
STATE OF NEW YORK

PUBLIC SERVICE COMMISSION

Case 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard

**COMMENTS OF AES CLEAN ENERGY, LLC
ON
ORDER INITATING PROCESS REGARDING ZERO EMISSIONS TARGET**

AUGUST 16, 2023

I. Introduction

In the Order Initiating Process Regarding Zero Emissions Target (“Order”), the New York Public Service Commission (“Commission”) asserts, and is supported by various studies, that there will be a gap between the renewable energy capabilities and future system reliability requirements. According to the Brattle Study,¹ an estimated 17-23 GW of “placeholder backstop thermal” generation capacity, or source of energy when renewables and storage would not be available, would be required for 3%, or 11 days, of the year. Further, the New York Independent System Operator (“NYISO”) 2021-2040 System & Resource Outlook projects that New York will need 27-45 GW of dispatchable emission-free resources for system stability.² Thus, these targets will take a huge effort on the part of the energy industry in New York; including renewable developers, utilities, The Department of Public Service, New York State Energy Research & Development Authority (“NYSERDA”), and the NYISO.

AES Clean Energy Development, LLC (“AES”) recognizes that the path to a zero-emissions electric grid in New York will be a challenge. AES commends the Commission and the state for the steps they have taken thus far in incentivizing and reducing barriers to renewable energy in New York. AES appreciates the opportunity to offer these comments for the Commission’s consideration.

II. AES Clean Energy

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. Across the country, AES owns and operates a portfolio of more than 5.1 GW of renewable energy projects including more than 540 utility-scale and community solar, wind, energy storage, and hybrid projects across 24 states. AES has more than two decades of experience building and operating energy projects in New York as a leading developer in the state. AES owns and operates one of the largest renewable energy portfolios in New York with 62 projects representing more than 850 MW of energy resources including Valcour Wind, a portfolio of 612 MW of operating wind projects. AES’ development pipeline in New York includes more than 2.4 GW of clean energy projects including utility-scale solar, wind, community solar, and energy storage.

¹ <https://www.brattle.com/insights-events/publications/brattle-study-cost-effective-load-flexibility-can-reduce-costs-by-more-than-15-billion-annually/>

² NYISO 2021-2040 System & Resource Outlook. https://www.nyiso.com/documents/20142/32663964/2021-2040_System_Resource_Outlook_Report_DRAFT_v15_ESPWG_Clean.pdf/99fb4cbf-ed93-f32e-9acf-ecb6a0cf4841 at p. 13.

III. Envisioning 2040

AES is motivated to lead the energy industry in New York by developing and growing solutions that will enable the transition to zero emission sources of energy and achieving the Climate Leadership and Community Protection Act (“CLCPA”) goals of 70% renewable energy by 2030 and 100% zero emission associated with electrical demand by 2040. AES agrees that focusing only on increasing the supply of wind and solar renewable energy will not be sufficient to provide the reliability needs for the future of the grid in New York.

To meet the 2040 goal, AES believes that a delicate balance between renewable generation, increased transmission capacity, and energy storage should be managed by the Commission, NYSERDA, and developers, with technical support and analysis from the NYISO. For new and future renewable energy generation, AES believes there are solutions to the challenges to build, own, and operate renewable generation facilities in New York. AES supports NYSERDA’s Tier 1 Renewable Energy Credit (“Tier 1 REC”) program and has offered suggestions for improvement for both the Tier 1 and Tier 2 programs. AES believes that without the Tier 1 REC program or the Valuable Distributed Energy Resources (VDER) program, New York would be unable to meet its climate goals. The Commission mentioned in the Order, and AES agrees, that transmission solutions are vital to ensuring that renewable energy capacity meets its full potential. AES recommends an additional transmission solicitation in New York City. Transmission solutions alone will not be enough to solve the needs of the electric grid post-2040. AES supports the Commission’s efforts to increase transmission capacity through the recently issued, Order Approving Phase 2 Areas of Concern Transmission Upgrades³ and encourages the Commission to respond to additional requests for Public Policy Transmission Need (“PPTN”) outside of New York City. For energy storage needs, as have been established by the Energy Storage Roadmap (“Roadmap”), New York needs 12 GW of energy storage by 2040 and 17+ GW by 2050.⁴ The final piece of the puzzle to transition successfully to a zero-emissions grid by 2040 will be additional, newer technologies that will serve grid functions of the

³ Case 20-E-0197 Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act, Order Approving Phase 2 Areas of Concern Transmission Upgrades, issued February 16, 2023.

<https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=20-E-0197&CaseSearch=Search#>

⁴ New York Department of Public Service and NYSERDA. New York’s 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage.

<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={7D4753BA-916B-483E-9E35-6749B20384A6}> at p. 6.

fossil fuels they will be replacing. AES offers several comments on how the Commission could define zero-emissions and how that definition could support the development of these new technologies.

AES suggests that the Commission, NYSERDA, NYISO, and private developers work together to envision what the future grid will look like, how it will operate, and what types of resources the grid will need at each milestone to get to a reliable and stable zero-emissions grid in 2040 and beyond. As a part of this future vision, the Commission can craft its definition of zero-emissions to fit the needs of the grid at certain periods of time. AES recognizes the challenges of achieving the goals of the CLCPA and a successful energy transition in New York, and would welcome the opportunity to participate, alongside other private developers, with state agencies in crafting the elements of the transition. The Commission should work to create regulatory certainty that will incentivize the right mix of technologies based on reliability and market signals.

IV. Stakeholder Questions

AES submits its comments on several of the stakeholder questions listed in the Order:

1. How should the term “zero-emissions,” as used under PSL §66-p(2)(b), be defined?

AES recommends that the Commission adopt a definition of “zero-emissions” in line with the US Federal Government guidelines. Specifically, the Inflation Reduction Act’s (“IRA”) Production Tax Credit (“PTC”) derives the maximum amount for a carbon intensity measure for the New Clean Hydrogen PTC as (kg CO₂ e/kg H₂).⁵ The Energy Information Administration defines carbon intensity as the amount of carbon by weight emitted per unit of energy consumed.⁶ New York should adopt a zero-emissions definition based on the existing frameworks outlined in other US Government programs.

New York should consider specifically defining if zero-emissions means “net-zero” (the amount of greenhouse gases (“GHG”) emitted are reduced or removed) or “carbon neutral” (removing the same amount of carbon dioxide from the atmosphere as it emits).⁷ Net zero-emissions would encompass carbon dioxide as well as GHG, thus would be more impactful to climate change mitigation. Creating parameters around these definitions will provide the electricity sector with clear guidance that will send positive

⁵ https://www.energy.gov/sites/default/files/2022-10/IRA-Energy-Summary_web.pdf at p. 3.

⁶ <https://www.eia.gov/tools/glossary/index.php>

⁷ <https://corporatefinanceinstitute.com/resources/esg/net-zero-vs-carbon-neutral/>

regulatory signals and incentivize investment. Using the envisioned future electric grid as a blueprint, the Commission should consider a phased approach to reducing the carbon intensity of the electric grid as it approaches a zero-emissions future.

- 2. Should the term “zero-emissions” be construed to include some or all of the following types of resources, such as advanced nuclear (Gen III+ or Gen IV), long-duration storage, green hydrogen, renewable natural gas, carbon capture and sequestration, virtual power plants, distributed energy resources, or demand response resources? What other resource types should be included?**

AES suggests that the zero-emission definition should be a phased approach and grounded in a Carbon Intensity Measure. The Commission could use the grid milestones as mentioned in “Envisioning 2040” section above to create that phased zero-emissions definition that will then inform which technologies are needed at specified milestones. As part of the transition, different resources will be needed and that should be reflected in a phased approach to zero-emissions. In addition, the Commission should ensure consistency between their zero-emissions definition and the Cap & Invest program.

- 4. Should new measures adopted to pursue compliance with the Zero-Emission by 2040 Target focus exclusively on generation and resource adequacy, or should they also encompass a broader set of technologies that could be integrated into the transmission or distribution system segments, or installed and operated behind-the-meter?**

AES suggests that the Commission, NYSERDA, NYISO, and developers coordinate closely together to envision what the grid reliability needs are at each phase towards a zero-emissions future. As a part of this future vision, the Commission can apply its definition of zero-emissions to fit the needs of the grid at certain milestones. AES believes that there should be support for measures that focus on generation and resource adequacy as well as broader technologies that support transmission or distribution, and behind-the-meter technology.

5. Should any program to achieve the Zero-Emission by 2040 Target specify subcategories of energy resources based on particular characteristics, such as ramp rates, the duration of their operational availability, or their emissions profile with respect to local pollutants?

AES believes that the reliability needs of the grid should inform any program related to ramp rates, duration, and operational availability. With respect to the emissions profile of local pollutants, the Commission should consider which kinds of energy resources would be needed to achieve both emissions-related needs while supporting the reliability needs. This effort should be housed under a proposed inter-agency effort (the Commission, NYSERDA, NYISO) to define the reliability needs and subsequent planning required from the state in looking to 2040 and beyond.

As outlined in NYSERDA's Energy Storage Roadmap, which will inform the future request for proposals for energy storage projects, an expected 24 GW of 100-hour battery-type storage with 50% round-trip efficiency would be needed to replace 18 GW of dispatchable hydrogen-based resources with an additional 13 GW of renewable energy to power the storage.⁸ Any programs should be created and designed to support these energy storage needs because of their necessity for the reliability of the grid.

NYSERDA's current trajectory for energy storage is to procure 2 GW of 4-hour duration storage installed evenly from 2028-2030 and 1 GW 8-hour duration storage to be installed in 2030.⁹ The Commission and NYSERDA should consider additional future procurements with specific duration-based carve outs to ensure that energy storage projects can adequately compensate for the increased renewable generation on the grid. The post-2030 energy storage needs will continue to increase, as the Roadmap predicts that New York will need 6.8 GW of 8-hour storage by 2050,¹⁰ and that Zone J alone will require approximately 4.7 GW of energy storage by 2050.¹¹ Thus, if longer duration storage will be more and more necessary, NYSERDA should consider the role of 4-hour duration storage as a place holder for longer duration storage that will be used in the long-term and adjust their future procurement expectations accordingly.

⁸ Roadmap at p. 70.

⁹ Roadmap at p. 98.

¹⁰ Roadmap at p. 31.

¹¹ Roadmap at p. 79.

Given the state's GHG emission reduction goals, the Commission should consider the emissions profile of local pollutants as explicit requirements as they encourage specific resources with specific characteristics to support the needs of the transitional grid.

6. What role does technology innovation need to play to meet the CLCPA's Zero-Emission by 2040 Target?

Technology innovation is critical to the success of the CLCPA's zero-emissions by 2040 target. NYSERDA has several programs that enable technological and market innovations. AES supports the funding of these current projects and any new research and development programs that support technologies to help New York reach its 2040 goals and prepare for a reliable, stable grid post-2040. Without technological innovation in the energy sector, the costs of achieving a zero-emissions grid by 2040 would be prohibitive, thus financial support from the state is paramount.

7. Should life cycle emissions impacts be considered when characterizing energy resources? If so, how?

AES believes that life cycle emissions¹² impacts should be considered in its definition of zero-emissions so that the proper resources are incentivized based on the needs of the grid at different phases of the energy transition. The early stages of development and construction would need to consider the use of products and practices with a reduction of carbon emissions. During operations emissions would need to look at carbon intensity of fleet vehicles. The longer and facility operates, the lower carbon intensity.

9. In what ways might a program to meet the Zero-Emission by 2040 Target require reexamination and possibly revision of different tiers of the Clean Energy Standard? Should one or more of the policy approaches that have been used to implement the CES be considered to meet the Zero-Emission by 2040 Target?

AES applauds the Commission and NYSERDA for the Tier REC program in the Clean Energy Standard. The most recent Tier 1 RFP in 2022 included several improvements from previous RFPs that will likely result in awards for mature, viable projects. AES would encourage NYSERDA to review all future REC RFPs to undergo analysis and necessary revisions and improvements as the market continues to mature.

¹² Environmental Protection Agency Life-Cycle GHG Accounting <https://www.epa.gov/sites/default/files/2016-03/documents/life-cycle-ghg-accounting-versus-ghg-emission-inventories10-28-10.pdf> at p. 3.

AES would support additional Tiers or other programs to create the necessary incentives needed to support the new technologies that will be necessary for the reliability of the grid in the energy transition in New York.

Of note, establishing a competitive solicitation to phase-out fossil fuel plants and replace that generation with bundled renewable resources, especially in the New York City region, where 89% of electricity is generated from fossil fuels,¹³ could spur build-out of the state's renewable fleet while ensuring sufficient electricity resources and reliability are maintained. A transformation of the fossil fleet could serve as a nation-leading model for a planned transition from fossil fuel to renewable generation in a difficult-to-decarbonize location and leverage existing infrastructure at lower costs to ratepayers. Further, transitioning these fossil plants could provide additional workforce transition opportunities as the state's green economy blossoms and can provide an overdue measure of justice to historically disadvantaged communities that have most acutely weathered the negative public health and environmental impacts of life in the shadow of fossil fuel plants.

10. What is necessary to align a program to meet the Zero-Emission by 2040 Target with the priority of just transition embedded within the CLCPA?

The CLCPA centered the state's workforce development and training on energy efficiency measures, renewable energy, and other clean energy technologies. The Just Transition Working Group ("JTWG")¹⁴ within the Climate Action Council focused specifically on training and workforce opportunities for disadvantaged communities and underrepresented populations and the impacts of the transition to the new energy economy on existing workforce across the state. New York has laid the groundwork to be a leader in the just transition. AES recommends that organized labor maintain a central role in policy determinations, and long-term policy implementation is crucial to a thriving clean energy workforce in reaching the 2040 target.

AES supports the JTWG recommendation that the state leverage its expertise and position among industry stakeholders to foster partnerships between new green economy businesses and workers to contribute to the green economy supply chain. Additional opportunities could include other research and development

¹³ NYISO Power Trends 2022, The Path to a Reliable, Greener Grid for New York, <https://www.nyiso.com/documents/20142/2223020/2022-Power-Trends-Report.pdf> at p. 8.

¹⁴ <https://www.nyserda.ny.gov/About/Newsroom/2020-Announcements/2020-08-25-dec-and-nyserda-announce-members-of-just-transition-working-group-to-support-implementation-of-states-nation-leading-climate-law>

consortia, industry associations and working groups, and partnerships with educational institutions¹⁵. By hosting these partnerships, the state could link private industry with individuals and representatives of the clean energy workforce. This linkage could boost the state’s position as a supporter and regulator of emerging clean energy generation technologies and incentivize New Yorkers, from adolescent and college-age residents to members of the existing workforce to enter the clean energy economy over the next two decades.

11. How might the benefits of a program to meet the Zero-Emission by 2040 Target be measured for the purpose of ensuring that, consistent with PSL §66-p(7), it delivers “substantial benefits” to Disadvantaged Communities?

AES believes that the benefits for a Disadvantaged Communities (DACs) program to meet Zero-Emission by 2040 could be measured by the following categories:

1. Significant carbon emissions reductions in DAC communities- especially those exposed to fossil fuel emissions for generations in downstate and New York City;
2. Workforce development investments in DACs- for instance Tech and Trade High Schools and higher education, Board of Cooperative Educational Services and community colleges;
3. Energy cost reduction for DACs;
4. Philanthropic donations; and
5. Number of people positively impacted by the programs, whether in job salary increases or overall quality of life.

Similar to the Tier 1 RFP measurements for DACs, the measurements could be used as a whole or individually to support a quantitative scorecard to assess how a zero-emissions program is providing substantial benefits to DACs.

¹⁵ New York State Climate Action Council. 2022. “New York State Climate Action Council Scoping Plan.” climate.ny.gov/ScopingPlan. Appendix E at p. E-2.

12. NYISO has adopted an effective load carrying capacity (ELCC) rubric and treatment of Zones J and K as load pockets with special resource adequacy requirements. How should these constructs and other NYISO market rules inform design of a program meant to support the development and deployment of resources capable of achieving a zero-emissions grid?

Higher penetration of renewable resources will shift the traditional resource planning to hourly and seasonal periods. The ELCC approach should be utilized in NYISO studies to determine resource requirements that would be required to maintain NYISO's system reliability. NYISO already considers summer and winter ratings,¹⁶ and AES suggests that NYISO consider additional granularity by using seasonal ratings, monthly being ideal, but more difficult to achieve. Additional granularity would allow DPS to see where the issues with the capacity are, for example the duck curve phenomenon, and would provide more visibility for planning and transmission to be able to tell NYISO how much capacity they have at a shorter interval than summer or winter.

New York and NYISO should look to the examples in California (California ISO), PJM, and Massachusetts (Clean Peak Energy Standard) for examples in creating a capacity market to support renewables. In considering the capacity market design, AES encourages DPS and NYISO to consider any future REC-style program as a zero-emissions certificate ("ZEC") program and not allow for double dipping with incentives from the capacity market and the ZEC program. AES also suggests that NYISO consider time of use instead of hourly granularity to ensure the right resources are incentivized.

13. What additional studies, if any, should the Commission undertake with respect to the development and deployment of resources capable of achieving a zero-emissions grid?

The Commission should support studies that show the reliability needs of the electric grid as it evolves toward zero-emissions. Specifically, the state should have a clear understanding of the relevant NYISO studies such as the Power Trends Report¹⁷ and the Reliability Needs Assessment.¹⁸ In addition, the Commission should ensure that these reports clearly show how the grid will look in each phase that will be

¹⁶ NYISO 2023 Load & Capacity Data "The Gold Book," April 2023, <https://www.nyiso.com/documents/20142/2226333/2023-Gold-Book-Public.pdf> at p. 20.

¹⁷ 2023 Power Trends, A Balanced Approach to a Clean and Reliable Grid. <https://www.nyiso.com/documents/20142/2223020/2023-Power-Trends.pdf/7f7111e6-8883-7b10-f313-d11418f12fbf?t=1686132123808>

¹⁸ NYISO, Reliability Needs Assessment 2022. <https://www.nyiso.com/documents/20142/2248793/2022-RNA-Report.pdf/b21bcb12-d57c-be8c-0392-dd10bb7c6259>

needed to transition to a zero-emissions grid. Having clarity from NYISO on where the renewables are needed and what function they would serve on the grid sends clear signals to the market. Also, the studies should demonstrate that the transmission capacity can ensure deliverability, as demonstrated in the robust transmission planning process at the NYISO. AES suggests reviewing current reports and studies to determine if they are well understood by policy makers and industry and if their recommendations and conclusions provide the right information to meet the needs of the energy transition and the goal of a zero-emissions grid.

14. Given that New York is not the only jurisdiction investigating options and opportunities for the research, development, and deployment of new technologies capable of achieving a zero-emissions grid, how should the state seek to coordinate with and otherwise draw upon efforts that are underway elsewhere?

The Commission should review and coordinate with original equipment manufacturers to understand the challenges and research and development opportunities of innovative technologies. Private developers operating in New York and across the country also have valuable insights that could help New York. Also, the California Public Utilities Commission and California Energy Commission have been grappling with the challenges of renewable energy and the energy transition and the role of emergent technologies. In addition, the Federal Department of Energy and Environmental Protection Agency are undertaking similar efforts to encourage and incentivize new technologies.

V. Conclusion

AES appreciates the opportunity to provide comments on this important and crucial topic of defining zero-emissions in New York and recognizes the complexity and challenge of meeting New York's climate goals. AES remains a committed partner in achieving the goals of the CLCPA and looks forward to a robust conversation during the upcoming Technical Conference.