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RE: Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2022-2023 Transmission Planning Cycle

In response to the *Request for Proposed Transmission Needs* issued by the New York Independent System Operator ("NYISO") on August 31, 2022[1], AES Clean Energy ("AES") is submitting these comments on public policy transmission needs. AES understands and appreciates the important role of effective electric transmission in achieving the climate mandates of the Climate Leadership and Community Protection Act ("CLCPA") and ensuring a reliable electric grid for all communities in New York.

AES was founded in 1981 and is a U.S.-based Fortune 500 global energy company with headquarters in Arlington, Virginia and offices in many locations in the U.S., including New York City. AES owns and operates a portfolio of more than 4.4 GW of renewable energy projects including more than 400 utility-scale and community solar, wind, energy storage and hybrid projects across 21 states. With more than two decades of experience working in New York, AES operates 60 projects with more than 851 MW of nameplate capacity. AES's development portfolio in New York includes more than 2 GW of utility-scale solar, 50 MW of community solar, and 400 MW in storage capacity. AES owns and operates Valcour Wind, a portfolio of 612 MW of operating wind projects. AES is motivated to lead the industry in developing and growing solutions that will enable the transition to carbon-free sources of energy and achieving the CLCPA goal of 70% renewable energy by 2030 and 100% renewable energy by 2040. AES values the opportunity to demonstrate the importance of public policy solutions in meeting reliability and climate goals for the State.

[1] https://www.nyiso.com/documents/20142/1406936/2022-2023-Notice-Requesting-Proposed-PPTNs.pdf/248b1c15-d54f-cb81-0ae5-ce153e5b8e84.

## I. Introduction

AES commends the NYISO for its *2021-2040 System & Resource Outlook* report ("the Outlook")[2], which provides a comprehensive examination of the infrastructure needed to achieve the goals of the CLCPA, and it also commends the New York Public Service Commission for its leadership in requiring the regulated utilities to take steps to strengthen and expand the transmission system to facilitate the development of the carbon-free resources needed under the CLCPA. According to the Outlook, New York will need between 111 GW and 124 GW of total installed generation capacity by 2040, with 95 GW from new projects or modifications to existing projects[3], to reliably operate the grid. AES recognizes that balancing the interests of all stakeholders is a huge challenge, but a necessary one for a successful transition to renewable energy. AES appreciates the opportunity to offer its perspectives on the Public Policy Requirements[4] that drive the need for transmission in New York.

## II. Public Policy Requirements Driving the Need For Transmission

The Public Policy Requirements that are driving the need for transmission in New York are: 1) curtailments and constraints on renewable electricity generation; 2) system reliability; 3) the potential failure to meet the goals of the CLCPA as a result of inadequate transmission; and 4) public health, safety, and welfare of all New Yorkers including those living in the major load center of New York City. In Section III, AES describes where it has identified renewable resource pockets with transmission needs that support the Public Policy Requirements; 1) North Country: Watertown/Oswego/Porter Renewable Pocket, 2) Southwest/Southern Tier Renewable Pocket, and 3) New York City.

AES agrees with the Outlook's observation that the New York State bulk and local transmission system, at present, will not be able to achieve the State's policy objectives.[5] In addition to the current projects, the new renewable energy projects projected to come online before 2026 will make transmission congestion worse in the entire state by 23% by 2030 and increase local transmission constraints for renewables and other dispatchable resources.[6] Specifically, 5 TWh of renewable energy could be curtailed in 2030 and 10 TWh could be curtailed in 2035, thus causing a reduction of 5% of renewable energy production which would not count towards the CLCPA goals.[7] As stated by NYISO in the *2021-2040 Resource & System Outlook Appendices* ("the Appendix"), the congested paths shown in the *New York Renewable Generation Pocket Map*[8] are from lower voltage networks and are close to the renewable energy generation. Congestion on lines around these zones could result in curtailment of the renewable generation resources in those

[2] https://www.nyiso.com/documents/20142/33384099/2021-2040-Outlook-Report.pdf/a6ed272a-bc16-110b-c3f8-0e0910129ade?t=1663848567361.
[3] *Id.* at p.58.
[4] https://www.nyiso.com/documents/20142/1406936/2022-2023-Notice-Requesting-Proposed-PPTNs.pdf/248b1c15-d54f-cb81-0ae5-ce153e5b8e84
[5] The Outlook at p. 5.
[6] *Id.* at p. 6.
[7] *Id.* at p. 14.
[8] *Id.*

areas. 99% of renewable energy generation is in congested zones.[9] Despite the recent approval of bulk transmission projects upstate, "several renewable generation pockets across the State are projected to persist, which could constrain output from renewable resources, including production from offshore wind."[10]

In addition to the transmission curtailment and constraint concerns expressed above, there is a Public Policy Requirement to reduce dependence on fossil fuel generation that is driving a need for transmission to ensure that New York and specifically the major load center of New York City (NYC), will be powered from renewable energy as part of the CLCPA. In addition to, and in support of, the CLCPA, New York policymakers have made robust efforts to reduce carbon-emitting sources of energy. Fossil fuel generators that will be retired under the DEC "Peaker Rule," (combating nitrogen oxide emissions from fossil fuel combustion-based turbines[11]); by 2023 and 2025, will affect approximately 3,300 MW of peaking unit capacity in the State, mainly affecting the lower Hudson Valley, NYC and Long Island.[12] The Climate Action Council's *Draft Scoping Plan*[13], required by the CLCPA, calls for eliminating the use of fossil fuels in any new home construction by 2025, and for multi-family or commercial buildings by 2030.[14] NYC has moved to prohibit certain fuel oils that would impact 2,946 MW of generation capacity in a fossil-intensive municipality.[15] And, per NYC's Local Law 97, numerous buildings would require electrification of or significant reduction of greenhouse emissions.[16] New York has made it clear that the policy-supported transition from fossil fuel generation to renewable energy is a priority and a Public Policy Requirement. Future renewable energy projects that are slated for development are largely in upstate zones (Zones A-E)[17]. Currently 88% of electricity supplied upstate is from renewable sources, while downstate zones (Zones F-K)[18] are supplied from 69% fossil fuels.[19] The renewable generation will be built upstate, but it is geographically and electrically distant from the load centers downstate.[20] Bulk and local transmission can be constrained in delivery of the clean energy from upstate zones to NYC-area zones,[21] and AES believes additional transmission will be needed beyond the awarded NYSERDA Tier 4 (NYC generated or delivered) Renewable Energy Certificate (REC) projects.

[9] https://www.nyiso.com/documents/20142/32810936/2021-2040_System_Resource_Outlook_Appendix_DRAFT_v11.pdf/5c62b8a3-5ecf-cc8d-fe32-ffc4a5eec46e. The Appendix at p. 241.
[10] The Outlook at p. 29.
[11] https://www.nyiso.com/documents/20142/2223020/2022-Power-Trends-Report.pdf/d1f9eca5-b278-c445-2f3f-edd959611903?t=1654689893527. Power Trends 2022 at p. 21.
[12] Power Trends 2022 at p. 23.
[13] https://climate.ny.gov/Our-Climate-Act/Draft-Scoping-Plan.
[14] Power Trends 2022 at p. 20.
[15] *Id.* at p. 21.
[16] *Id.*
[17] https://www.nyiso.com/documents/20142/1397960/nyca_zonemaps.pdf/8c3807e1-5bab-ab44-3c71-2c8e61b5748b.
[18] *Id.*
[19] https://www.nyiso.com/documents/20142/2224547/The-New-York-ISO-and-Grid-Reliability.pdf/1c5987ea-81f5-9db9-615c-16f8201192a7 at p. 13.
[20] The Outlook at p. 54.
[21] *Id.* at p. 14.

AES is committed to decreasing the effects of climate change throughout New York and particularly in disadvantaged communities. As noted above, the supply portfolio downstate is predominantly fossil fuel-based. Even after the "peakers" are retired, the energy portfolio will remain mostly fossil-based. The ongoing and upcoming retirement of fossil generation with forthcoming externalities that include an anticipated shift from summer to winter peak electricity usage in approximately 2034[22] and currently unknown impacts of extreme weather events [23] on energy needs must be accompanied by increased transmission capability to meaningfully mitigate these concerns.[24] Reducing the reliance on fossil fuel-based generation in and around NYC is a complementary public policy goal that supports the need for additional transmission into NYC being identified as a Public Policy Requirement.

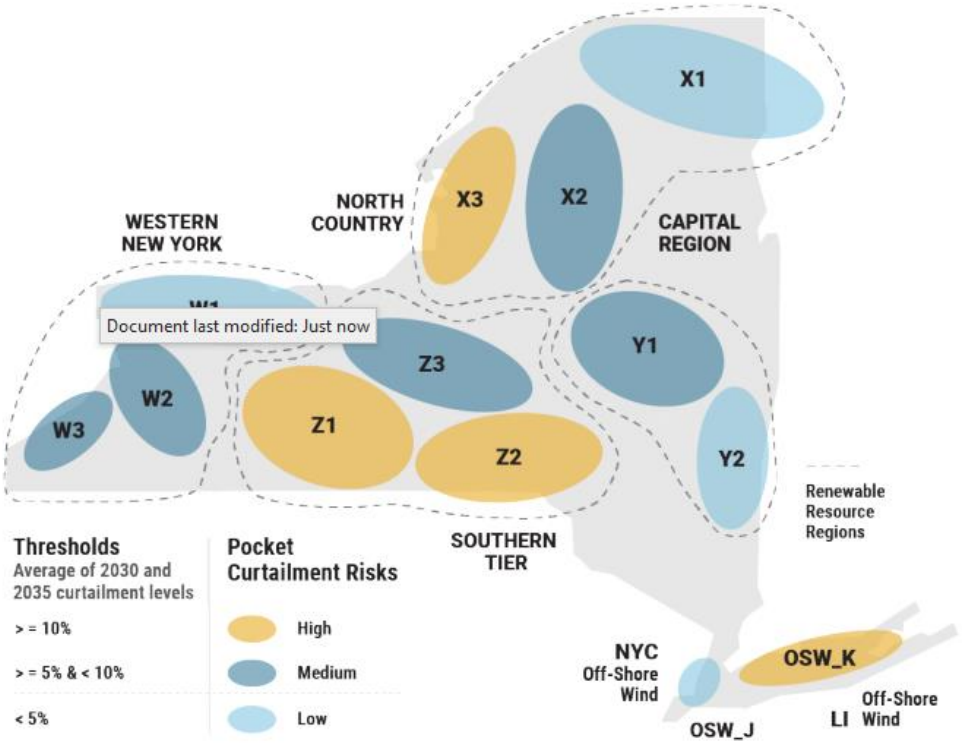
Fossil fuel generation is a health and safety concern for those who live near such facilities. Accordingly, the improvements in air quality and the economic opportunities associated with increased penetration of renewable energy generation can provide benefits to disadvantaged communities of NYC and should be prioritized as a Public Policy Requirement. NYISO and the New York Public Service Commission should identify expansion of transmission from upstate to NYC to be a public policy-based need to improve the health and welfare of disadvantaged communities in NYC.

## III. Identification of Public Policy-Based Transmission Needs

NYISO identified in the Outlook that the four zones highlighted in yellow circles in the *New York Renewable Generation Pocket Map* will need transmission expansion to ensure the renewable energy produced in those areas can be delivered to load in the upcoming years.[25] That map is reproduced below for ready reference. AES has identified renewable resources pockets with transmission needs in 1) North Country: Watertown/Oswego/Porter Renewable Pocket, 2) Southwest/Southern Tier Renewable Pocket, and 3) New York City.

[22] The Outlook at p.24
[23] Power Trends 2022 at p. 36; Climate Change Impact Study Phase II Microsoft Word - Climate Change Impact and Resilience Study Phase 2_ Final Report draft for Stakeholder comments.docx (nyiso.com), p.13
[24] The Outlook at p. 74.
[25] *Id.* at p. 14.

New York Renewable Generation Pocket Map[26]

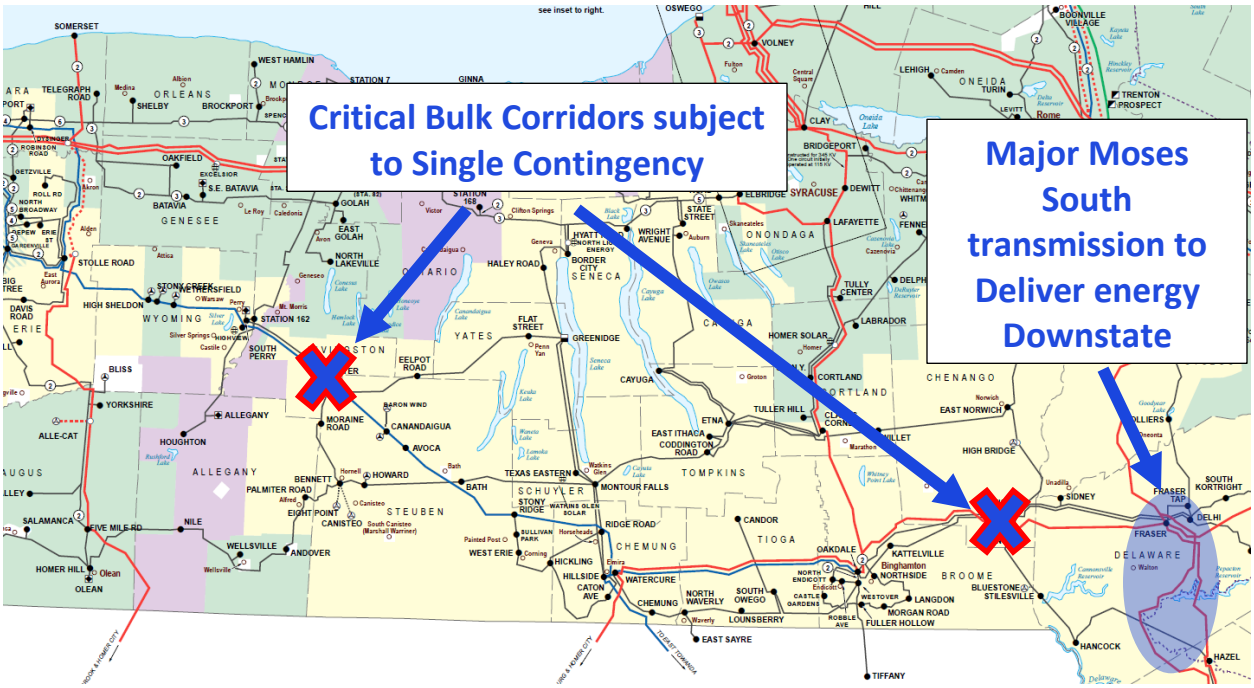



1. Within the X3 region, also known as the Watertown or Thousand Island area, the current 115 kV system limits the ability of already contracted wind and solar projects to sufficiently transmit the renewable energy to the bulk transmission system.[27] While the proposed utility Phase 2A solution will provide much needed near-term relief, AES believes there remains a need to provide a strong connection from that region to the bulk system for future projects and not yet contracted projects. The Smart Path Connect Transmission Project provides significant bulk transmission capability, but that headroom may never be utilized if new 345/230/115 kV connections within the Moses/Massena to Marcy/Edic corridor are not developed. Currently, the 115 kV system runs parallel to the Smart Path Connect Transmission Project for over 100 miles, but there are no known plans to increase the connections between the two systems. The transmission need in this area is based on the current transmission limitations which may be exacerbated with not yet contracted projects.

2. The Finger Lakes and Southern Tier subregions, Z1 and Z2, in the *New York Renewable Generation Pocket Map* have great potential for renewable energy given the land and natural resources available for wind and solar. However, without investment in transmission, this

[26] The Outlook at p. 14.
[27] *Id.* at p. 16.

area will not be able to maximize deliveries of renewable energy to the rest of the State. As noted in the map below, the 230 kV corridor that connects Stolle Road to Hillside and Watercure is subject to a single contingency outage. There is a need to reinforce the system to mitigate this single contingency reliability risk. This single contingency also drives significant congestion in that region. The bulk transmission system from Oakdale to Fraser is also subject to a single contingency outage which will prevent the delivery resources in this region to the Moses South corridor.[28] The utilities developed the needed Phase 1/2A upgrades to unlock the local system, but the full benefit of projects in this region cannot be realized without eliminating these major single contingency risks.




In the Outlook, NYISO concluded that portions of the Southern Tier (Zone Z1 on the *New York Renewable Generation Pocket Map*, above) "will experience persistent and significant limitations to deliver the renewable power from these pockets to consumers in the upcoming years."[29] In other words, there will be a need to be able to transfer large quantities of energy from the Southern Tier to the State's load centers.

[28] https://www.governor.ny.gov/news/governor-hochul-announces-approval-major-upstate-transmission-line
[29] The Outlook at pp. 14, 66, and 74.

3. NYISO's 2022 Reliability Needs Assessment ("RNA"), pending NYISO Board Approval, at the time of submittal of this document, demonstrates that there is an additional transmission need to reliably serve NYC. [30]

   A. The Policy Scenario shows that approximately 17,000 MW of existing fossil generation must be retained to have an adequate system in 2030.[31]
   B. "Approximately 6,300 MW of existing gas-fueled generation was identified as potentially at-risk under gas shortage conditions" (*e.g.*, during winter peak conditions).[32] This gas shortage condition would not meet statewide system reliability margins.
   C. Extreme conditions, such as heatwaves or storms, could result in transmission security deficiencies in NYC.[33]
   D. Within NYC, the margins are very narrow for several hours of the mid-afternoon under expected weather conditions.[34]
   E. Some generation affected by the DEC "Peaker Rule" may need to remain in operation if the forecasted demand in NYC were to increase by as little as 60 MW or there are additional unplanned generator deactivations.[35]
   F. Without emergency assistance from neighboring regions, there would not be sufficient resources to serve demand within New York throughout the planning horizon.
   G. The summer margin improves in 2026 with the scheduled addition of the Champlain Hudson Power Express (CHPE) connection from Hydro Quebec to NYC but reduces through time as demand grows within NYC due to electrification of heating and transportation. However, demand forecast uncertainty or potential heatwaves of various degrees pose risks throughout the next ten years, especially in 2025. Some generation affected by the DEC "Peaker Rule" may need to remain in service until CHPE or other permanent solutions are completed to maintain a reliable grid and meet system demand.[36] Though CHPE is likely contribute to reliability in the summer, it is not modeled to have any capacity obligation in the winter.[37]
   H. Reliability margins decrease across the State through time, but the reliability of the NYC area faces the greatest risk due to limited generation and transmission to serve forecasted demand. For the assumed expected summer weather, the New York City grid as planned has limited transmission security margin in 2025 and approaches zero in ten years.[38]

[30] https://www.nyiso.com/documents/20142/33946465/2022RNA_DraftReport_forOct26MC-clean.pdf/a44492b9-8cf2-cb39-a9d1-ad8566f1951d RNA at p. 7.
[31] *Id.* at pp. 11, 12, and 91.
[32] *Id.* at pp. 10 and 70.
[33] *Id.* at p. 54.
[34] *Id.*
[35] *Id.*
[36] *Id.* at p. 7.
[37] *Id.* at p. 9.
[38] RNA at p. 7.

I. *The 2022 Load & Capacity Data Report* (Gold Book) baseline forecast estimates a transition from a summer peaking system to a winter peaking system in 2034 is primarily driven by electrification. Additionally, while the New York statewide system is forecast to be summer peaking throughout the RNA study period, many upstate zones are already winter peaking or will become winter peaking before the State as a whole.[39]

New York has long relied on a diverse mix of generation types to maintain adequate supplies of resources under all conditions. As the State's supply portfolio transforms from fossil fuel-based facilities to carbon free resources, the need for diversification while maintaining the reliability of the grid remains equally important. Particularly in NYC, there should not be an over-reliance on any single resource type. NYISO considers the need for increased transmission capability to be a necessity, even in modeling where congestion is adequately maintained in favor of greater utilization of renewable resources generated upstate and being made available to the New York City load center.[40] Even with the Tier 4 projects, reliability margins are extremely narrow under normal system design conditions, and NYISO forecasts show that slight deviations from such conditions could lead to a reliability crisis. AES believes that bulk transmission beyond the awarded Tier 4 projects will be needed to deliver diversified energy from upstate into NYC.

Maintaining reliability is paramount under all conditions, and it can be of greater importance under extreme scenarios (e.g., gas shortage, heat wave, severe winter weather) when New Yorkers are experiencing other stressors. The RNA points to several scenarios where system reliability cannot be met, especially in NYC. A robust transmission system is part of the solution to the identified reliability needs, and the State's core public policies of preserving public health, safety, and welfare dictate that action be taken to address the identified deficiencies and needs.

## IV. Criteria For the Evaluation of Transmission Solutions

For the North Country and Southern Tier Renewable Pockets discussed above, the evaluation criteria should ensure 100% of resources needed to meet the CLCPA's 70% renewable energy by 2030 goal are fully deliverable across all mature projects in the NYISO interconnection process. It is essential the bulk and local transmission systems be designed to deliver all generated energy.

For NYC, the evaluation criteria should be based on the extent to which each transmission project addresses the decarbonization goals of the CLCPA, the reliability and transmission security concerns identified in the RNA, and its ability to facilitate a diverse supply portfolio for the State's largest load center. The public needs and CLCPA goals can only be addressed reliably with additional bulk transmission between upstate and downstate to deliver diverse energy supply.

Consistent with the CLCPA, transmission solutions should be evaluated how well the solutions address the identified Public Policy Requirements such as: curtailment, constraints, reliability concerns, the service of disadvantaged communities, health, wellbeing and safety of the people of New York.

[39] *Id.* at p. 9.
[40] The Outlook p. 53.

## V. Construction of Transmission Will Fulfill the Identified Public Policy Requirements

Construction of transmission to meet the needs discussed herein will reduce curtailment and increase reliability. All renewable energy, especially from renewable hubs, must be able to deliver to and properly serve the load across the State. NYC cannot afford to operate a transmission grid that is one emergency condition (weather, fuel, etc.) away from a reliability crisis. All renewable energy produced should be delivered without any curtailment to meet reliability needs and ensure the impacts and purpose of the CLCPA are realized.

## VI. Conclusion

AES appreciates the opportunity to present this proposal for transmission needs to the bulk and local transmission systems in New York. We request that the Public Service Commission designate these transmission proposals as needs driven by achievement of the CLCPA goals and by maintenance of system reliability, alongside preservation of public health, safety, and welfare.

Respectfully submitted,

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