

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Proceeding on Motion of the Commission to
Implement Transmission Planning Pursuant
to the Accelerated Renewable Energy Growth
and Community Benefit Act**

Case 20-E-0197

COMMENTS OF THE CITY OF NEW YORK

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PRELIMINARY STATEMENT

The decarbonization of the State’s electric system, as embodied in the objectives of the Climate Leadership and Community Protection Act (“CLCPA”), will require fundamental changes to the electric system, including expansion of electric transmission and distribution infrastructure and increased deployment of renewable resources and energy storage. It is important that the former keep pace with the latter as the CLCPA goals cannot be achieved if customers cannot access and use the carbon-free production. Furthermore, it is likely that the costs of the changes needed will be significant, so prioritization of projects and attention to costs are needed to control cost impacts on customers, especially the hundreds of thousands of families who are already energy cost burdened today.¹

The City of New York (“City”) offers the following perspectives on the *Initial Report on the New York Power Grid Study* (“Power Grid Study”). First, broad coordination is needed to timely and cost-effectively deploy generation, storage, transmission, and distribution infrastructure, as well as non-wires alternatives, and to ensure that the electric system is dynamic,

¹ See Case 14-M-0565, Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers, Petition of the City of New York to Re-Examine Statewide Utility Low Income Program Discounts (filed January 31, 2020). An energy cost-burdened family is one whose utility costs exceed 6% of the family’s total income.

responsive, reliable, and resilient. Only a comprehensive planning process that considers the electric system as an integrated whole can provide this coordination. Second, the Public Service Commission (“Commission”) should require the development of comprehensive plans to implement the needs identified by the planning process, and also require that the plans be updated over time as circumstances change. Third, the Commission should consider alternatives to fairly allocate the costs of achieving the CLCPA goals among all New Yorkers.

Fourth, the Commission should consider incentives only on a limited basis and should utilize only incentives that align customer and shareholder interests, such as incentives that share savings achieved. Fifth, the Commission should consider the social cost of carbon in its analyses and in prioritizing projects. The City offers additional perspectives in responding to the Staff Questions.

COMMENTS

POINT I

COORDINATED, STATEWIDE PLANNING IS NEEDED TO ACHIEVE THE CLCPA GOALS

The electric system in New York is fully integrated. However, the current regulatory framework assigns responsibility for discrete aspects of system planning to different entities, inhibiting comprehensive, cost-effective, system-wide planning. The New York Independent System Operator, Inc. (“NYISO”) is responsible for planning for the bulk power system, and each utility is individually responsible for planning for the local transmission and distribution infrastructure within its service territory. Private developers unilaterally decide where to site generating facilities. In the case of offshore wind, each developer independently considers how to interconnect its wind farm(s) to the electric system. The Power Grid Study provides numerous examples of this fragmented approach and demonstrates the need for increased coordination to

achieve the CLCPA goals in a cost-effective manner.² That is, a holistic approach to electric system planning is needed to fully understand the nature, magnitude, and location of utility infrastructure investments required to achieve the CLCPA goals, and to cost-effectively construct that infrastructure.

The *Utility Transmission & Distribution Investment Working Group Study* (“Utility Report”) exemplifies both the concerns with the disjointed approach and the need for a broad, coordinated approach. The Utility Report identified infrastructure investments needed to meet the CLCPA goals within each utility’s service territory.³ However, it did not consider impacts on or power flows between adjoining service territories.⁴ Moreover, the methodology and assumptions differed from utility to utility.⁵ In short, the Utility Report did not determine whether the utilities’ proposed infrastructure investments – amounting to billions of dollars in increased customer costs – adequately and cost-effectively satisfy State-wide system needs, or even whether the proposed projects create or exacerbate issues in other service territories.

The *Offshore Wind Integration Study* (“OSW Study”) also demonstrates the need for a comprehensive approach. It did not evaluate lower voltage constraints arising from interconnecting 9,000 MW of offshore wind into New York City and Long Island.⁶ The OSW Study’s conclusion that no bulk system upgrades are needed to interconnect 9,000 MW of offshore wind has limited usefulness because of its base assumption that no other projects would interconnect in New York City or Long Island. The downstate projects in the NYISO’s

² Power Grid Study at 8.

³ *Id.* at Appendix C.

⁴ *Id.* at 25.

⁵ *E.g., id.* at 18.

⁶ *Id.* at 67.

interconnection queue and its Class Year interconnection processes, as well as the Commission's creation of the Tier 4 Renewable Energy Credit ("REC") program, demonstrate the inadequacy of this base assumption.

There is a need to understand how offshore wind projects fit into the overall scheme for the electric system in conjunction with other resources that are likely to be added. The OSW Study did identify the limited interconnection points available and the limitations on constructing undersea cables in the New York Harbor. These issues reinforce the need for a comprehensive approach rather than allowing each developer and each utility to proceed as it deems appropriate.

The *Zero-Emissions Electric Grid in New York by 2040 Study* ("Zero Emissions Study") assumes a high degree of coordination in the development of renewable resources, storage, and transmission. That assumption is questionable because those resources are subject to different regulatory processes and there is no comprehensive planning process in which such coordination would occur. Additionally, the Zero Emissions Study does not consider any constraints on local transmission systems and therefore does not properly evaluate potential congestion and curtailments.⁷ A lack of coordination could exacerbate, rather than ameliorate, congestion on the transmission system and curtailment of renewable resources. Moreover, because both renewable and storage resources are likely to be interconnected to lower voltage transmission lines, it is important to consider congestion and the potential for curtailments on both the bulk power system and local transmission. This is needed to ensure optimal development of supply and transmission resources and that all customers are able to access sufficient quantities of carbon-free power.⁸

⁷ *Id.* at 83-84 and 87-88.

⁸ Both the Zero Emissions Study and Power Grid Study note that optimization will not be achieved absent careful consideration of all aspects of the electric system. *Id.* at 88-89 and Appendix E., p. 7.

The Zero Emissions Study's optimized deployment also relies on economic decisions that, in turn, rely on wholesale market structures remaining unchanged through 2040.⁹ It is questionable whether this is a reasonable assumption. Presently, energy market pricing is based primarily on the cost of fuel. As the State shifts from fossil fuels to renewable resources, there will not be any fuel cost, and energy pricing could approach \$0/MWh. Such a construct is likely not sustainable. Moreover, the Power Grid Study concludes that, at the wholesale level, market signals alone would not optimize storage deployment.¹⁰ The City is not aware of more accurate assumptions regarding the future construct (or even whether it will be market-based). Nevertheless, because of the uncertainty surrounding this assumption, the Commission should use the Zero Emissions Study for directional guidance, but the Study should not form the sole or primary basis for any decisions on the path forward.¹¹ Nonetheless, the Zero Emissions Study does fully support the need for coordinated, comprehensive Statewide planning in order to optimize the deployment and value of supply and transmission resources.

The City submits that the Power Grid Study and its component studies provide a compelling basis for the Commission to modify and evolve energy planning in New York. Indeed, the Studies show that to achieve the timeline and scale required by the CLCPA, coordination is needed that collectively considers bulk and local transmission and distribution, examines needs and impacts across utility service territories, and, to the extent possible, brings together federal, State, and local entities' considerations. For example, the OSW Study identified numerous governmental approvals needed for offshore wind deployment and associated interconnections,

⁹ *Id.* at Appendix E, pp. 7 and 35.

¹⁰ *Id.* at 89.

¹¹ The Commission also should consider updating the Zero Emissions Study over time as new information emerges and the assumptions can be updated.

from the Bureau of Ocean Energy Management, the Commission, the Department of Environmental Conservation (“DEC”), the City, and other communities that will host the cable landing sites.¹² Failure to effectively coordinate with all involved entities could lead to less optimal – and more expensive and delayed – outcomes.

Accordingly, the City agrees with the recommendation in the Power Grid Study to refine planning to coordinate all CLCPA investments.¹³ However, the City would add some additional considerations to this approach. First, in addition to system needs and the needs of consumers, utilities, and developers, a coordinated approach should consider such issues as environmental equity and the impact on disadvantaged communities. It is beyond dispute that some New Yorkers have been disproportionately impacted by the current electric system – particularly by operations and emissions from fossil generation. Also, as noted above, hundreds of thousands of New York families have utility costs that exceed the Commission’s target of 6% of their total income. As New York decarbonizes and transforms its electric system, the cost of energy must remain a foremost consideration. Going forward, all New Yorkers must have equitable access to renewable resources at affordable prices, the burdens and benefits of modernizing the electric system must be equitably distributed, and disadvantaged communities should not bear disproportionate impacts from resource development associated with the evolving electric system.

Second, the Commission should emphasize the use of non-wires alternatives that are more cost-effective than new infrastructure. If the overall demand for energy, as well as the peak demand, can be reduced, there will be a lesser need for all types of energy infrastructure. Energy efficiency, demand management, distributed resources, and other non-wires alternatives are

¹² *Id.* at Appendix D, pp. 73-82.

¹³ *Id.* at 8.

proven technologies and practices that often include emissions reduction co-benefits. Building out a robust set of distributed energy resources locally not only helps lower demand, it can also provide important local benefits such as energy bill savings and increased system resilience that support the overall goal of clean, affordable, and reliable electricity for consumers. Accordingly, non-wires measures should be considered before or in parallel to adding more infrastructure, such that the State’s goals are achieved and reliability and resiliency are maintained at the lowest cost.

Third, it appears that the Power Grid Study and its component studies relied on the demand-side assumptions developed by Energy and Environmental Economics, Inc. (“E3”) in its *Pathways to Deep Decarbonization in New York Report*, with some modifications.¹⁴ Because of the interdependency of the supply-side needs and demand-side assumptions, all of the analyses and conclusions are sensitive to these assumptions. Thus, if demand does not materialize as anticipated, or the assumed level of energy efficiency is not achieved, the supply-side needs could be lower or higher, respectively – perhaps significantly. The planning effort called for herein should include a range of demand-side scenarios, including lower and higher levels of demand than those set forth in the E3 Report, to better understand the quantity of supply-side resources, and correspondingly, the amount of transmission and distribution infrastructure, that may be needed.

Fourth, it does not appear that any of the studies considered impacts on reliability and resiliency associated with high stress events. Climate science – and recent events – show that future weather patterns will be more variable, more intense, and more extreme than historical weather patterns. There could be periods of sustained high temperatures, more severe storms, stronger winds, and other conditions that could adversely impact different types of renewable

¹⁴ *Id.* at 77, Appendix D, pp. 12-13, and Appendix E, p. 11

resources while simultaneously increasing demands on the electric system. The NYISO commissioned the Analysis Group to study the impacts of climate change on the bulk power system to assist with its planning efforts.¹⁵ The Commission’s planning effort should build on that report and assess the impacts on all facets of the electric system – generation, storage, transmission, distribution, and distributed energy resources – arising from climate change, as well as the actions necessary to maintain safe, adequate, and reliable service during all potential conditions.

The Commission is uniquely placed to initiate and oversee integrated planning. The Commission has expansive authority over the utilities and a leading role in distribution and transmission siting and planning. It has long-standing relationships with its federal agency counterparts and with other State agencies, it has worked with local communities on issues of common interest, and it routinely coordinates with the NYISO. Additionally, the Commission has much, if not all, of the statutory authority and regulatory framework in place to guide a comprehensive, coordinated planning process. By embracing its role at the center of the State’s integrated planning process, the Commission can reduce the potential for duplicative spending and stranded assets, while ensuring funds are efficiently allocated to the most beneficial projects on a Statewide, regional, and local basis.

¹⁵ Hibbard, P., Wu, C., *et al.*, *Climate Change Impact and Resilience Study – Phase II, An Assessment of Climate Change Impacts on Power System Reliability in New York State*, Final Report (September 2020), available at https://www.nyiso.com/documents/20142/16311872/03b_Climate%20Change%20Impact%20and%20Resilience%20Study%20Phase%20II%20Final%20Report_APPROVED%20-%20No%20Appendices.pdf/7ec19a60-a023-9167-c5a1-b0f02d6cabb6.

POINT II

COMPREHENSIVE PLANNING SHOULD LEAD TO COMPREHENSIVE IMPLEMENTATION PLANS

The planning efforts described above are the first step in a multi-step process. The second step should be the development of implementation plans that inform all stakeholders – the State, utilities, generation developers, energy service companies, distributed energy resource providers, manufacturers of electrical equipment, contractors, financiers, community organizations, municipal planners, and customers – of the manner in which the CLCPA goals are expected to be achieved. These plans should provide both 5-year and 10-year schedules for infrastructure and non-wires projects.

Developers can use the implementation plans to assist with their own planning, similar to how the utility hosting maps are used now for distributed energy resources. Manufacturers, contractors, bankers, and others can use the implementation plans to understand the expected needs across the State and ensure that they are able to provide the materials, work force, and other resources needed to support the effort. The State and municipal planners can use the implementation plans to ensure that the State is on track to achieve the statutory goals and coordinate local construction projects to match the availability of essential infrastructure and to incorporate large-scale non-wires alternatives into area developments and master plans.

The third step is that the implementation plans should be updated periodically, perhaps every three to four years, as system conditions and needs change. Experiences over the last ten to 12 years demonstrate that the electric system is dynamic, changing based on economic conditions, customer priorities, social and environmental considerations, evolving policies, new technologies, and more. The implementation plans must adapt in a similar fashion to limit overbuilding, reorient or modify project scopes and locations, and minimize upward pressure on electric rates.

The Commission is well suited to oversee this multi-step effort given its broad authority and the fact that most stakeholders are subject to its jurisdiction. The Commission also has the ability to balance competing interests in an unbiased manner and ensure that all stakeholders are treated fairly.

POINT III

THE COMMISSION SHOULD FURTHER INVESTIGATE WAYS TO FAIRLY ALLOCATE THE COSTS OF THE UPGRADES NEEDED

In addition to undertaking comprehensive planning, as discussed above, there is a need to consider new approaches to allocate and recover the costs of the transmission projects that will be needed to achieve the CLCPA goals. Because distribution upgrades will predominantly be very local in nature and affect only the utility and its customers, cost allocation is not a significant concern except among customer classes. At this time, the City does not envision fundamental changes to the current embedded cost of service-based approach to such cost allocations.

The ability to allocate transmission costs under the NYISO's tariffs is limited, and most projects likely will not be undertaken pursuant to its reliability or economic planning processes. While the Public Policy Transmission Planning Process initially appeared to be a viable option for securing cost allocations for projects that traverse multiple utility service territories, in practice that process has not been effective in facilitating achievement of the State's policy goals. That is, only three projects have been identified via that process in over six years, and developers cannot obtain cost recovery for, or proceed with, their public policy-driven projects unless they are selected via that process. Moreover, the NYISO options are limited to bulk power system projects, while many renewable resource projects may interconnect to local transmission systems and small projects may interconnect to distribution systems.

Most transmission upgrades – bulk or local – arguably will pertain to CLCPA goals and objectives, whether supporting renewable resources or increasing system resilience. In other words, the projects will serve generally to advance State public policies. Because of this broad purpose, and because all New Yorkers will benefit from the achievement of the State’s policies, it would be appropriate to allocate the costs on a Statewide basis. That is, no utility’s customers should bear a disproportionate cost simply due to the geographic locations of transmission upgrades. In the Utility Report, the utilities offered three alternatives for cost allocation and cost recovery, all of which present multiple concerns regarding effectiveness and jurisdiction (*i.e.*, the extent of the Commission’s oversight under some of those alternatives could be minimal, but the Commission, not the Federal Energy Regulatory Commission, should have primary control over matters related to achievement of State policies).

The City recommends that the Commission convene a technical conference or stakeholder forum to more broadly explore ways to effectuate Statewide cost allocation for infrastructure projects that are undertaken in furtherance of the CLCPA. Recognizing that there are concurrent roles for the Commission and the Federal Energy Regulatory Commission regarding this matter, the Commission also should explore improvements to State-federal coordination to ensure that State policy goals can be achieved in a fair and equitable manner.

POINT IV

UTILITY INCENTIVES SHOULD BE MODEST AND ALIGNED WITH ACHIEVEMENT OF FUTURE SYSTEM PLANS

The Utility Report indicates that traditional utility cost recovery models may not properly incentivize cost-effective and expeditious achievement of CLCPA targets. Indeed, the Power Grid

Study highlights a seeming over-emphasis on traditional infrastructure alternatives (*i.e.*, wires over non-wires or combination solutions) and a lack of proper consideration of new technologies.¹⁶

The Power Grid Study explains that many of the technologies the Utility Report considered nascent are commercially deployed and could be more cost-effective than traditional infrastructure solutions.¹⁷ Therefore, the Power Grid Study recommends that the Commission “evaluate the extent to which the traditional rate base/rate-of-return cost recovery mechanism may create incentives that inadvertently discourage . . . cost-effective advanced transmission technologies.”¹⁸

Meeting the CLCPA objectives will require significant investments to modernize the electric system, and every opportunity to minimize costs should be pursued. Accordingly, the City agrees that it is worthwhile to consider mechanisms that encourage the use of the most cost-effective technologies, provided they maintain safe, adequate, reliable, and resilient service.

The Commission has done so for Consolidated Edison Company of New York, Inc. (“Con Edison”), when it allowed the Company to earn a return on certain operational expenses to eliminate a preference for traditional infrastructure over non-wires alternatives.¹⁹ Utilities should not be improperly incentivized to add infrastructure because that is the only way to boost earnings.

Separately, the Commission has explored many different types of incentives to induce certain utility behaviors or outcomes. Experience has taught that fixed positive incentives are the least desirable approach. Investor-owned utilities are motivated by shareholder earnings, and therefore shareholder incentives can spur utility action. However, fixed positive incentives can

¹⁶ *Id.* at 23-24, 43, 50.

¹⁷ *Id.* at 43.

¹⁸ *Id.* at 52.

¹⁹ Case 14-E-0032, Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn Queens Demand Management Program, Order Establishing Brooklyn/Queens Demand Management Program (issued December 12, 2014) at 21-22.

lead to perverse outcomes where maximizing shareholder value may not result in investments or actions that are optimal for customers, the electric system, or achievement of State policy goals. Also, fixed incentives may act as a cap on utility efforts since superior achievements will not lead to greater rewards. Negative incentives are appropriate to ensure attention to safety and maintenance of minimum levels of performance, but they are unlikely to induce superior performance. Such incentives motivate utilities to perform only at the level needed to forestall the incentive.

For this matter, a “share-the-savings” incentive structure would be appropriate because it aligns customer and shareholder interests and does not increase customer bills. Under this structure, shareholders receive a percentage of lower costs. In addition to avoiding bill impacts, these incentives do not have caps that limit utility motivation – the more a utility saves, the more its customers and shareholders benefit. This approach is well-suited for achievement of the State’s policy goals as it can incentivize utilities to innovate to achieve greater cost savings. This approach also has greater flexibility than other incentive mechanisms in that incentive levels can be adjusted based on performance. In all cases, customers should receive the majority of the savings. But, to motivate the utilities, the Commission could consider a low percentage for minimal savings and stepped or gradually increasing incentives for higher levels of performance and savings.

To be clear, different types of incentives may be appropriate depending on the goal or outcome sought. For example, where the desired outcome is increased resilience or improved reliability, there may not be any cost savings. The Commission therefore needs to determine in the first instance whether any incentive is appropriate. Utilities are obligated to act prudently. Therefore, there is no reason to reward a utility beyond its allowed return on equity for taking prudent actions, and the Commission possesses the ability to obtain redress when a utility acts

imprudently. Where the Commission determines an incentive is appropriate, it should then design an incentive structure that is most suited to achieve the desired goal.

The Commission also should set some parameters on any incentive program. The Utility Report recommends incentives to encourage adoption of advanced technologies.²⁰ The City believes such a recommendation should be tempered. As the Power Grid Study notes, some new technologies are already in commercial use.²¹ New York utilities should not be rewarded for using generally accepted technologies, and especially not for technologies some of them are already using.

Also, utilities are statutorily obligated to provide safe and adequate service, and they are subject to penalties for failing to do so. Utilities should not be rewarded for performing their statutory obligations; rather, rewards should be limited to superior performance or undertaking actions beyond those necessary to satisfy their obligations.

Finally, the City notes that the Commission has the authority to mandate that the utilities undertake certain actions or construct projects. The Commission recently required utilities to incorporate advanced technologies into their planning processes and declined to provide incentives for them to do so.²² Where it is appropriate for the Commission to order that certain actions be taken, with consequences for failing to adhere to such orders, the Commission should take affirmative action and refrain from authorizing shareholder incentives.

²⁰ *Id.* at Appendix C, p. 52.

²¹ *Id.* at 43.

²² 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 on Phase 1 Local Transmission and Distribution Project Proposals (issued February 11, 2021) at 18-19.

POINT V

THE SOCIAL COST OF CARBON SHOULD BE CONSIDERED IN PLANNING ACTIVITIES AND PROJECT SELECTION

The CLCPA required the DEC to establish a social cost of carbon for use by state agencies.²³ In accordance with this directive, the DEC has issued a guidance document on valuing carbon emissions and applying that value in agency actions and decisions.²⁴ Although the Commission is not required to follow this guidance, the City respectfully urges the Commission to do so.

This matter is about achievement of the CLCPA goals and, more broadly, facilitating the decarbonization of the electric system. Therefore, factoring the value of carbon into the decision-making in this matter is especially appropriate. Indeed, considering the value of carbon could help to prioritize infrastructure projects as the societal benefits may be as important a consideration as the technical benefit (*e.g.*, increase in transfer capability or reduction in congestion), geographic location, or financial/rate impact. Additionally, it would provide transparency to stakeholders regarding the relative benefits of proposed projects.

The Utility Report proposed to use REC prices as a proxy for the “societal value of each MWh of unbottled renewable energy” in benefit-cost analyses for the utilities’ Phase 2 projects.²⁵ However, REC prices are not a proper measure of societal value. Those benefit-cost analyses are

²³ See Environmental Conservation Law § 75-0113.

²⁴ New York State Department of Environmental Conservation, *Establishing a Value of Carbon: Guidelines for Use by State Agencies* (December 30, 2020). As discussed therein, while the phrase “social cost of carbon” is commonly used, the phrase is meant to generally refer to the cost of all greenhouse gas emissions. Indeed, guidance is provided on valuing all types of greenhouse gas emissions.

²⁵ Power Grid Study, Appendix C, pp. 37-38.

a good example of the proper use of the social cost of carbon, especially when the Commission is reviewing the proposals and determining which projects should be approved. More broadly, when the Commission is deciding among options or ranking projects in terms of priority (likely needed to control costs) or generally considering the path forward, the social cost of carbon should be factored into any supporting analysis so that the societal benefits of each option, project, or pathway can be evaluated on a similar basis.²⁶

POINT VI

RESPONSE TO STAFF QUESTIONS

Recommendations for Further System Studies

What studies should be pursued to better understand (1) future generation and flexibility (including storage technology) options that may be needed and available after 2035 to cost-effectively eliminate the residual emissions necessary to achieve a zero emissions grid by 2040, and (2) the extent to which these technologies will impact grid investment and operational needs? Which such further studies should be pursued most immediately?

What additional analysis should be done to identify ideal locations for deploying flexibility resources, including storage, to complement renewable generation and to potentially alleviate the need for transmission expansion?

What additional types of analysis should be performed to better understand the potential impacts of (and ways to mitigate) operational challenges such as real-time renewable generation uncertainties and associated intra-hour system flexibility needs, the impacts of planned and unplanned transmission outages, and system performance under more challenging weather conditions (such as storms, heat waves, and cold snaps)?

²⁶ Although the Commission has determined that the utilities are not required to provide cost-benefit analyses for projects undertaken for reliability purposes, the Commission could consider requiring the utilities to provide information on the estimated carbon impacts/carbon reduction benefits of their proposed projects. Such information can then be used in the Commission's evaluation of both the merits of the proposals and prioritization among multiple projects.

As to the latter group of questions, studies of the impacts of climate change on utility infrastructure, existing and new sources of generation, and any other critical components in the energy supply chain, should be undertaken. Neither the Power Grid Study nor its component studies considered these impacts,²⁷ but recent events across the country demonstrate the need to understand how the changing climate will impact utility infrastructure and the design, construction, and operational changes that may be needed. To that end, the City jointly with the Environmental Defense Fund, Natural Resources Defense Council, and Sabin Center for Climate Change Law filed a petition with the Commission last week seeking a directive that each utility be required to conduct a climate change vulnerability study, similar to the one performed by Con Edison.²⁸

As discussed therein and in the Con Edison Vulnerability Study, the climate is changing and climate science is evolving. Storms previously predicted to occur only once in 500 years may become one in five-year events. Based on an analysis of power outage data from the past 20 years, a majority of States have experienced increases in power outages due to weather events, with the Northeast experiencing the largest decade-over-decade increase (159% increase) and the largest number of weather-related outages over the past decade (329).²⁹ Utility planning must change to address new and different conditions.

While the Con Edison Vulnerability Study was informative and a good start, and the City appreciates that utility's efforts, there were some gaps in that analysis. That Study did not examine increases in electric demand as the State and City decarbonizes buildings and transportation.

²⁷ *Id.* at 88, fn. 89.

²⁸ Matter No. 21-00646, Petition of the City of New York, Environmental Defense Fund, Natural Resources Defense Council, and Sabin Center for Climate Change Law to Comprehensively Study the Impacts of Climate Change on Utility Infrastructure (filed March 19, 2021).

²⁹ <https://medialibrary.climatecentral.org/resources/power-outages>.

Additionally, that Study did not consider that both New York City and the State are expected to shift from summer peaking to winter peaking over the next 20 to 30 years. It is critical to understand how the combination of a 100% clean electric system, a winter peaking system, and growth in peak and annual electric demand may be stressed by different types of extreme weather and grid-destabilizing events. (e.g., longer and more severe heat waves, storm surge and flooding, icing, microbursts, and high winds). Analyses are needed which model and stress test the electric system over the course of a week to multiple weeks under a range of high-stress/grid-destabilizing scenarios.

It also may be appropriate to model a few scenarios that include connections with other regions since the New York system is integrated with other electric systems across the Northeast and beyond. As was seen in the 2003 Blackout, impacts in one region can quickly cascade across multiple regions. Therefore, an understanding of how the New York system performs in concert with other systems under high demand conditions in a winter peak period with a carbon-free supply portfolio would be useful for planning purposes.

The Commission also should study the impact of high variability of clean generation on different levels of demand. Many types of clean generation are dependent on external, uncontrollable factors to operate – sun, wind, and precipitation. A recent analysis by the NYISO shows that the performance of such generation varies significantly over the course of a day, month, and year.³⁰ The Commission should understand how the variability in operation of the supply

³⁰ NYISO, *NY Renewables – Overview and YTD Operations*, presented to the Market Issues Working Group (March 19, 2021), available at <https://www.nyiso.com/documents/20142/20078222/4%202020%20NYCA%20Renewables%20Presentation%20Final.pdf/655aaa4d-bf68-2875-023a-e0cd4dcbd096>.

portfolio is changing over time and its implications for maintaining reliable operations and resource adequacy.

Further, technologies to deal with climate change and to provide carbon-free sources of electricity are also evolving. Wind turbine technology has advanced over the past ten years by an order of magnitude. Within the next ten to 15 years, we are likely to see storage technology – electric and thermal – with far greater capability and longer durations than the best equipment available now, as well as improvements in heat pumps and electric vehicle performance (and large increases in the penetration of electrification of buildings and transportation). The hurdles of using hydrogen and renewable natural gas as replacements of fossil fuels at scale and on a cost-effective basis are being studied and assessed. Electric vehicle-to-grid technologies are moving from research and development to commercial viability. The technology for carbon capture, utilization, and storage continues to develop and should be monitored as a potentially viable solution to reducing carbon emissions. The Commission should undertake a study, technical conference, or other effort to gain an understanding of the nature, status, and expectations for each technology as a contributor to achievement of the State’s policy goals and future performance of the electric system.

For all of the foregoing reasons, the studies that comprise the Power Grid Study are a reasonable first step, but they are not sufficient to form a basis for investment or comprehensive system planning purposes. Rather, all of the above information should be used to inform the Commission’s actions and decisions on the investments and changes in policies and practices needed to achieve the CLCPA goals while maintaining safe, adequate, reliable, and resilient service. Because of the continual advances in climate science and technological innovations, studies of climate change impacts, system needs, and viable alternatives (traditional infrastructure,

non-wires solutions, and new technologies for meeting the State’s energy needs) should be undertaken periodically, such as every four to five years.³¹ Periodically updating or revising these studies will help answer many of the above questions – questions which cannot adequately be answered now because of the nascent nature of some technologies and the inaccuracy of long-range forecasts. Revising the analysis also will help to confirm or modify the needs driving certain infrastructure project decisions.

Planning

How can the State achieve balance between the need for coordinated planning of renewable generation, energy storage, and transmission and the requirements of competitive energy markets and open access tariffs?

The City has been a proponent of competitive markets for many years because of their ability to provide greater value, more options, and lower prices. Moreover, competitive structures are more likely to lead to innovations and improvements than highly regulated, controlled structures (such as the former, vertically-integrated utilities). However, there is a tension between achievement of State public policies – which may have higher attendant costs – and markets based solely on lowest-cost economics. The NYISO’s wholesale electricity markets provide a clear example of this tension as they failed to induce and encourage the development of renewable resources, thereby requiring the State to step in and provide other forms of support and encouragement.

Given the CLCPA and the transition away from fossil-based generation in New York, that tension will abate to a large extent, but other concerns will arise. In particular,

³¹ The California Public Utility Commission recently directed its jurisdictional utilities to prepare climate vulnerability assessments every four years. *See* CPUC Rulemaking 18-04-19, Decision On Energy Utility Climate Change Vulnerability Assessments And Climate Adaptation In Disadvantaged Communities, Decision 20-08-046 (issued September 3, 2020).

energy market pricing based on the operating cost of a marginal generating unit made sense when fuel was the largest cost; when the marginal unit becomes a renewable resource with no fuel cost and minimal other variable operating costs, energy pricing will not be sustainable.

A separate factor relates to technology. The NYISO has been slow to allow new technologies and different configurations of generating facilities (*e.g.*, renewable resources and storage hybrids), and it has attempted to force such technologies and facilities to conform to rules designed in another era based on different standards and requirements. The electric industry is evolving rapidly, and the markets need to evolve commensurately. Otherwise, developers, utilities, and consumers will seek alternative structures that circumvent the markets (akin to the State supporting renewable resources through RECs rather than relying on the markets).

Given the statutory requirements of the CLCPA, and the urgent societal need to reduce carbon emissions, the State should continue to control its destiny through direct action. To the extent competition can be incorporated – whether via the existing NYISO markets, competitive solicitations, or otherwise, it should be. With respect to open access (which is a separate consideration from market structures), there is no question that allowing all users the same access to the transmission system is essential, and that it results in greater choice and lower consumer costs. No fundamental changes to the open access rules are needed or should be considered.

How can planning processes be improved across seams to achieve better total system outcomes, between LT&D upgrade planning that is performed by the individual utilities and bulk-power system planning and generation interconnection processes that is led by the New York Independent System Operator (NYISO)? Similarly, how can planning processes be improved between utilities in cases where the service territories adjoin?

The City addresses these questions in Point I, above.

Considering the Power Grid Study findings, is there a need to revise the Commission's procedures for implementing its role under the NYISO's Order 1000 planning tariff? If so, how should those procedures be modified?

The City submits that the existing process is appropriate, but there is a need for greater and more expeditious utilization of the process. For more than a decade, multiple planning studies have identified deficiencies in the transmission system and the need for upgrades and expansions. Within the Public Policy Transmission Planning Process ("PPTPP"), the City, private developers, utilities, and others have repeatedly identified broad transmission needs and specific projects that are essential to achievement of the State's policy and now statutory goals. However, to date only three projects have been designated by the Commission as transmission needs driven by State policies.

The Power Grid Study and its component studies further amplify the need for additional transmission across New York State. Those findings are consistent with the proposals advanced in the PPTPP. The Commission should exercise the authority it has under Order No. 1000 and designate additional transmission projects pursuant to the PPTPP. Doing so will provide a pathway to cost recovery for the projects under the NYISO's tariffs, thereby eliminating what is probably the largest impediment to their development.

Technology Transfer and Deployment

How can the Commission accelerate implementation of these advanced technologies in New York?

How should utility local transmission and distribution (LT&D) planning processes incorporate consideration of these advanced technologies?

How can New York ensure that utilities will integrate these new technologies swiftly and effectively into their planning and operations?

Is an incentive necessary or appropriate to encourage rapid deployment of advanced technologies on the distribution and local transmission systems? What key considerations should apply?

The City addresses these questions in part in Point IV, above. As a general matter, the Commission has very broad authority under the Public Service Law to ensure safe and adequate service at just and reasonable rates.³² If the Commission were to determine that implementation of advanced technologies is essential to maintain adequate and reliable service at reasonable rates, it could order the utilities to employ such technologies. Alternatively or additionally, the Commission could commence prudence investigations if it believes one or more utilities are not acting appropriately.³³ As discussed in the Power Grid Study, there are a number of beneficial advanced technologies already in commercial use in New York and elsewhere.³⁴ Thus, the Commission would have a rational basis to find that the use of such technologies is prudent.

In sum, the Commission has multiple tools available to accelerate implementation of advanced technologies. It need only state a rational basis in order to require the utilities to utilize them to a greater extent now. To ensure that the utilities are adhering to its directives, the Commission then needs to monitor and audit the utilities' actions and take strong and decisive action if it finds any utility is not doing so.

There are multiple types of incentives used to induce certain utility behavior. With respect to the use of advanced technologies, an incentive structure that provides co-benefits to customers and shareholders will probably achieve the best outcomes.

³² Public Service Law § 65(1).

³³ “Prudence, an essential constituent of utility regulation, is determined by judging whether the utility acted reasonably, under the circumstances at the time, ‘considering that the company had to solve its problems prospectively rather than in reliance on hindsight’.” [citation omitted] *Matter of Long Isl. Light. Co. v. Pub. Serv. Comm.*, 134 A.D.2d 135, 143-144 (3d Dept. 1987).

³⁴ Power Grid Study at 43.

Advanced technologies can produce better results and possibly lower costs. As discussed above, where lower costs is the goal, an incentive structure in which shareholders receive a portion of the cost savings (*e.g.*, 15% to 20%) ensures that their interests are aligned with customers' interests – the higher the savings, the greater the earnings (and the greater the customer benefits). Providing fixed incentive payments could result in utilities engaging in less cost-effective or less optimal actions simply to achieve the incentives. Where enhanced reliability or resiliency is the goal, the Commission should consider whether any incentive beyond the utility's return on equity is needed; if so, the incentive should be designed specifically to achieve the desired goal. As noted above, negative incentives are unlikely to induce superior performance and likely will not be an appropriate option in this setting.

Technology Research and Development

How should New York organize its effort to promote effective and timely vetting of early stage technologies?

Who should lead and who should participate in such an initiative?

What roles could or should the utilities, New York State Energy Research and Development Authority (NYSERDA), New York Power Authority (NYPA), and Long Island Power Authority (LIPA) play?

*How should New York coordinate R&D efforts with other programs, such as national and international organizations, universities, and State and Federal agencies (*e.g.*, NYSERDA, NYPA, National Labs, Department of Energy, Advanced Research Projects Agency - Energy)?*

The City submitted comments on the Utility Report on January 19, 2021, which addressed the above questions.³⁵ At a high level, the City recommends a joint research and development effort, but with a broader scope and a larger array of stakeholders than proposed in the Utility Report. Concomitant with the evolution of the energy industry, there are more stakeholders

³⁵ Case 20-E-0197, *supra*, Comments of the City of New York (submitted January 19, 2021).

involved. Some of those stakeholders have broader experience and greater expertise than the utilities, and it is important that efforts related to assessing new technologies encompass all relevant stakeholders and not be limited to the utilities. The City hereby incorporates its January 19, 2021 comments by reference.

POINT VII

ADDITIONAL COMMENTS AND OBSERVATIONS

The City offers a few additional comments on the Power Grid Study and its component studies.

First, the OSW Study assumes all storage would be comprised of four-hour batteries. While that is presently a reasonable assumption, storage technology is advancing. Future batteries are likely to operate for eight, 12, 16 hours, or longer. The results of the analysis could be very different if longer duration batteries are assumed. Therefore, the City recommends that the OSW Study be supplemented with an analysis that considers longer duration batteries in order to better understand the implications of, and plan for, those technological developments.

Second, the operation of wholesale markets as they exist today is integral to the conclusions of both the OSW Study and the Zero Emissions Study. As discussed above, it is unclear whether the current market construct is sustainable over the next 20 years. Additionally, the Zero Emissions Study modeled storage based on maximizing wholesale market revenues. That assumption under-estimates the amount of storage needed. It also is not necessarily a reasonable assumption as storage could be located anywhere there are operational needs, including at the local level, and could be more cost-effective than a traditional infrastructure solution. Finally, the Zero Emissions Study used simplified wholesale market assumptions based on normalized weather conditions. Climate change is changing future weather patterns as compared to historical weather

patterns, so using historically-based normalization for future assumptions is likely to produce erroneous results.

Third, the Power Grid Study raises a question as to the continued propriety of “traditional rate-base/rate-of-return cost recovery mechanism[s].”³⁶ The Commission should approach any departure from ratemaking based on cost-causation principles with great care. Cost-based rates ensure fairness and equity among customers. Shifting to other approaches has the potential to result in unjust subsidization of some customers. Other approaches have the potential to be more volatile and uncertain, and they could cause customers with the means to do so to self-supply and disconnect from the electric system. That would exacerbate the energy cost burdens in disadvantaged communities – the customers least able to disconnect from the electric system.

³⁶ Power Grid Study at 52.

CONCLUSION

The City respectfully recommends that the Commission engage in a comprehensive, coordinated planning effort as discussed herein to properly identify the generation, storage, transmission, and distribution infrastructure that will be needed to achieve the CLCPA goals. The Commission also should direct the utilities to develop implementation plans to address system needs and direct the use of advanced technologies and non-wires alternatives where they are cost-effective and appropriate alternatives.

Respectfully submitted,

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