	47.8
Coal	1,011	2.6
Nuclear	5,375	13.9
Pumped Storage	1,407	3.6
Hydro	4,251	11.0
Wind	1,740	4.5

Generator Fuel Type	2017 Capacity (MW)	Percent of Total Capacity
Other	378	1.0
<b>Total</b>	<b>38,778</b>	<b>100</b>

<sup>1</sup>Data are from NYISO 2017 Load and Capacity Data, Table II-1a (NYISO, 2017).

Despite development of wind energy facilities over the past two decades, currently wind energy comprises only 4.5% of total generating capacity in New York State. Development of the Facility would add up to an additional 300 MW to the existing 1,740 MW of generating capacity from wind projects in the State, helping to diversify New York's energy economy and ease New York's overdependence on natural gas and other polluting fossil fuels.

(d) Impact on Regional Requirements for Capacity

Power is located in New York based on two general factors: the need to meet regional capacity or the suitability of conditions. The regional capacity requirements of New York's wholesale electricity markets and location-based pricing generally encourage investments in areas where the demand for electricity is the highest. As a result, over 80% of the generating capacity brought online since 2000 is located in New York City, on Long Island, and in the Lower Hudson Valley. Other additions to New York's power-producing resources are constrained by physical factors, such as the suitability of wind conditions in the northern and western regions of the State and the existence of nuclear and hydropower plants in upstate regions that can be upgraded or retrofitted to increase their capacity (NYISO, 2016b). The proposed Facility falls into the "suitability of conditions" category, with siting driven by available wind resource and the need for renewable generation to take advantage of those resources where they exist within the State. More generally, the need for additional renewable capacity in New York is based on the overarching statewide need for carbon-free energy generation to replace fossil fuel generators that offer capacity but do not advance other important State policy goals.

The Facility is located in NYISO Zone C. Upstate New York as a whole, which includes NYISO Zones A-F, has a total generating capacity of approximately 18,500 MW, but a peak electric load of just over 13,500 MW (NYISO, 2016b). Although this part of New York State does not require significant additional capacity to meet its own local or regional demands for electricity, other areas of the State that do not have this region's wealth of wind resources are dependent on the availability of reliable electricity generation from areas that can offer that resource. The Facility is proposed in western New York because that region offers among the most significant available wind resource to be harvested, and has sufficient transmission capacity to get the resulting electricity to areas where it is needed.

(e) Impact on Electric Transmission Constraints

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, 2016b). 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, 2016b). A NYISO study entitled *Growing Wind: Final Report of the NYISO 2010 Wind Generation Study*, released in 2010, examined the potential future impact of the integration of up to 8,000 MW from newly installed wind plants into New York State's transmission grid. The study concluded that wind generation could supply reliable clean energy at a very low cost production to the New York power grid, and that addition of wind to the resource mix would reduce energy production costs. However, the reduction in production costs resulting from wind would be greater if transmission constraints between upstate and downstate New York were eliminated. NYISO found that approximately 9% of potential upstate New York wind energy production will be "bottled" or not deliverable because of this transmission constraint.

As previously noted, the Facility is located in NYISO Zone C. 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.

New York's transmission infrastructure is aging, and much of it needs replacement or upgrades. The *New York State Transmission Assessment and Reliability Study* (STARS) predicted the need for replacement of approximately 4,700 miles of 115 kV and above transmission lines in New York State within 30 years as of 2012. The 230 kV line to which the Facility will connect was among the transmission lines predicted to need replacement within 30 years (STARS Technical Working Group, 2012). The need for replacement of this line and for replacement/upgrades to the existing transmission system generally will exist regardless of whether the Facility is ultimately constructed. However, the transmission infrastructure which will need to be installed in connection with the Facility will make some modest

contribution toward modernization of, and investment in, the transmission system—and by a private company instead of by ratepayers.

(f) Impact on Fuel Delivery Constraints

The proposed Facility will generate electricity without the use of fuel. Consequently, there will be no adverse fuel delivery impacts, and no fuel delivery constraints which might impair the Facility. By producing additional electricity that does not require fuel, the Facility will contribute toward reducing overall demand for fuel and easing fuel delivery constraints.

(g) Impact on Energy Policy

The impact of the proposed Facility in relation to State energy policy, long-range planning objectives, and strategies contained in the most recent State Energy Plan is discussed in Section (a) above. As that section makes clear, development of the Facility is consistent with a number of State mandates, particularly those related to renewable energy development, market animation, and fuel diversity. In addition to the advancement of the SEP's energy generation, diversification, and market restructuring goals, the Facility will help the State achieve broader environmental and economic development goals, such as GHG emissions reductions and investment in New York's green energy economy, which advances the objectives of the SEP as well as the REV and CES.

By law, the SEP must consider and develop policies, programs and actions to “minimiz[e] public health and environmental impacts, in particular, environmental impacts related to climate change” from New York's energy sector. New York Energy Law § 6-102(5). Two specific goals of the SEP, as carried forward into the REV initiative and CES, are ensuring a pathway to achieving a 40% reduction in the State's GHG emissions by 2030, as well as an 80% percent reduction by 2050, and increasing private investment in New York's clean energy economy. These goals are inextricably connected, and will be advanced by the construction of LSR projects such as the Baron Winds Facility. Proposals like the Baron Winds Facility also advance other specific REV goals, such as protecting New York's natural resources; helping grow clean energy innovation; and creating new jobs and business opportunities (REV Website, 2017). The Facility also advances the State's environmental justice 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)

The State Legislature has adopted an energy policy that seeks to minimize environmental impacts from climate change, and facilitate and accelerate the use of low carbon energy sources, to protect New Yorkers, their environment, and the State's economy. NY Energy Law §§ 6-102(5) and 6-104(2)(i). These policies are emphasized in the 2015 SEP, which pledges to increase deployment of renewable generation, reduce GHG emissions to decarbonize the energy grid, and avoid or mitigate the damaging effects of climate change. To further these policies, New York has committed to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and reducing total GHG emissions 80% by 2050 (REV Website, 2017).

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 Baron Winds Facility has the potential to contribute up to 300 MW of wind electricity generation capacity toward achieving the State's "50 by 30" renewable energy goal. The Facility will generate this electricity without producing GHG emissions, thereby advancing the SEP goal of reducing GHG emissions 40% by 2030. According to an extrapolation of 2012 data released in 2015 by the U.S. Environmental Protection Agency (USEPA) *Emissions and Generation Resource Integrated Database* (eGRID2012), the Facility is expected to displace approximately 546,127.1 tons of carbon dioxide emissions from conventional power plants on an annual basis (USEPA, 2015). See Exhibit 17(d) for an explanation of how this figure was calculated. The Facility will provide enough electricity to meet the average annual consumption of between approximately 87,600

and 131,400 households, based on the average annual electric consumption of 10.8 megawatt-hours (MWh) for the U.S. and 7.2 MWh for New York State, respectively (USEIA, 2016).

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 wind 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 EJ communities. As discussed in Exhibit 28, the nearest potential EJ area will be located approximately 4.3 miles from the nearest turbine. 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 21<sup>st</sup> 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.

NYSERDA has estimated that for every MWh a large-scale wind energy project generates, the New York State economy receives between \$9.71 and \$10.66—returns which yield hundreds of millions annually from the statewide fleet of wind energy projects. Further, the money spent on construction has a ripple effect in the surrounding communities. NYSERDA estimated that the direct spending from a wind project in rural New York counties can have a multiplier effect of 1.3 (NYSERDA, 2005, p. 3).

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 wind energy generation technology that makes financial sense for the facility at the time of construction. Researchers, investors, and tech companies working on turbine 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 Baron Winds.

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

A comparison of alternative Facility configurations within the proposed Facility Site, including an alternative layout, is provided in Exhibit 9. As discussed in Exhibit 9, while the no action alternative would eliminate environmental impacts associated with construction and operation of the Facility, it would also do nothing to help the State achieve the GHG reduction and renewable energy goals of the SEP, REV and CES.

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

This section is not applicable because it requires an evaluation of alternative fuel sources, which is beyond the scope stipulated for this Application. To the extent alternate locations are relevant, see Exhibit 9(e). Additional discussion of the Facility and public health and welfare is included in Exhibit 2(e).

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