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Senior Vice President – General
Counsel and Secretary of AVANGRID,
Inc.

SENT VIA EMAIL

October 2, 2020

Mr. Zachary Smith
Vice President, System & Resource Planning
New York Independent System Operator
10 Krey Boulevard
Rensselaer, New York 12144

**Re: Response of AVANGRID, Inc. to New York Independent System Operator
Solicitation of Proposed Transmission Needs Being Driven by Public Policy
Requirements for the 2020-2021 Transmission Planning Cycle**

Dear Mr. Smith,

Please accept the attached submission from AVANGRID, Inc. in response to New York Independent System Operator Solicitation of Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2020-2021 Transmission Planning Cycle.

Respectfully Submitted,

A handwritten signature in black ink that reads "R Scott Mahoney".

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October 2, 2020

AVANGRID, INC. RESPONSE TO NEW YORK INDEPENDENT SYSTEM OPERATOR SOLICITATION OF PROPOSED TRANSMISSION NEEDS BEING DRIVEN BY PUBLIC POLICY REQUIREMENTS FOR THE 2020-2021 TRANSMISSION PLANNING CYCLE

AVANGRID, Inc. (“Avangrid”)¹ submits this response to the August 3, 2020 Public Policy Requirements solicitation associated with the New York Independent System Operator’s (“NYISO”) Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2020-2021 Transmission Planning Cycle. As described below, Avangrid identifies herein Public Policy Requirements associated with the New York State Public Service Commission’s (“NYPSC”) Clean Energy Standard (“CES”), New York State Climate Leadership and Community Protection Act (“CLCPA”), Accelerate Renewable Energy Growth and Community Benefit Act (“AREGCBA”), the New York State Energy Research and Development Authority (“NYSERDA”), the staff of the New York State Department of Public Service (“DPS or Staff”) White Paper on Clean Energy Standard Procurements to Implement New York’s CLCPA, and the New York Independent System Operator (“NYISO”) Congestion Assessment and Resource Integration Study (“CARIS”).

PUBLIC POLICY REFERENCE

The Clean Energy Standard

On August 1, 2016, the NYPSC issued its Order Adopting a Clean Energy Standard. The order adopted the goal of the State Energy Plan that 50% of the electricity used in New York State will be generated by renewable sources by 2030. The order also confirmed the related goal of preserving existing zero-emissions nuclear generation resources as a bridge to the clean energy future. To achieve these goals, the order requires every load serving entity in New York State to procure qualifying Renewable Energy Credits (“RECs”) and Zero-Emissions Credits (“ZECs”) in quantities that satisfy the mandatory minimum requirements established by the order.²

¹ AVANGRID, Inc. (NYSE: AGR) is a leading, sustainable energy company with \$32 billion in assets and operations in 24 U.S. states. AVANGRID has two primary lines of business: Avangrid Networks and Avangrid Renewables. Avangrid Networks owns eight electric and natural gas utilities, serving 3.2 million customers in New York and New England. Avangrid Renewables owns and operates 7.5 gigawatts of electricity capacity, primarily through wind power, with a presence in 22 states across the United States. AVANGRID employs approximately 6,500 people. AVANGRID supports the U.N.’s Sustainable Development Goals and was awarded Compliance Leader Verification by Ethisphere, a prestigious third party verification of its ethics and compliance program.

² Order to Adopting a Clean Energy Standard at 2 (Aug. 2016), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={44C5D5B8-14C3-4F32-8399-F5487D6D8FE8}>

The Climate Leadership and Community Protection Act

In July 2019 Governor Cuomo increased the target of 50% by 2030 by signing into law the CLCPA. This new law, which included economy-wide reduction targets in greenhouse gas emissions, increased the climate goals for the electric grid set by the CES by setting the target of renewable energy generation to 70% by 2030 and 100% by 2040. The CLCPA also sets specific targets for solar photovoltaic, energy storage and offshore wind. For solar PV, the target is set at deploying 6 GW of generation capacity by 2025; for energy storage, the target is set at 3 GW of capacity by 2030; and for offshore wind the goal is set at 9 GW of installed capacity by 2035. The interconnection of all these elements is necessary to achieve the high levels of renewable generation set by the CLCPA.

The Accelerate Renewable Energy Growth and Community Benefit Act

In April 2020, recognizing the need for significant investment to meet the CLCPA targets, New York passed the AREGCBA. This law is designed to “improve and streamline the process for environmentally responsible and cost-effective siting of large-scale renewable energy projects across New York.” Specifically, per NYSERDA, the act “creates a State Power Grid Study and Investment Program to identify investments in distribution and local and bulk transmission necessary to meet the State’s requirements under the Climate Leadership and Community Protection Act” and “authorizes an expedited permitting process for transmission projects that are planned for existing rights-of-way.”

NYSERDA and DPS staff White Paper

Reaching the target of 70% by 2030 and the specific targets on solar, storage and offshore wind will require a significant investment in new renewable generation capacity. The latest White Paper by NYSERDA and the DPS staff suggests that nearly 43 TWh of incremental renewable generation will be needed by 2030 to meet the CLCPA target and attempts to define the renewable energy technology eligibility to achieve it. The White Paper aims to redefine procurement targets for the Tier 1 large-scale renewables and expand the eligibility to facilities undergoing repowering, sets a procurement schedule for offshore wind renewable energy credits, includes baseline hydro power into competitive Tier 2, creates a Tier 4 for large-scale renewables delivered into NYC, and ensures that disadvantaged communities realize the maximum number of benefits from all these initiatives.

New York Independent System Operator Congestion Assessment and Resource Integration Study

The highlight of the latest CARIS report, published in July 2020, is the “70x30” scenario, which is based on the policies set forth in the CLCPA. This 2019 state law mandates that 70% of New York State’s end-use energy be generated by renewable energy systems by

2030 (“70x30”). The scenario models two hypothetical buildouts of renewable energy facilities and identifies transmission-constrained pockets throughout New York State that could prevent full utilization of that renewable energy.³

ONGOING STUDIES DRIVEN BY PUBLIC POLICY

Stemming from the policy requirements, several studies are underway that will inform and facilitate the implementation of the goals set by the policy drivers.

No	Study	Objective	Conducted by
1	Local Transmission Study (T)	Determine local transmission upgrades (200 kV and below) to accommodate CLCPA	NY TOs
2	Local Transmission Study (D)	Determine distribution upgrades to accommodate CLCPA	NY TOs
3	100/40 Studies	Resource Planning (Aurora) and Production Cost Simulation that determine 1) Resource Portfolio to meet 100/40 goals 2) Flexible capacity requirement 3) Potential congestion 4) Bulk transmission upgrades 5) Anticipated system performance 6) Other needs i.e. storage requirements etc	NYSERDA/Siemens
4	Wind Integration study	The upgrades to accommodate OSW	NYPA & DPS
5	High Priority Upgrades	Determine high priority bulk system upgrades	NYPA
6	70/30 CARIS Studies	Production cost simulation that determine potential congestion and future system conditions	NYISO
7	2020 NYISO RNA	Reliability analysis to evaluate potential reliability issues driven by 70 by 30 generation assumptions	NYISO
8	NYSERDA Build Ready	Determines the sites that should be easier to interconnect (easier to permit, less upgrades required). Once the sites are determined, they will be auctioned off	NYSERDA
9	Distributed System Implementation Plan	Optimize utility and third-party hosting capacity, interconnection and integration of DER, enablement of a statewide EV charging network, solicitations to acquire energy storage, energy efficiency programs, and heat pump implementation plans	NY TOs

³ 2019 CARIS Report

<https://www.nyiso.com/documents/20142/2226108/2019-CARIS-Phase1-Report-Final.pdf/bcf0ab1a-eac2-0cc3-a2d6-6f374309e961?t=1595616909286>



IDENTIFIED PUBLIC POLICY NEEDS

Given the ambitious climate goals of New York State, Avangrid is particularly concerned with issues regarding the limited availability of transmission and distribution infrastructure to effectively integrate new renewables while reducing the risk of curtailment and elevated levels of congestion.

As the grid in the state of New York stands, there is a clear difference in deliverability of generation between the upstate and downstate regions. As the development of land-based renewables continues, the gap will grow and the congestion in the system that prevent clean energy from flowing through the state will intensify. Transmission solutions are required, starting in the short term, to avoid curtailment of renewable generation and to increase access to renewables in areas of low resource availability. These solutions should also take into consideration that deliveries from offshore wind generation are expected to commence in the medium term, and ramp up over several years as the State advances towards its 9,000 MW offshore wind by 2035 target. The transmission grid of the future should provide the flexibility needed to ensure the future resource mix (land-based wind, solar, off-shore wind, storage, etc.) meets the energy needs of the whole state. Geographic diversity of intermittent resources will allow for a more uniform energy output, optimal use of the grid and increase reliability. Given the complications associated with planning a state-wide grid of the future, Avangrid urges the NYISO to utilize every technical resource at its disposal to evaluate the transmission alternatives, including NYSERDA, DPS, NYPA, LIPA and the transmission owners.

There are many initiatives to incentivize the reduction of curtailment, including NYSERDA's proposal to procure RECs at \$0 when the LBMPs are negative. Nevertheless, the transmission constraints that cause curtailment and congestion and limit the ability for renewable energy projects to be economically developed are what need to be fixed. The Order on Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act, together with the NYPA evaluation of the bulk transmission system present valuable opportunities to identify constraints in the system.

The procurement of Offshore wind is a key element for the state of New York to achieve its 70 by 30 goals and transmission should be planned accordingly. The two initial procurement phases of Offshore Wind have used the generation lead-line approach, not allowing for optimal use of the limited amount of interconnection points on Long Island and into New York City. This burden is now on the generators who have to carry-on with the development of large and complex infrastructure projects that will be put into service in years from now. For these reasons, Avangrid encourages the NYISO to incentivize the State to pursue a planned strategy for offshore wind transmission, that will not only allow for existing projects to interconnect within a more robust network to avoid curtailments but that will also allow future projects to contribute to the system's reliability and resiliency

without limitations.

In addition, given the climate commitments of the State of New Jersey, a planned approach could allow for a coordinated development of the transmission system for offshore wind with increased efficiency and scale.

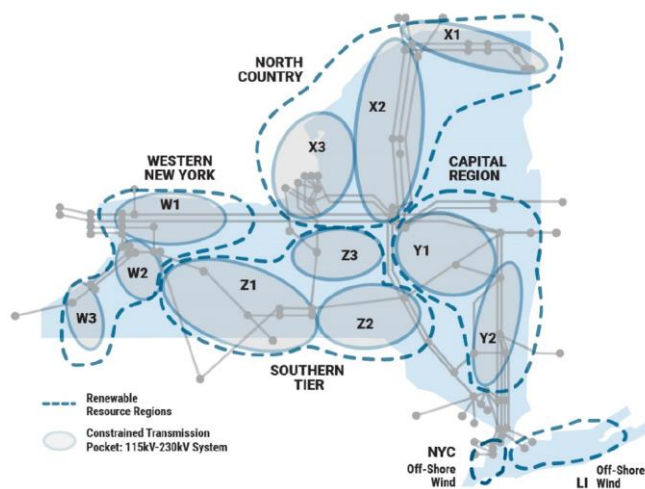
Bringing renewable energy into New York City, the largest load area in the state, is a crucial element of the climate goals implementation plan. The approach to solving for the “Tale of Two Grids” and cleaning the generation mix of Zone J is more complex than only releasing constraints on certain interfaces or only injecting renewables directly into Zone J. The solution should be a combined one. Zone J represents 33% of energy demand in the state and has a large percentage of its energy supply produced by fossil-fueled resources located within the zone. Many of these fossil-fueled generators will need to be replaced by clean sources for the State to meet its climate goals. The injection of renewables into Zone J will be necessary to satisfy the large demand caused by replacement of the aging fleet of fossil generation and higher electricity demand due to electrification. Transmission solutions that increase energy flow between upstate and downstate NY will reduce the need for difficult-to-site in-zone resources and provide benefits to the whole state. The need for direct injection into Zone J should be alleviated by state-wide grid development in a coordinated approach.

PROPOSED TRANSMISSION NEEDS

As noted above, the transmission studies being performed by the different state agencies, as well as those performed internally by Avangrid, all agree on the transmission needs described below.

Transmission expansion to reduce Congestion

As mentioned in the NYISO 2019 CARIS Study 70 by 30 scenario and reiterated in the section above, congestion is the main driver of curtailment for in-state renewables. Solving for congestion will not only allow for more efficient injection of renewable energy, but also send a positive signal to renewable projects in the queue that are reluctant to get in the class year to avoid curtailments. Congestion reduction should then be assigned a large weight in the evaluation criteria.



Source: NYISO 2019 CARIS Study – Key Findings 70x30 scenario

From the key findings in the 2019 CARIS study, when considering the level of renewable injection to reach the CLCPA goals, pockets of renewables start to form, as shown in the figure above, because of transmission constraints that prevent them from reaching load in other areas. Western New York (Pocket W) shows constraints, mainly in the 115 kV system in the Buffalo and Rochester areas. Similarly, the Southern Tier (Pocket Z) constraints appear mainly in the 115 kV facilities around the Finger Lakes area. Finally, offshore wind that interconnects in Zones J and K cannot be delivered to the rest of the state because of transmission constraints. As the NYISO itself stated, in each of the five major pockets observed, renewable generation is curtailed due to the lack of sufficient bulk and local transmission capability to deliver the power. The results support the conclusion that additional transmission expansion, at both bulk and local levels, will be

necessary to efficiently deliver renewable power to New York consumers.⁴

Upgrades on the transmission system using HVDC Technology

HVDC transmission introduces more flexibility into the system. This flexibility will enable the system to better deliver variable renewable resources.

Since HVDC is decoupled from the alternating current (AC) system, the transfer from the host to client regions can be achieved with minimal impact on the underlying AC transmission system of the host region. Further, because HVDC has relatively low losses over long distances, the distance between the host and client regions does not affect the ability to derive the renewable integration benefits.⁵

An evaluation of long-distance transmission technologies should be done to determine the function of distance, voltage, and power transfer that makes HVDC viable. Solutions that hit the right function should be considered as bringing additional value to the grid and therefore receive a premium on the evaluation criteria.

Offshore Grid

Timely, cost-effective transmission solutions are essential to meeting the CLCPA's offshore wind target 9 GW by 2035. Near-term solicitations are best served by the current generator lead line approach given that developers will most likely be matching project generation size to the maximum available transmission solutions. However, future projects can likely benefit from independent transmission solutions in the following:

- (1) New York Bight Transmission: NYISO should coordinate with NYSEDA the development of a competitive process to serve future New York Bight lease areas from an interconnection point in Zone J. This process could begin very soon which would de-risk the challenge generators face delivering energy from the New York Bight lease areas. This process should be well coordinated with BOEM. In addition, any proposed competitive process associated with independent transmission solutions should include a mechanism to evaluate multiple viable options from both independent transmission solutions compared to joint developer and transmission partners hybrid proposals in order to determine the most cost-effective, efficient implementation associated the

⁴ NYISO Business Committee - 2019 CARIS 1 Report

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi4g--KjIzsAhXBneAKHYI2BGIQFjAAegQIBhAB&url=https%3A%2F%2Fwww.nyiso.com%2Fdocuments%2F20142%2F13246341%2F2019_CARIS_BIC_Presentation.pdf%2F6db6fc2c-36d7-36eb-8097-96b6687f252c&usg=AOvVaw0tRcdQEa1N5tt9PN9lg8H1

⁵ USEIA - Assessing HVDC Transmission for Impacts of Non-Dispatchable Generation

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwifso63g4XsAhWtLHIEHRprDPQQFjAOegQICRAB&url=https%3A%2F%2Fwww.eia.gov%2Fanalysis%2Fstudies%2Felectricity%2Fhvdctransmission%2Fpdf%2Ftransmission.pdf&usg=AOvVaw0T4Xh3681MP2frVtMddLWq>

- proposed offshore wind procurement schedule.
- (2) Future Competitive Independent Transmission Solutions: As offshore wind projects provide supply over time it is likely that some “stranded” lease areas will evolve. These areas may have reduced generation capacity as they develop other projects over time. It is also possible that some future New York Bight lease areas may be sized such that they would benefit from competitive independent transmission solutions which can efficiently accommodate multiple generation sites. The NYISO should monitor the evolution of lease area generation potential to appropriately plan for beneficial competitive, independent transmission solutions in the future to improve integration with the onshore grid.

New York has made great progress in the procurement of Offshore Wind energy so far, having ongoing processes that represent important initial steps towards the 9 GW target of the CLCPA. To achieve the remaining 4.7 GW of power to reach the end goal, a more holistic approach to offshore transmission should be taken instead of continuing with business as usual. Avangrid recommends that independent transmission solicitations occur to develop an offshore transmission system that would optimize the number of points of interconnections (“POIs”) into Zone J and K. The results of a comprehensive and planned approach to offshore transmission would allow for full optimization of the New York grid and the State would realize the benefits from potential reduced costs, environmental and social impacts, as well as increased efficiency in the offshore/onshore integration. The associated risk of developing transmission interconnections currently resides with the offshore wind developer, and a new model that utilizes early planning and siting of transmission grid improvements for offshore wind may create efficiency, reduce offshore developer risk, and benefit all participants including the State and electric customers, not to mention achieving the goals set by the CLCPA.

Long Island Grid Improvements

Long Island is a geographically privileged area for interconnection of offshore wind, nevertheless, the grid within its territory shows many weak elements that hinder the deliverability of any generation that might interconnect to it. As LIPA well identified in its Proposed Public Policy Transmission Needs for Consideration for 2018, “there is a need to increase the export capability of the LIPA-Con Edison interface, which connects Zone K to Zones I and J. There is also a need to upgrade the existing 138 kV transmission “backbone” between the Ruland Road and East Garden City substations to 345 kV to enable full deliverability of the OSW unforced capacity across LIPA’s system. The foregoing transmission needs are driven by the interconnection of OSW to LIPA’s system, regardless of the specific locations at which the OSW projects may be.”⁶

⁶ LIPA - PSC Case 18-E-0623 - In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2018
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={C1EA5DA5-C581-4136-84B5-146CB9C5675D}>

PROPOSED EVALUATION CRITERIA

When considering the evaluation criteria that should be implemented in the process, the ultimate goal is to award the projects that best solve for the identified needs and aid the State in reaching its climate goals. To this end, Avangrid is aligned with NYPA and DPS' criteria for evaluation of transmission projects, as described in the Petition Requesting Adoption of Criteria for Guiding Evaluation of Whether a Bulk Transmission Investment Should Be Designated as a Priority Transmission Project, and for Designation of Certain Transmission Investments in Northern New York as a Priority Transmission Project. In that sense, Avangrid recommends as evaluation criteria:

1. The transmission project's potential for unbottling existing renewable generation for delivery to load centers in the State;
2. The transmission project's potential for avoiding future congestion that could impede delivery of expected renewable energy to load centers in the State, specifically:
 - a. Reduction of onshore generators' interconnection costs
 - b. Reduction in projected lead line interconnection costs for offshore generators
 - c. Reduction in projected average system-wide LMPs
3. The transmission investment's potential for increasing the deliverability of existing and anticipated baseload renewable or low carbon generation in the State, thereby increasing the efficiency of existing and new renewable projects to meet demand and/or the CLCPA Targets;
4. Whether an early in-service date for the transmission investment would:
 - a. increase the likelihood that the State will meet the CLCPA Targets; and/or
 - b. enhance the value of recent, ongoing or anticipated distribution, local transmission, and/or bulk transmission investments, and/or help the State realize benefits from such investments;
5. The ability of the transmission investment to progress expeditiously based on such factors as the planning and design status of the transmission investment, and the transmission investment's eligibility for expedited review under Article VII and its implementing regulations;
6. The ability of transmission developers to expedite development, considering such factors as:
 - a. Availability of transmission rights of way and transmission assets;
 - b. Access to other property for siting of the transmission investment, including State-owned or controlled property;
7. The Developer's financial resources and access to capital
8. The use of innovative technology
9. In-state economic development

CONCLUSION

Avangrid shares the concern of the NYPSC⁷ regarding the need to restructure and repurpose the State's electric transmission and distribution infrastructure to achieve the CLCPA climate targets and recognizes the potential for the PPT process to help achieve those targets. Significant future investment will be required to maintain grid stability and system resiliency to avoid dire situations as those being faced nowadays by system operators like CAISO. Avangrid understands that situations like the one faced by CAISO, are not only a consequence of transmission and distribution limitations, but also of resource adequacy and markets design among others, nevertheless transmission and distribution do play a significant role in allowing the system to operate safely and reliably.

To ensure an efficient grid development, transmission owners and state agencies need to share the responsibility of the most urgent and significant system upgrades in a collaborative way. The PPTPP is a relevant element of grid planning that should be utilized to develop these urgent and significant system upgrades given that it allows for an open, competitive approach to develop new transmission infrastructure with innovative solutions to solve transmission needs. Solutions that otherwise wouldn't fall into other transmission expansion categories.

Good examples of those transmission needs are projects driven by economic efficiency in policy implementation and the offshore grid development. Projects aiming to improve system inefficiencies can be developed on a longer timeframe as benefits will show up over a longer time horizon without impacting the reliable operation of the system. Avangrid suggests a larger, more comprehensive analysis of the future grid, with special care on evaluating numerous potential future generation scenarios that should consider all necessary aspects to ensure the reliable and safe operation of the grid.

⁷ CASE 20-E-0197 Order on Transmission Planning Pursuant to the accelerated Renewable Energy Growth and Community Benefit Act