High Bridge Wind Project

Case No. 18-F-0262

1001.10 Exhibit 10

Consistency with Energy Planning Objectives

TABLE OF CONTENTS

EXHIBIT 10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES 1
(a) Consistency with State Energy Plan 1
(1) Overview of State Energy Policies and Plans 2
(2) Facility Consistency with State Energy Policies 7
(b) Impact on Reliability 10
(c) Impact on Fuel Diversity 12
(d) Impact on Regional Requirements for Capacity 13
(e) Impact on Electric Transmission Constraints 13
(f) Impact on Fuel Delivery Constraints 14
(g) Impact on Energy Policy 14
(1) Reducing GHG Emissions and Combating Climate Change; Reducing Air Pollution 15
(2) Advancing Regional Climate Change and Air Quality Goals 15
(3) Advancing Environmental Justice 16
(4) Economic Development Opportunities Associated with Decarbonizing New York's Economy 17
(h) Comparison of Advantages and Disadvantages of Proposed and Alternative Locations 18
(i) Why the Proposed Location and Source Best Promotes Public Health and Welfare 18
REFERENCES 19

LIST OF TABLES

Table 10-1. 2019 Installed Summer Generating Capacity by Fuel Type In New York State[1] 12

EXHIBIT 10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES

New York's energy sector is in the midst of a profound paradigm shift, driven largely by concerns about climate change and air pollution in its many forms. More stringent emissions rules proposed by the NYSDEC in 2018 are expected the shutter the remainder of the State's coal power plants by 2020. Public health concerns, and the desire to protect the State's air and water, have also driven the shift toward cleaner fuels and renewables. As New York ramps up its efforts to combat global climate change by drastically reducing greenhouse gas (GHG) emissions, especially from its energy sector, the State has set aggressive renewable energy generation goals. For instance, the 2015 State Energy Plan set that goal at 50% renewable energy generation by 2030 (NYSEP, 2015). In 2019, NYS Governor Andrew Cuomo announced plans to increase this goal to 70% renewable electricity by 2030 (Office of Governor Andrew M. Cuomo, 2019). As the State moves toward the anticipated 2021 retirement of the 2,000-MW Indian Point Nuclear Plant, lawmakers have recognized the need for significant additional renewable energy generation. As discussed in this Exhibit, achieving these goals will require the deployment of thousands of megawatts of new utility-scale wind and solar generation, such as the High Bridge Wind Project, to help transition New York to a modern energy portfolio.

(a) Consistency with State Energy Plan

In order to issue a Certificate of Environmental Compatibility and Public Need (CECPN), the New York State Board on Electric Generation Siting and the Environment (Siting Board) must find, among other things, that a proposed project (i) is a beneficial addition to the electric generation capacity of the 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 High Bridge Wind Project will be a beneficial addition to the State's electric 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), the proposed Green New Deal (GND), and other important state policies.

As the Public Service Commission noted in its recent approval of the Ball Hill Wind Project, land-based wind energy generation projects contribute to the energy and environmental policy objectives adopted in the State Energy Plan, including (i) increasing the proportion of electricity generated by renewable resources in New York to 50 percent by 2030; (ii) reducing GHG emissions at least 40 percent from 1990 levels by 2030; and (iii) reducing total carbon emissions 80 percent by 2050.[1] As the SEP affirms, growth in large-scale renewable generation (LSR) necessary to

[1] *See Order Granting a Certificate of Public Convenience and Necessity and Providing or Lightened Regulation in Case 18-E-0654 Ball Hill Wind* (April 18, 2019) at pages 31-32.

meet these targets will also 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.

Generally, the High Bridge Wind Project will help the state meet renewable energy and greenhouse gas emission reduction goals articulated in the SEP, REV and CES, and will provide other important environmental, social, and economic development benefits to New Yorkers by installing up to 100.8 megawatts (MW) of capacity that will supply clean renewable energy to the State's energy grid. Furthermore, the Applicant is considering pairing energy storage with the High Bridge Wind Project, which would help to further advance State energy goals and increase the project's overall contribution to State goals. For these and other reasons set forth below and elsewhere in the Application, there is ample evidence upon which the Siting Board can rely to make the required findings under NY PSL § 168(3) and determine that the Facility is consistent with state energy policy.

(1) Overview of State Energy Policies and Plans

New York State relies on a suite of public policy planning tools, including the SEP and, more recently, the REV and CES proceedings, to guide State actions and initiatives in the energy field, and to meet renewable energy generation and greenhouse gas emissions reductions targets. These tools and targets will continue to evolve as the State considers such proposals as the Green New Deal.

(i) State Energy Plan

In accordance with New York State Energy Law § 6-104, the New York State Energy Planning Board (NYSEPB) adopted the most recent a State Energy Plan in June 2015. The 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. The SEP aims to reduce statewide GHG emissions 40% from 1990 levels by 2030, and calls for 50% generation of electricity from renewable energy sources by 2030 (NYSEPB, 2015, p. 112).

The Guiding Principles of the SEP most relevant to large-scale renewable generation projects include but are not limited to:

- *Market Transformation* – regulatory reforms, initiatives, and programs will focus on market transformation, allowing for a new, integrated, and self-sustaining private sector-driven clean

energy market. To accelerate market transformation, State initiatives will focus on identifying, mitigating and removing market barriers to clean energy deployment, among other measures.

- *Private Sector Investment* – By removing market obstacles, New York will facilitate development of competitive markets, and will look to increase the leverage of private sector capital investment per ratepayer dollar.
- *Innovation and Technology* – New York will align energy innovation with market demand and support the growth of the clean energy economy.

Encouraging new renewable energy generation figures prominently in the SEP, which 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). The SEP aims to 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).

(ii) Reforming the Energy Vision Initiative

The Reforming the Energy Vision (REV) Initiative represents a broad effort by the Governor, the New York State Public Service Commission (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 broad 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.

To further the SEP's Guiding Principles, the REV Initiative has focused on more concrete short- and long-term actions, including:

- Making energy more affordable for all New Yorkers;
- Building a more resilient energy system;
- Creating new jobs and business opportunities;
- Improving existing initiatives and infrastructure;
- Cutting greenhouse gas emissions;
- Protecting New York's natural resources, and
- Helping clean energy innovation grow.

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.

(iii) Clean Energy Standard

In furtherance of the specific SEP goal 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 by awarding credits for each megawatt hour of renewable energy generated that contributes to the State's targets regardless of the fuel or project type. The system is designed to incentivize projects sponsors to keep their costs as low as possible in order to sell power profitably.

According to the PSC, the State needs 33,700 GWh of additional renewable generation to meet the 2030 50% renewable target (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 assumed 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). This represents approximately 33,700 gigawatt hours of new generation, which is projected

to include between 4,000 and 5,900 megawatts of new land-based wind energy (PSC, 2016a, pp. 4-3 to 4-4).

In its 2019 Power Trends report, the NYISO puts the State's wind energy generation capacity at 1,739 MW (NYISO 2019, pp 26), as compared with 1,461 MW which existed in 2015 when the SEP was adopted (See PSC 2016, Appendix G, pp. 21). At that pace—approximately 70 MW per year over the four intervening years since the SEP was adopted—it would take the State over 67 years, or until 2086, to meet its 50% by 2030 renewable goal.

Looking forward, NYISO estimates that approximately 4,313 MW in onshore wind generation capacity has been proposed in New York as of March 1, 2019 (NYISO, 2019). However, even if New York approved and built *all* of the on-shore wind energy proposed within the current NYISO queue before 2030, the State would still fall over 400 MW shy of its 2030 goals for new onshore wind development. Clearly, the State will need to attract significantly more onshore wind generation capacity—and to quickly and effectively advance those projects through required permitting processes—if it hopes to achieve its renewable generation goals. The High Bridge Wind Project will bring New York 100.8 MW closer to its targets, and on its own would contribute more onshore wind energy capacity than has been developed annually across New York State since 2015.

(vi) Energy Storage Targets

The SEP acknowledges the importance of encouraging development of energy storage technologies. "Energy storage technology will play a critical role in the . . . energy future by helping to improve reliability, reducing peak load, and enabling greater integration of intermittent renewable resources such as solar and wind" (NYSEPB, 2015, p. 100). Likewise, the CES Order declares that "[s]torage is a critically important component of the energy system that is both distributed and increasingly reliant on intermittent resources. Unlike other resources, the load shifting and fast response capabilities of various forms of storage resources allow them to provide simultaneous value as an energy and reliability resource" (PSC, 2016, pp. 103-104).

In June 2018, Governor Cuomo announced the New York Energy Storage Roadmap, which builds upon policies and initiatives set forth in the SEP, REV and CES as it relates to increasing energy storage infrastructure and thereby improving grid resiliency in New York. The Energy Storage Roadmap sets a target of 1,500 MW of energy storage by 2025. As stated in the Draft Generic Environmental Impact Statement prepared for NYSERDA and the PSC in Case 18-E-0130, In the Matter of Energy Storage

Deployment Program, this increase in energy storage is expected to result in positive environmental impacts. These include "reductions in peak load demand during critical periods, increases in the overall efficiency of the grid…[and] greater integration of renewable energy resources." When the PSC issued its December 13, 2018 Order establishing the State's energy storage goal at 3,000 MW by 2030, the Commission emphasized that "Energy storage will be acritical component in enabling renewables to provide the needed amount of penetration to reduce GHG emissions sufficiently to satisfy the CES and State Energy Plan targets."

(vii) Regional Greenhouse Gas Initiative (RGGI)

Established in 2009, the Regional Greenhouse Gas Initiative (RGGI) is a regional, market-based initiative designed to reduce greenhouse gas emissions across nine[2] northeastern and mid-Atlantic states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. Through RGGI, participant states agree to place a cap on GHG emissions from fossil fuel-fired electric power plants 25 MW in size or greater. Power plants are then given CO2 allowances, each equal to one ton of CO2, and can purchase additional CO2 allowances through auctions. Proceeds from the auctions are reinvested into energy efficiency and renewable energy programs. Studies have confirmed that RGGI's cap and trade emissions program has directly or indirectly resulted in lower GHG emissions levels across the region, accounting for as much as half of the region's emissions reductions achievements between 2009 and 2015.[3] In 2018, Governor Cuomo announced that New York's RGGI commitments would be expanded, as the State targets more and more aggressive carbon emission reduction goals.

In the first Recommended Decision issued for a renewable project under Article 10, the hearing examiners confirmed that wind projects contribute to RGGI's regional GHG emissions reduction goals, and the State's overall goal of reducing GHG emission 40% by 2030.[4] The High Bridge project will also contribute to the RGGI goal of reducing carbon emissions by adding up to 100.8 megawatts (MW) of clean energy generation capacity in the State of New York.

[2] The State of New Jersey was initially included in RGGI, but pulled out of the program in 2011. Recently, New Jersey lawmakers have proposed rejoining RGGI. Starting in 2017, Virginia also began taking steps to join RGGI, though the most recent state budget contains provisions which restrict the state's participation at this time. See Materials on New Participation, Regional Greenhouse Gas Initiative, Inc., https://www.rggi.org/program-overview-and-design/meeting-new-participation.

[3] Murray, Brian C. and Maniloff, Peter T., Nicholas Institute for Environmental Policy Solutions at Duke University, 51 Energy Economics 581-89 (2015), available at https://www.sciencedirect.com/science/article/pii/S0140988315002273; Ramseur, Jonathan L., The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Congress, Congressional Research Service (May 16, 2017), available at: https://fas.org/sgp/crs/misc/R41836.pdf.

[4] Recommended Decision in Case 14-F-0490, Cassadaga Wind pp. 152-53 (November 8, 2017).

(viii) Green New Deal

On January 15, 2019, Governor Andrew Cuomo announced plans for the launch of the Green New Deal (GND) in his State of the State address (Office of Governor Andrew M. Cuomo, 2019). This plan would accelerate NYS's clean energy goals and proposed aggressive targets: 70% renewable electricity by 2030 and 100% carbon-free electricity by 2040. In order to achieve these targets, the proposed plan calls for the following:

- Increasing New York's offshore wind target to 9,000 megawatts by 2035, up from 2,400 megawatts by 2030;
- Doubling distributed solar deployment to 6,000 megawatts by 2025, up from 3,000 megawatts by 2023;
- More than doubling new large-scale land-based wind and solar resources through the CES;[5]
- Maximizing the contributions and potential of New York's existing renewable resources; and
- Deploying 3,000 megawatts of energy storage by 2030 (in accordance with the PSC's goal).

A similar bill, the Climate and Community Protection Act (A.3876/S.2992) has been proposed by the State Legislature. That bill would codify the CES' 50% by 2030 renewable goal, and require a 100% reduction in human-caused GHG emission by 2050.

(2) Facility Consistency with State Energy Policies

The proposed Facility is consistent with State policies that encourage the development renewable energy projects, such as the SEP/REV, CES and the Green New Deal. The Facility, as proposed, will add up to 100.8 MW of clean New York-based renewable power into the grid. As set forth below, the Facility will advance the SEP/REV goal of cutting State GHG emissions 40% by 2030 and the proposed goals of significantly increasing the proportion of renewable energy generation in New York State. It will also advance the State's goals of transforming the energy market, encouraging private sector investment, increasing fuel diversity, and improving resiliency.

NYSERDA recognized the merits of the project when it awarded a contract to the Applicant as part of its 2018 Renewable Energy Standards (RES) solicitation for the purchase of renewable energy credits generated by the proposed Facility. NYSERDA's award is indicative of the Project's consistency with the State's Energy Plan and

[5] It appears that, to achieve this, the Governor's budget-based "Climate Leadership Act" calls on the PSC to modify the CES to require that all Load Serving Entities (LSEs) meet 70% of statewide electrical energy demand by 2030, and 100% of statewide electrical energy demand by 2050. See FY 2020 New York State Executive Budget (issued January 15, 2019) at page 240-41.

achieving 50% renewable energy by 2030. The contract also was awarded, in part, due to the energy storage component of this Facility and how the Facility and the energy storage proposal aligns with recent policy statements and goals to be established by the Commission.

Key Initiatives and Goals of the SEP which are advanced by the High Bridge Project include:

(i) Renewable Energy;

In the short term, the CES set renewable energy procurement targets for Load-Serving Entities (LSEs) beginning in 2017, and increasing each year through 2021 (PSC, 2016, p. 92). The State cannot reasonably hope to achieve these short-term targets without LSR projects such as the proposed Facility. In 2017, the percentage of LSE total load required to be sourced from *new* renewable generators was 0.6 percent, or about 974,000 MWh, which increases to 4.8 percent of LSE load, or 7.5 million MWh, by 2021 (PSC, 2016, pp. 92-93). The proposed Facility will contribute up to 100.8 MW, or roughly 308,000 MWh annually, toward the State's achievement of this goal.

Projects such as the High Bridge Wind Project are particularly important in the short term because other types of renewable energy sources cannot reasonably be expected to contribute significantly to achievement of State renewable energy goals. Other options such as new and/or improved hydroelectric, nuclear, anaerobic digesters or biomass will not be available on a large enough scale during the relevant period to contribute significantly to short-term renewable goals (PSC, 2016a, pp. 5-48 to 5-49, 5-55 to 5-56; PSC, 2016, pp. 30, 106 and Appendix A; PSC, 2016, Appendix G, pp. 36-43). Further, the CES does not anticipate that offshore wind facilities will be operational prior to at least 2023 (PSC, 2016, pp 61). In the near term, the High Bridge Wind Project offers the opportunity to add another 100.8 MW to the State's renewable portfolio.

(ii) Market Animation, Competition, and Innovation

Two guiding principles of the SEP/REV initiative are market transformation and private sector investment. Similarly, the CES sets 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). 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). The addition of large, distributed generation resources throughout the State such as the High Bridge project contributes to the SEP's goal of fostering more sustainable and resilient communities, and prompting investment in and modernization of existing electric infrastructure, and drawing investment in New York's clean energy economy.

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, 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)

As competition grows among renewable generators within and outside of New York, the Commission and others anticipate this market-based encouragement of growth and investment will ultimately drive down energy costs and encourage further 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 encourage 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 Applicant has already expended significant moneys to participate in New York's market, and expects to contribute millions more to the State, regional, and local economy over the lifetime of the project.

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. As more LSRs like the High Bridge Wind Project are constructed, market participants will have increased opportunities to compete and innovate, providing additional opportunities for skilled jobs in these fields. The growth of wind energy has already had a marked impact on innovation, as newer, more efficient, quieter wind turbines are developed to take better advantage of available resources in a less impactful manner.

Further, the High Bridge Wind Energy Project is contemplating the use of energy storage as part of the Facility, which would advance the New York Energy Storage Roadmap by providing both renewable generation and significant energy storage and will contribute up to 20 MW toward the State's energy storage goals.

Finally, achieving the goals set forth by the GND would require an even greater commitment to increasing renewable generation capacity. The proposed Facility will make a critical contribution toward meeting these goals, particularly as the State ramps up its renewable generation commitments toward 70% renewables by 2030, and beyond.

(b) Impact on Reliability

An 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 which

does not depend excessively on a single fuel source to fulfill all of its needs. 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). The Siting Board acknowledged these benefits in its recent order granting a CECPN to Cassadaga Wind for its proposed Article 10 wind project when it declared that the facility would "serve the goals of improving fuel diversity, grid reliability, and modernization of grid infrastructure" (Cassadaga Order, 2018, p. 15). 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).

The SEP's core sustainable and resilient communities initiative stresses the need to ensure a more modern, reliable and resilient energy grid. As of 2015, 81% of the State's power generators were more than 16 years old, and 60% were 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).

The battery storage component of the Facility will further enhance the resiliency and reliability of the State's energy system. Wind energy facilities generate electricity only when wind is blowing above certain speeds; this period of generation does not always correspond to periods of peak electricity demand. Energy storage systems such as the proposed battery storage unit at the proposed Facility can help manage the variability of this intermittent resource by storing production when demand is lower and then releasing electricity when demand is higher. Energy storage systems thus could "support greater renewable energy penetration while maintaining grid reliability" (NYISO, 2017, p. 8). Such systems also "could enable further penetration of renewable resources by storing renewable energy for delivery when the transmission system is not constrained" (NYISO, 2017, p. 9).

More generally, because energy demand is not consistent, sufficient supply must be maintained to meet peak demand. As noted above, the Facility's battery storage system will potentially help the system manage peak demand by storing excess supply and deploying it during periods of greater demand. Energy storage also has the potential to improve reliability. The energy grid must be designed to meet annual project peak load plus a minimum reserve margin requirement to account for unanticipated outages. Storage could "help meet annual peak demand in the energy market" and "improve system reliability" (NYISO, 2017, p. 12). Other potential benefits of the planned battery storage system include: providing a means of quickly ramping generation up and down; providing reserve services to be tapped in response to unplanned events that jeopardize system reliability; and providing voltage support (NYISO, 2017, pp. 12-15).

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

As noted in the discussion of resiliency and reliability in Section (b), the Siting Board specifically declared in the recent Cassadaga Order that the Cassadaga Wind Project would "serve the goal[] of improving fuel diversity" (Siting Board, 2018, p. 15). 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. This improves system resiliency, and allows the State to recover more quickly from significant disruptions to the grid.

The New York electric utility system relies on supply from numerous fuel sources, including natural gas, hydroelectric, nuclear, wind, solar, oil, and coal, as well as interconnections with its neighbors and demand-response resources. According to the NYISO *2019 Load and Capacity Data* (also known as the "Gold Book"), total in-state electricity generating capacity in New York State available for the summer of 2019 will be 39,395 MW (NYISO, 2019, pp 22). 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. 2019 Installed Summer Generating Capacity by Fuel Type In New York State[1]

Generator Fuel Type	2018 Capacity (MW)	Percent of Total Capacity
Gas	3,777	9.6
Oil	2,407	6.1
Gas and Oil	19,112	48.6
Coal	837	2.1
Nuclear	5,400	13.7
Pumped Storage	1,411	3.6
Hydro	4,253	10.8
Wind	1,739	4.4
Other	358	<1
Total	**39,294**	**100**

[1]Data are from NYISO *2019 Load and Capacity Data,* Table II-1a (NYISO, 2019).

Despite development of wind energy facilities over the past two decades, wind energy currently comprises only 4.5 percent of total generating capacity in New York State. Development of the Facility would add up to an additional up to 100.8 MW to the existing 1,739 MW of generating capacity from wind projects in the State,[6] thus helping to diversify New York's energy economy.

(d) Impact on Regional Requirements for Capacity

The regional capacity requirements of New York's wholesale electricity markets and location-based pricing 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, Long Island, and in the Lower Hudson Valley. Other additions to New York's power-producing resources are determined by physical factors, such as the suitability of wind conditions in the State and the existence of nuclear and hydropower plants in upstate regions that can be upgraded (NYISO, 2014). Siting for the proposed Facility was driven by wind resources and the availability of land on which to construct wind turbines.

The Facility is located in NYISO Zone E. Upstate New York as a whole, which includes NYISO Zones A-E, has a total generating capacity of approximately 14,288 MW, but a peak electric load of 9,000-10,000 MW (NYISO, 2019). The Facility is proposed in south central New York because that region offers an available wind resource to be harvested, available land, and sufficient transmission capacity to deliver 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 the western and northern portion of the State, 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).

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 the addition of the Facility, as discussed in Exhibits 5, 8, and 34. The proposed operation of a battery storage system will allow excess energy to be diverted from the transmission system to the batteries during periods of surplus generation or constraints on the local transmission system. The battery storage system will enable deployment of that stored energy later, to match demand.

[6] As of April 2019, based on 2019 NYISO Gold Book.

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 115 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 that 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 reduce the overall demand for fuel, easing fuel delivery constraints and advancing the SEP's goal of 50% generation from renewables by 2030.

(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 SEP is discussed in Sections (a) through (c) above. As these sections make clear, development of the Facility is consistent with a number of State mandates, particularly those related to renewable energy development, market animation, fuel diversity and reliability and resiliency. 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. NY 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 from 1990 levels 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 High Bridge Wind Project. The SEP also calls for 50% of generation of electricity to come from renewable energy sources by 2030. This goal has since been accelerated by the GND to 70% renewable energy by 2030 and 100% by 2040. The Facility

also advances other specific SEP/REV goals, such as protecting New York's natural resources; helping grow clean energy innovation; creating new jobs and business opportunities; and helping meet 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). 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 effects of climate change.

For New York to achieve the State's GHG emission 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]). The primary method for achieving the required emissions reductions in the short term: substantially increasing renewable generation (NYSCAC, 2010, pp. 8-10).

As discussed in Section (a) above, the proposed Facility has the potential to contribute up to 100.8 MW of wind electricity generation capacity toward achieving the State's renewable energy goals. The Facility will generate this electricity without producing GHG emissions, thereby advancing the SEP goal of reducing GHG emissions 40% by 2030.

Also, as discussed in Exhibit 17, the Facility will produce no direct emissions of air pollutants such as nitrogen oxides and sulfur dioxide. 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).

(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]). This concept was confirmed in the Cassadaga Order which declared that the "goals of the SEP are not restricted to renewable electricity consumed within the state, but are also oriented toward national and international goals of reducing carbon and transforming the energy industry" (Siting Board, 2018, p. 16). 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. 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.

The regional nature of the electric market underlies the Regional Greenhouse Gas Initiative, which establishes a multi-state GHG emission cap-and-trade program covering major fossil fuel-fired electric generating facilities in the Northeast. Regulated entities can satisfy their obligations under the program either by reducing their own emissions or by acquiring credits from facilities in other states. As the Siting Board recently acknowledged in the Cassadaga Recommended Decision, "[b]ecause the Project will operate without generating any direct greenhouse gas emissions, it will help New York achieve the SEP's goal of reducing greenhouse gas emissions 40% by 2030 and the RGGI's regional emissions goals" (Siting Board, 2017, p. 153). The same thing can be said of the proposed Facility.

The Applicant proposes to sell renewable energy from the Facility into New York, and participation in New York's energy markets will have a broad 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 Environmental Justice Area is approximately 4.5 miles from the Facility Site and features two adjacent census block groups within the City of

Norwich. Both block groups are designated because significant portions of the population have household incomes below the federal poverty level (American Fact Finder, 2010). No impacts to Potential Environmental Justice Areas are anticipated.

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

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, as discussed in Section (a) above. "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).

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 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 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 operation, 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 proposed 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 the High Bridge Wind Project.

The Applicant's proposal to incorporate battery storage into the proposed Facility represents a significant technological advance. The Facility is among the first large-scale wind energy facilities in New York State to propose energy storage as part of the project. The Facility will serve as a model for other LSRs in the State and nationwide.

(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 not contribute to the State's GHG reduction and renewable energy goals articulated in the SEP, REV and CES.

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

Why the proposed location and source best promotes public health and welfare is discussed in Exhibit 9. Additional discussion of the Facility and public health and welfare is included in Exhibit 2(e).

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