STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Consider Resource Adequacy Matters **Case 19-E-0530**

COMMENTS OF NATURAL RESOURCES DEFENSE COUNCIL, SUSTAINABLE FERC PROJECT, SIERRA CLUB, NEW YORKERS FOR CLEAN POWER, ENVIRONMENTAL ADVOCATES OF NEW YORK, AND VOTE SOLAR

Introduction

The Natural Resources Defense Council (NRDC), Sustainable FERC Project, Sierra Club, New Yorkers for Clean Power, Environmental Advocates of New York, and Vote Solar submit these initial comments on the questions and issues raised in the Public Service Commission's (PSC) August 8, 2019 order instituting this proceeding and soliciting comments. We commend the PSC for its proactive leadership in initiating this timely proceeding. When Governor Cuomo signed the Climate Leadership and Community Protection Act (CLCPA) into law on July 18, 2019, New York's already ambitious climate and clean energy portfolio was significantly expanded, codifying into law the boldest such framework in the nation.[1]

Despite the progress to date via administrative actions over the past two decades, there has been a persistent debate around *where* the state is headed in terms of clean energy and climate policy. With the enactment of the CLCPA, that debate has largely been resolved, and regulators and stakeholders can now more deliberately pivot to the *how* aspect of that question. Accordingly, this proceeding is rightfully exploring a critical aspect of how New York can most efficiently and cost-effectively decarbonize the power sector over the next twenty years.

As New York tackles the challenge of reducing our economy-wide greenhouse gas emissions 40 percent by 2030 and reaching net zero emissions by 2050, the power sector will be the engine for that transformation as we electrify buildings and transportation. The CLCPA includes an explicit mandate that New York transition to a zero-emissions power sector by 2040 while accounting for expected load growth from electrification, and it includes technology specific requirements. These include: generally codifying the state's ramp up to meet 3% of annual electric demand with demand side energy efficiency in 2025, 6,000 megawatts (MW) of behind-the-meter solar

[1] Climate Leadership and Community Protection Act, L. 2019, ch. 106.

PV by 2025, 3,000 MW of battery storage by 2030, 9,000 MW of offshore wind by 2035, and an overlay of delivering 70 percent of the state's electric demand with renewable energy by 2030.[2]

New York's power sector in 2040 will be dramatically different than the one current resource adequacy frameworks have evolved to support. For over a century, the focus of resource adequacy has been to ensure enough power plants are built to serve predictable but largely uncontrollable demand. In contrast, by 2040 New York will at most times have a large surplus of essentially zero fuel cost power, and the main challenges for resource adequacy will be handling the ebb and flow of renewable supply and managing periods of low renewable production.

Critically, the rules and policies of NYISO will either facilitate or frustrate the state's ability to achieve the CLCPA's goals. NYISO continues to head in a direction that discriminates against state-incentivized resources by adding unnecessary costs, and the existing ICAP regime has had the impact of slowing the retirement of polluting generation. The shortcomings of NYISO's current approach to resource adequacy will only worsen as the electric grid becomes dominated by wind, storage, solar, electric vehicles and other clean resources. Absent a more deliberate and proactive reform of NYISO market rules with the realities of a low- or no-carbon electric system, the achievement of the CLCPA goals will take longer—and unnecessarily cost New Yorkers far more—than they otherwise would.

It is through the following lens that we approach this proceeding: Our core priority is ensuring that the state transitions rapidly and cost-effectively to a cleaner, more efficient and dynamic grid/power sector, either through a NYISO-driven approach to resource adequacy or one more actively overseen/administered by the PSC. NYISO's organized markets should be designed to actively facilitate state clean energy goals and the economic dispatch of energy across the state's system.

In the short term, NYISO's proposed application of Buyer Side Mitigation (BSM) to state-incentivized resources will increase consumer costs and frustrate the CLCPA's clean energy goals by retaining unneeded fossil fuel plants. As illustrated by the comparably problematic mitigation approach in the neighboring PJM market, increased consumer costs can be in the hundreds of millions or billions of dollars, as a recent study of that market shows.[3] New York should not accept or remain part of any resource adequacy regime that prevents state supported resources from counting towards system capacity.

In the longer term, it is not clear that capacity markets are compatible with New York's future resource adequacy needs. Capacity markets were designed to serve a system dominated by thermal generation, and so emphasize the value of guaranteed power supply and focus on

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[2] Pub. Serv. L. § 66-P.

[3] *Consumer Impacts of FERC Interference with State Policies: An Analysis of the PJM Region*, Grid Strategies, LLC (August 2019), https://gridprogress.files.wordpress.com/2019/08/consumer-impacts-of-ferc-interference-with-state-policies-an-analysis-of-the-pjm-region.pdf.

commitments of individual generation stations. Nearly all studies of a deeply decarbonized electric grid emphasize that reliability comes from portfolios of renewable resources bound together by energy storage and flexible load.[4] It is not at all clear that capacity markets can be adapted to this new reality.

Given the challenges facing capacity markets we recommend that the following actions be considered:

- **NYISO should reduce reliance on the capacity market in favor of improved energy and ancillary services markets**. Improvements to those markets could include more dynamic energy price formation that sends robust signals to load when energy is scarce or plentiful, and emphasize developing ancillary services that meet the needs of a grid dominated by variable output renewables.[5]

- **While retaining the capacity market as a transitional backstop, create space for state policy makers, utilities, and consumers to experiment with new approaches to resource adequacy**. The PSC could accomplish this by modifying the current NYISO capacity market construct from a mandatory to a voluntary market by 2025.[6] Under a voluntary capacity market construct, utilities would have greater flexibility to provide reliable service through portfolios of renewables, storage, demand side management (DSM), transmission, etc. Renewable resources would earn revenues based on the merchant market and/or from bilateral contracts. The capacity market would remain as an option for utilities that elect to use it. The State will ensure that the resource adequacy needs of the system are met through its oversight of LSEs.

Increased energy/ancillary services market revenues and a voluntary capacity market coupled with bilateral contracts could help facilitate the accomplishment of the CLCPA goals without unnecessarily increasing costs to ratepayers. **However, if the FERC imposes a sweeping BSM mechanism in its decisions in the coming months, the State should move up its consideration of voluntary capacity markets to a date much sooner than 2025.**

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[4] *See, e.g.*, J. Jenkins, M. Luke, S. Thernstrom, *Getting to Zero Carbon Emissions in the Electric Power Sector*, COMMENTARY (Dec. 19, 2018), DOI: https://doi.org/10.1016/j.joule.2018.11.013; National Renewable Energy Laboratory, *Renewable Electricity Futures Study*, https://www.nrel.gov/analysis/re-futures.html.

[5] *See* July 1, 2019 Comments of Natural Resources Defense Council, Sustainable FERC, Earthjustice, Association for Energy Affordability, Association for Clean Energy New York, and American Wind Energy Association to NYISO's draft whitepaper, *Reliability and Market Considerations For A Grid In Transition* at 2-4 (supporting the whitepaper's overall goal of strengthening the markets for energy and ancillary services and suggesting NYISO focus on these revenues for its future market rather than capacity or other similar administrative constructs).

[6] 2025 is when the next demand curve reset in the capacity market is expected to expire.

These comments include three parts: (1) foundational principles, (2) answers to the PSC's questions, and (3) related issues that New York and NYISO need to address but that are beyond the scope of this proceeding.

I. Foundational Principles of Resource Adequacy

Given the current interdependence between the NYISO's energy and capacity markets and the state's clean energy goals in the CLCPA, we propose several principles through which to assess the PSC's questions. We believe New York's future resource adequacy framework should:

1. Continue to provide reliable service to all consumers in the state.
2. Fully incorporate resources procured pursuant to state policy.
3. Be designed around the characteristics of a low- or no- carbon electricity system.
4. Fully value and provide incentives to flexible loads.
5. Minimize costs.
6. Emphasize competitive approaches.
7. Provide sufficient certainty to attract investment and allow purchasers to manage risk.
8. Include transition mechanisms where needed.

II. Questions and Answers on Resource Adequacy

1) Are the State's energy policies and mandates, such as those related to Offshore Wind, photovoltaics, other renewables, and energy storage compatible with the NYISO's resource adequacy mechanisms? If not, what issues are manifested? Also, if not, how could they be aligned?

No. Fundamentally, we believe that NYISO's current approach to resource adequacy lacks the flexibility needed to support CLCPA's mandate for 70% renewable electricity by 2030 and 100% emissions-free electricity by 2040 in a cost-effective manner.

Conflicts between price formation in FERC jurisdictional markets and state support of resources needed to meet mandates threaten serious inefficiencies. FERC jurisdictional capacity markets emphasize competitive price formation. As a result, they include rules designed to prevent market manipulation that could elevate or suppress prices from their competitive level. In NYISO's capacity market, this manifests through Buyer Side Mitigation ("BSM"), which intends to prevent price suppression from resources offering at less than their actual costs.

NYISO is increasingly proposing to apply BSM to state-incentivized resources offering to sell capacity in the NYISO Installed Capacity (ICAP) market. For example, NYISO has proposed to eliminate an existing BSM exemption for resources under 2 MW as well as potentially apply BSM to energy storage resources.[7] Without changes to the NYISO tariff, BSM will be applied to

[7] Docket No. ER19-467-000, NYISO Proposed Tariff Filing per Order 841 Compliance (Dec. 3, 2018).

other state-sponsored large-scale renewable resources, such as the 9,000 MW of offshore wind called for in the CLCPA.

This worrying trend, along with other NYISO rules and practices such as its proposal to discount the capacity value of energy storage to 75 percent after 1,000 MW of market participation is reached, will thwart New York's ability to meet its ambitious clean energy goals in a least-cost manner. State supported resources may be effectively excluded from the capacity market, resulting in capacity purchases that ignore the reliability contribution of those resources. This over-procurement of resources resulting from the application of the BSM will saddle customers with enormous and unnecessary costs. An August 2019 study conducted by Grid Strategies shows that broad application of the Minimum Price Offer Rule (MOPR) across the thirteen states in the PJM region could cost consumers $5.7 billion per year in those states, an increase of 60% over the current capacity market and one that would, on average, raise customer bills by more than $6 per month.[8] In addition, excluding state supported resources from capacity markets will deprive them of an important revenue stream. New York would face additional costs given that the price of RECs to comply with these polices would increase to account for the fact that these resources would not receive capacity market revenues.

In our view, there are only two ways out of this untenable situation: (1) NYISO and FERC cease all efforts to broadly apply BSM, or (2) New York State assumes a stronger role in resource adequacy. New York assuming such a role could provide a path to FERC approval of a NYISO resource adequacy regime that does not over-procure resources. Further, at least in the short run, such a regime could leave NYISO's capacity market untouched with respect to non-state supported resources and need not result in the retention of "uneconomic resources" as NYISO fears. In fact, it could be the best path to avoiding such retention, as NYISO's proposed BSM regime encourages.

2) Does the interaction of [state] policies and market structure mechanisms result in safe and adequate service at just and reasonable rates for customers?

The tensions between state policies and market structure will grow as New York moves towards fulfilling its CLCPA goals. As discussed in the prior answer, NYISO policies, including the application of BSM, will leave customers paying for unnecessary capacity, resulting in higher rates.

At the same time, New York customers continue to face significant interruptions of service from extreme weather events, equipment failures, and other causes. Most of these interruptions have occurred due to distribution system-level incidents.[9] Under current market structures, resource

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[8] *Consumer Impacts of FERC Interference with State Policies: An Analysis of the PJM Region* 9-10, Grid Strategies, LLC (August 2019).

[9] *See, e.g.*, Utility Dive, July 30, 2019, *Con Ed pinpoints cause of July 13 blackout* (reporting that blackout was caused by a flawed connection between sensors and protective relays at local substation).

adequacy and distribution system issues are considered entirely separately, even though both ultimately manifest themselves through impacts to the quality of retail customer service.

As we address in our answer to Question 4 where we discuss incorporating resource adequacy with distribution and transmission planning, there is considerable evidence that current market structures result in overinvestment in supply and underinvestment in distribution system reliability and resilience.[10] With the appropriate substitution of investments from wholesale markets to the distribution system, customers would pay no more (and might pay less) while experiencing higher levels of safe and adequate service. Because FERC is statutorily prohibited from regulating distribution systems,[11] this issue can only be addressed by New York State taking greater authority over resource adequacy.

3) Is an ICAP product an effective long-term solution for resource adequacy given the required future generating resource mix, which may have lower marginal costs or different availability profiles than many current generation resources in operation?

No. The ICAP construct as currently designed needs significant revision to support the goals of New York energy policies and the changing nature of the system resource mix on both sides of the customer meter. The ICAP product suffers from several significant shortfalls:

- The market overemphasizes "always available" generation as opposed to the time sensitive supply that best fits actual loads. This encourages overinvestment in generation plants, blunting the real-time price signals that encourage flexible and responsive load.

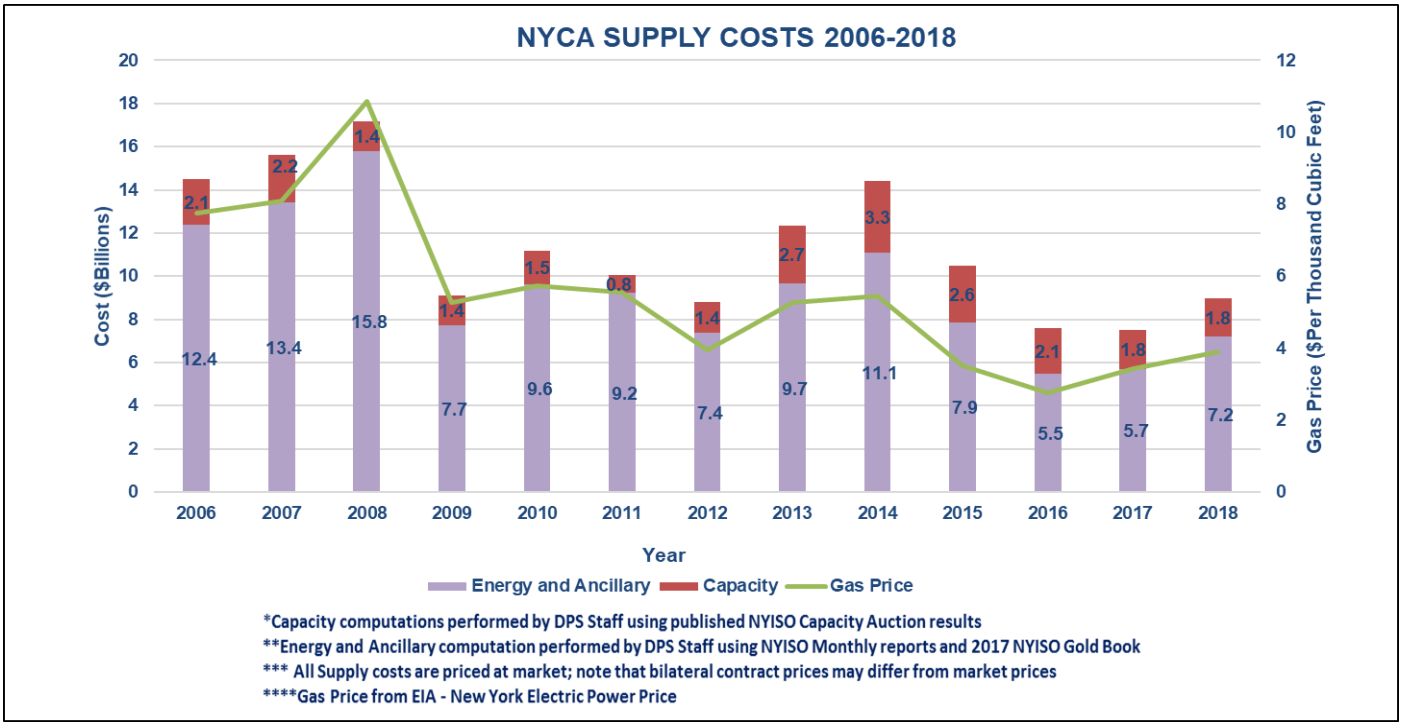
- The market measures the reliability value of supply on a unit-by-unit basis, neglecting the synergistic effects from combining wind, solar, and storage systems.

- The market focuses solely on bulk supply of energy, while neglecting the flexibility needed to support a high-renewables grid. In particular, current resource adequacy mechanisms largely treat demand as fixed, in contrast to the pivotal role flexible load will play in a high-renewable future.

To put the financial magnitude of the capacity market and the challenges it presents to renewables in perspective, New York customers paid about $2 billion annually in capacity costs (unhedged cost numbers) in the last 13 years. In the last five years, capacity revenues constituted about of a quarter of the total NYISO wholesale market revenues in each year. Fossil and nuclear units receive most of the capacity market revenues. In contrast, the bulk of the revenues for

[10] *See, e.g.*, Grid Strategies, *A Customer-focused Framework for Electric System Resilience* (May 2018), https://gridprogress.files.wordpress.com/2018/05/customer-focused-resilience-final-050118.pdf.
[11] Federal Power Act § 824(b)(1).

onshore wind and solar are derived from energy markets, RECs and PTC revenues; very little comes from the capacity market.



Source: DPS Presentation to the PSC at its May 16, 2019 public session.

An additional challenge arises from the lower marginal running costs of much of the future generating resource mix. The NYISO capacity market mechanism is supposed to provide the "missing money"[12] for resources that do not earn sufficient revenues from the energy and ancillary services markets. Price formation in energy markets is based on the marginal cost of power. In a high-renewable grid, this marginal cost will often be zero, challenging revenue sufficiency for many power plants. If capacity markets are not reformed, this dynamic could lead to a greater role for capacity just as the tensions between capacity market requirements and CLCPA mandates increase.

Given the above challenges, it may no longer be appropriate to use (or rely on) capacity markets as currently construed to ensure resource adequacy and recover a significant portion of resources' fixed costs. We suggest paths forward in our response to question 4, below.

[12] "Missing money" refers to the revenues over and above those earned from selling energy and ancillary services that are needed to provide market incentives for maintaining sufficient capacity margins to satisfy planning reliability criteria such as the "one-day-in-ten-year" reliability standard.

4) ***Is there a preferred mechanism(s) for ensuring resource adequacy? What are the cost impacts and benefits to consumers under the various potential resource adequacy mechanisms?***

Given the current interdependence between the NYISO's energy and capacity markets and the state's clean energy goals in the CLCPA, we propose to use the principles discussed in Part 1 above to assess the PSC's questions.

We suggest four general directions for reform. First, the need for the capacity market can be reduced by developing more robust energy and ancillary services markets that better provide critical reliability services. Second, dependency on the capacity market for resource adequacy can be reduced through greater reliance on bilateral contracts for energy and capacity. Third, the capacity market and ICAP products can be reformed to match the needs of a decarbonized electric sector. Finally, approaches to holistically consider resource adequacy, transmission, and distribution should be examined in reliability planning.

Avoiding disruptive transitions is important, and evolving the resource adequacy approach can be an evolutionary process. However, there is an urgent need to avoid a massive increase in cost through application of BSM, and the State needs to be prepared to assume a greater role in resource adequacy right now should existing and pending market rules prove to be an immediate barrier to state policy actions. Ideally, this can be avoided, and with the State taking on greater responsibility, it can guide the evolution of ICAP over time in a deliberate fashion.

a. Improve energy and ancillary services markets

Throughout these comments, we have described how various state agencies can play a more prominent role to oversee resource adequacy. As New York assumes this larger role to fully realize and implement Reforming the Energy Vision at scale and achieve its ambitious clean energy mandates, it is essential that the state consider how its anticipated resource mix will provide all of the services needed to ensure reliability. New York must plan for and proactively design its procurements to ensure adequate energy availability and ancillary services year-round and in each part of the state. In doing so, the state must account for the services that had been provided by resources displaced by state-procured resources and ensure that its procurements, or other mechanisms, will bring to market alternatives that can provide those same services.

A high-renewable grid is expected to require a greater variety and quantity of ancillary services to respond to renewable resources' characteristics.[13] These will include reserves that respond to the inherent variability of renewable resources and placing a greater value on resources that can be quickly dispatched to follow daily swings in renewable output. Additionally, robust energy

[13] *See* National Renewable Energy Laboratory, *Effective Ancillary Services Market Designs on High Wind Power Penetration Systems* (Dec. 2011), https://www.nrel.gov/docs/fy12osti/53514.pdf.

market price signals will be required to support both flexible load that can shift to follow renewable output and energy storage that moves energy from times of plenty to times of scarcity.

The emphasis of resource adequacy thus evolves from procuring adequate bulk power supply to developing the ability to shape load curves and ensuring there are adequate dispatchable energy sources available on relatively short time frames. Reforms to energy and ancillary services markets can provide the price signals that support this transition, creating more tailored incentives for resources capable of providing needed services. This leads to a better tailored resource mix. It also may allow needed resources to meet a greater portion of their revenue requirements through energy and ancillary services, reducing dependence on the capacity market.

Some stakeholders have advocated for a carbon price in NYISO's energy markets to better integrate state policies into NYISO's market design. However, in our view carbon pricing is not a panacea for state-supported resources and will not resolve tensions between the existing capacity construct and New York's policies. If carbon pricing is introduced in the NYISO energy market, it will partly mitigate the 'missing money' problem by providing extra energy revenues for the carbon avoidance attribute, but likely in the short run only. Over the long term, when fossil resources are not on the margin, the carbon price value could be drastically lower. Moreover, while a carbon price will raise energy prices in the short run, it does not necessarily do so in a way that enhances the reliability signal sent by energy market prices, as would a mechanism that incorporates reliability constraints into price formation.

For example, as the state Department of Environmental Conservation moves forward with regulations to improve air quality by reducing emissions of NOx from gas and oil-fired units, the state should anticipate when those units will go offline, taking with them their capability to ramp up and down quickly to help meet peak loads and integrate ever-increasing levels of variable generation. The state should work with NYISO to ensure market solutions exist to deliver those lost capabilities from low-carbon sources, and/or undertake competitive procurements for supply and demand-side resources. Newly procured resources must be located where needed to serve load during peak hours and not on the wrong side of a transmission constraint. The state must consider not only system summer peaks, but also resource performance during winter high load events.

We note with interest the ERCOT model, which meets resource adequacy through a high cap on energy prices and greater emphasis on operating reserves. Improved scarcity pricing mechanisms can internalize reliability constraints into energy market price formation and reduce suppliers' reliance on revenues recovered through the capacity market, which sends a relatively blunt signal for investment. New York may look to ERCOT for useful lessons on how a greater focus on real-time reserve products can provide reliable service with ICAP reserve margins much lower than those deemed necessary under a model that relies solely on capacity markets to incent resource adequacy.

b. Reduce dependency on the centralized capacity market

We recommend a voluntary residual capacity market where the State would ensure that resource adequacy needs of the system are met through its oversight of LSEs. Under this system, the New York State Reliability Council and NYISO would continue to collaborate to calculate mandatory reliability requirements for LSEs in the New York Control Area. In addition, wholesale customers could satisfy their mandatory reliability requirements by demonstrating that they have self-supplied or procured enough capacity through bilateral contracts, either for resource adequacy alone or for the full energy and capacity value of a resource. However, this process would be overseen by the State rather than NYISO. The ICAP market, which could be used by LSEs to procure additional required capacity, would be voluntary rather than mandatory. This could allow wholesale customers to enter into long-term bilateral transactions for energy and capacity for the types of resources needed to meet the state's clean energy requirements, including but not limited to utility-scale renewable resources that NYSERDA (or an LSE) has procured clean energy attributes from to meet state policy goals without fear of being subject to BSM. This construct is discussed further in response to question 5. LSEs should also be encouraged to procure capacity from flexible resources such as energy storage and demand response that will serve to balance renewables in a clean manner. Energy storage and demand response, which depend heavily on capacity market revenue for their development and continued operation, should not be left to compete in a NYISO voluntary capacity market with fossil resources.

Currently, utilities, competitive supply (Energy Service Company or ESCOs) customers and large individual commercial and industrial customers can enter into long-term bilateral contracts on a voluntary basis in the current market structure to facilitate entry of new resources, but such long-term contracts are relatively rare. Utilities are hesitant to do so given the regulatory uncertainty of cost recovery (aka 'prudence' disallowance threat), the potential for declining supply costs over time and finding themselves with potential stranded costs, the uncertainty of future customer load given retail competition, and the potential financial impact of long-term contracts on their balance sheets. ESCOs have typically not entered into long-term contracts for similar reasons, and many of them are not creditworthy enough to enter into such contracts with sellers. Some large commercial customers enter into long-term contracts with clean energy resources to meet their sustainability goals, but this segment is very small and not enough for the large-scale renewable penetration that is needed to meet State clean energy goals. The PSC could facilitate voluntary bilateral energy and capacity transactions by increasing price transparency by posting limited information about bilateral offers, developing a standardized contract, or hosting a bilateral trading platform.

With the increased role we envision for the state in resource adequacy comes increased responsibility for ensuring that procurements not only achieve progress towards the state's clean energy goals, but also do so in a way that will support reliability throughout the state. If the state

does not plan proactively for reliability under very high renewable energy penetrations, it may find itself stuck with legacy fossil resources that NYISO deems necessary for some facet of reliability. Advanced planning and productive collaboration with NYISO regarding emerging needs for grid services as the resource mix evolves and strategically planned and sited will help New York phase out dirty fossil fuel units and replace them with efficiency, strategically sited storage and renewables, achieve the CLCPA emissions reductions and clean energy mandates on-time while maintaining affordability.

c. Redefine the capacity product

Current capacity products are designed to measure the value of individual traditional generators. As discussed above, a high-renewable grid will require a different approach to resource adequacy planning. In determining if an LSE has met its resource adequacy obligations, or determining the amount of capacity an LSE will be required to purchase on the residual market, the PSC should consider:

- Correlation between the LSE's supply portfolio and its load time of use.
- Geographic diversity in renewable supply.
- The value of complementary renewable and demand response resources, e.g., a combination of solar or demand response that is most available in summer and offshore wind that peaks during the winter has a greater reliability value than either would individually.
- Ability to curtail or shift loads.
- The probabilistic nature of renewable generation shortfalls and how those can be managed with storage, flexible demand, and transmission solutions.

A capacity market incorporating these reforms will more accurately value the reliability contribution of the types of resources expected to make up low-carbon electricity supply, improving New York's ability to guarantee reliability at least possible cost.

d. Integrate resource adequacy with transmission and distribution planning

Ensuring resource adequacy is only a small portion of providing overall reliable electric service. However, current approaches to reliability planning treat resource adequacy, distribution system planning, and transmission system planning separately. This offers little opportunity to determine the most cost-effective balance of reliability investments. We believe there are signs that this has resulted in over-investment in resource adequacy relative to other reliability measures. In the longer term, as renewables make up a larger portion of New York's electricity supply, improved transmission will provide great reliability benefits by increasing diversity of both supply and load. Both observations suggest benefits from integrated planning that holistically considers

transmission, distribution, and resource adequacy within an overall framework of minimizing customer interruptions.

The EIA reports that in 2016, American customers experienced on average 1.3 power outages totaling 250 minutes.[14] Recent studies report that over 90% of those interruptions stem primarily from weather-related issues on the distribution system, about 9% come from transmission interruptions, and that resource adequacy shortfalls were responsible for less than 0.01% of customer outage-hours.[15] In contrast, the nominal goal of resource adequacy planning is to ensure no more than one shortfall every ten years. This strongly suggests that at least some capacity payments could be spent on distribution and transmission system improvements. We propose the Commission examine two issues related to this:

- *Are current mechanisms correctly planning and procuring to meet reliability standards?* The New York State Reliability Council (NYSRC) conducts studies to determine an Installed Reserve Margin (IRM) such that insufficient supply is expected no more than 0.1 days per year.[16] NYISO then operates its capacity market to ensure that every LSE is assigned sufficient capacity to meet this target IRM, at an average annual cost of approximately $2 billion. It appears that the amount of capacity procured by this process is well in excess of the amount needed to meet reliability standards, increasing costs to ratepayers for uncertain benefits.[17] We propose the Commission examine resource adequacy planning and procurement procedures to ensure that they are capable of meeting reliability targets with greater precision and less waste.

- *Would combining distribution system reliability and resource adequacy in a single planning process improve ratepayer service?* As noted above, the vast majority of outages are due to distribution system issues while virtually none are due to resource adequacy shortfalls. Thus, it may be possible to improve overall reliability by shifting some spending from resource adequacy to distribution system improvements. The Commission could consider planning metrics based on expected customer-minutes of outage from all sources, or allow utilities to submit proposals that explicitly optimize resource adequacy and other reliability-focused spending. Flexibility in this area will become especially important with the growth of distributed energy resources, which promise to provide both distribution system and resource adequacy benefits.

[14] *See* EIA, *Average frequency and duration of electric distribution outages vary by states* (April 5, 2018), https://www.eia.gov/todayinenergy/detail.php?id=35652.

[15] Silverstein, et al., *A Customer-focused Framework for Electric System Resilience* at 15 (May 2018).
[16] NYSRC Reliability Rule A.1.
[17] *See* NERC, June 2019 Summer Reliability Assessment at 5 (showing anticipated reserve margins in NYISO and other RTOs well above reference levels).

Robust transmission will become more important as renewable penetration increases. Transmission improves the reliability of high-renewable grids by creating more geographic diversity of supply, lessening the impact of local weather fluctuations. Improved transmission also allows New York's renewable fleet to sell any energy in excess of local load, improving the economics of such resources and lowering costs to ratepayers. New York's future resource adequacy approach should both send price signals that enable transmission development, and allow informed decision making between the reliability benefits of building additional generation vs. building transmission lines that increase availability and diversity of existing low-carbon energy supply.

The State needs to aggressively move to reduce barriers to optimizing existing transmission assets and building new transmission to help unbottle renewable power and to move it to higher-priced load centers through strategic transmission upgrades and speeding up the planning process.[18] These steps will reduce uncertainty and costs for developers, support existing renewable generators, and help the state achieve the goals of the CPCLA most cost effectively.

5) ***Should alternative approaches be considered to ensure the procurement of generation resources is aligned with State policy goals. If so, which ones? Are there existing or proposed models which might be instructive, such as the State overseeing LSEs' resource adequacy portfolios (e.g., an approach similar to the one used by California) or restructuring NYISO rules to accommodate State public policies (e.g., a Fixed Resource Requirement Alternative, as proposed by FERC Order issued on June 29, 2018 in Docket No. EL16-49, ¶160 et seq.)?***

Yes. Alternative approaches should be considered to ensure that New York ratepayers pay just and reasonable retail rates and realize the full benefits of the resources that are procured to achieve the state's public policy objectives. As currently designed, the NYISO ICAP market views capacity as a homogeneous product that is simply available during system peak hours and does not consider (and hence value) the different performance characteristics of the capacity supplies. As such, the market is not suited to procure services that meet all of New York's resource adequacy needs at least cost. The PSC should consider a resource adequacy construct that focuses on resources' ability to perform when the grid is stressed, rather than on procuring an undifferentiated, always available capacity product that is effectively designed around the attributes of a fossil generation resource. This would allow resources to compile the characteristics required to meet the particular service they wish to provide and then offer that into the market. This would lead to innovation and a far more efficient outcome, while maintaining reliability. For instance, hybrid resources (combinations of wind/solar/storage) can

[18] *See* Case 18-E-0623, Comments of Natural Resources Defense Council, Environmental Advocates of New York, and Alliance for Clean Energy New York on Proposed Public Policy Transmission Needs (May 22, 2019); Supplemental Comments of Alliance for Clean Energy New York (Sept. 10, 2019).

be configured by the resource owner to provide multiple different services, including a certain amount of 'firm energy'; however, these types of resources are not currently compensated for such services in the NYISO markets.

We discuss below the two approaches the PSC Order references: Fixed Resource Requirement and the California Approach, and then provide our preferred approach.

Fixed Resource Requirement

Very broadly, under this approach load serving entities can remove themselves from the capacity market by demonstrating they have procured sufficient supply to meet their customers' resource adequacy needs. This approach was originally designed to accommodate vertically integrated utilities under an otherwise mandatory capacity market. Pending the outcome of a long-awaited FERC order, it may evolve to include a resource-specific FRR approach (referred to as the "FRR-RS") intended to prevent the worst outcomes of application of BSM (and similar rules) to state supported resources.

In October 2018 several of the undersigned organizations proposed a model FRR-RS to FERC in the pending PJM minimum offer price rule proceeding that would facilitate state public policy goals, protect consumer interests, and preserve the capacity market framework.[19] The proposal included six principles, some of which are equally relevant in New York:

1. The treatment of load and resources under the FRR-RS, together with capacity procurement under the ICAP market, should continue to reliably satisfy NYISO's state-wide and locational resource adequacy objectives.
2. Price formation under the FRR-RS should continue to succeed in attracting and retaining sufficient resources to meet resource adequacy objectives.
3. The FRR-RS provisions should be as flexible as possible to meet these resource adequacy and price formation goals, without burdening the policy choices of the state of New York.
4. The contributions to resource adequacy of all capacity resources (both those offered through the ICAP markets and through FRR-RS) should be recognized. Loads should not have to pay for more capacity than necessary to meet resource adequacy needs—there should not be over-procurement or double payment.
5. There should be no difference in the obligations of the resources committed through ICAP and the FRR-RS; the only difference is in the mechanism these resources use to sell capacity. All provisions of the NYISO tariff and associated agreements should apply equally to FRR-RS-cleared and ICAP-cleared resources.
6. All resources that provide capacity, whether cleared through ICAP or under FRR-RS, should provide the same product. LSEs should be free to contractually assume and pool any risks associated with the performance of resources in the LSE's portfolio, to facilitate development of complementary variable and demand response portfolio.

[19] This model FRR-RA is available at https://gridprogress.files.wordpress.com/2018/09/frr-rs-proposal-07-27-18-final.pdf.

One of the keys to success of an FRR-RS is identifying and matching load with supply. As the paper explains, the load to be removed from the ICAP market auction in connection with an FRR-RS election could be identified to NYISO in a variety of ways, at the option of the FRR-RS eligible resource and ultimately subject to New York State authority. Resources that anticipate eligibility for FRR-RS could attempt to reach agreement with entities that have capacity purchase obligations (LSEs) to assign some or all of their capacity. State entities may also choose to facilitate matching of LSEs and FRR-RS eligible resources or could identify the commensurate load to be removed from the auction in any other way that is compatible with New York's preferences, including procurement programs or retail choice policies. Agreements may be reached between LSEs and FRR-RS eligible resources without regard to whether the LSE also purchases RECs from the resource.

Some variant of the FRR-RS approach could be a mechanism to promote bilateral contracts and effectively make the central capacity market voluntary. However, we believe that for this approach to work for New York, NYISO rules must allow entities choosing the FRR-RS option greater flexibility than they currently have to develop their own resource adequacy portfolios. If the FRR-RS option is simply an option to self-procure the same ICAP product currently in use, it retains many of the disadvantages identified in response to question 3.

California's Resource Adequacy Approach

Both the California Public Utility Commission (CPUC) and the California Independent System Operator (CAISO) play a role in the state's resource adequacy program. The CPUC first determines the resource adequacy obligation for each jurisdictional LSE. This obligation contains three sub-components: (1) a system-wide resource adequacy obligation, (2) a local resource adequacy obligation that reflects local transmission constraints, and (3) a flexible resource adequacy requirement that addresses the need for fast-ramping resources at times when solar power is unavailable.[20] LSEs must then submit both annual and monthly filings to demonstrate that they have secured sufficient capacity, which most LSEs do by entering into bilateral contracts with generators. In addition to setting the overall quantity of capacity that LSEs must procure, the CPUC also determines the initial Qualifying Capacity values for resources, or the amount of capacity that any given resource – such as an intermittent wind producer – can provide to satisfy an LSE's resource adequacy obligation.[21] CAISO conducts technical studies to identify local and flexible capacity needs,[22] and then runs a backstop procurement program to fill gaps if LSEs are unable to meet their capacity obligations.[23] CAISO

[20] *See* CPUC, *Resource Adequacy*, https://www.cpuc.ca.gov/RA/.
[21] *See* CPUC, *Qualifying Capacity Methodology Manual* (2017), http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442455533.
[22] *See* CXA La Paloma, LLC v. CAISO, 165 FERC ¶ 61,148, at P 2 (2018) (describing CAISO's role in the state's resource adequacy program).
[23] *Id*. at P 4.

also has the authority to enter into Reliability-Must-Run (RMR) contracts with generators that seek to retire but which CAISO determines are needed to ensure reliability.[24]

The CPUC is also responsible for establishing RPS requirements for investor-owned utilities, community choice aggregators, and electric service providers.[25] The CPUC determines compliance based on each retail seller's verified RECs provided by the California Energy Commission (CEC). The CPUC also establishes RPS enforcement procedures, determining compliance, and imposing noncompliance penalties for retail sellers. Among the benefits of California's approach to resource adequacy and RPS implementation are:

- Sellers get revenue certainty with long term sale of energy and RECs in contracts overseen by state regulators.
- Potentially lowers the cost of capital for new entrants given the certainty of long-term revenue stream.
- Primary reliance on bilateral contracts avoids FERC policy changes such as BSM.

However, there are potential issues with this type of approach. For example, it requires creditworthy utilities to enter into long-term contracts. Alternatively, a centralized entity like NYSERDA could enter into long-term contracts and recover costs from the LSEs, just as it does with RECs today. For fairness and equity reasons, any long-term contract stranded costs should be borne by all customers of the utility, including customers going to retail suppliers. Finally, potential market power concerns need to be addressed in tighter markets such as New York City.

Our Preference

As we explain in our answer to Question 4, we recommend consideration of a voluntary residual capacity market where the New York State Reliability Council (NYSRC) recommends mandatory reliability requirements for wholesale customers in the New York Control Area for PSC approval, and wholesale customers are free to satisfy their requirements through a combination of self-supply and bilateral contracts, turning to the NYISO capacity market only to fill remaining needs. The PSC will have to take on a broader set of responsibilities to ensure resource adequacy.

In broad strokes, the PSC would:

- *Set Installed Reserve Margins (IRM)*. They can be developed by the NYSRC and approved by the PSC as is done currently.

- *Enforce capacity obligations on loads*. For any load under retail choice, the state would need to ensure that they are contributing to resource adequacy. These obligations can

[24] *Id*. at P 5.
[25] Information about the California RPS implementation approach is available at https://www.cpuc.ca.gov/RPS_Procurement_Rules_50/.

account for loads' desire for firm service and ability to respond to prices. For example, an LSE that demonstrates it can shift load from hour to hour by managing heating and cooling should enjoy a lower capacity obligation. Similarly, an industrial customer with on-site storage willing to take fully interruptible service should face no capacity obligation, and so on.

- *Determine "capacity value" of various resources and portfolios of resources*. For example, the capacity credits assigned to wind, solar, hydro, and storage resources. Critically, the PSC would need to establish an approach to determining the capacity value of combinations of resources that recognizes they may have a capacity value greater than the sum of their individual resources.

- *Determine generator performance criteria to count as capacity, such as must-offer requirements*.

- *Determine the methodology/approach to determine costs associated with capacity that jurisdictional LSEs can recover from retail customers*. In this way, the state would essentially assume responsibility for the "demand curve" construct for capacity that is currently in the NYISO tariff.

- *Set other terms and conditions of reliability obligations*. These could include a flexibility component, minimum time periods of the procurement, minimum forward periods, and other components as they may be deemed needed over time by the PSC.

- *Oversee procurement methods*. For example, the State could put in place one of the following approaches:

    - *Bilateral capacity purchases*. This is the approach in California, where LSEs bilaterally procure capacity needed for CPUC review and approval.

    - *Competitive central procurement*. The state might want to promote market transparency by requiring an open, transparent, and independently verified procurement. California is considering moving to this approach. The requirement could be LSE-by-LSE, or combined joint procurement. A state agency such as NYSERDA could potentially run a procurement from which LSEs are required to buy.

6) What is the State role with respect to resource adequacy matters that best serves New York's electricity customers with safe, adequate, and reliable service at just and reasonable rates in the context of state policies?

As the NYISO is a single state ISO and the participation in NYISO by State-regulated utilities is voluntary, the State has a significant influence on the design of the ISO market mechanisms to ensure that they can facilitate compliance with the State's clean energy policy goals. The PSC does not have to yield its resource mix preferences for the State and how to get there to the decision making of FERC. Compliance with the CLCPA will likely require use of many different procurement mechanisms, ranging from state-run purchases through pure market structures. Regardless of what means are used, success and cost effectiveness will depend on NYISO rules supporting New York's resource adequacy decisions.

A threshold matter for these proceedings is thus establishing New York's authority over resource adequacy. The Federal Power Act (FPA) reserves to New York and other states the authority "over facilities used for the generation of electric energy" while giving FERC exclusive jurisdiction to regulate wholesale market rates. [26] In recent years, a series of incremental expansions of FERC's authority over resource adequacy[27] has eroded the authority over generation reserved for states by the Federal Power Act, limiting the scope and impact of state policies intended to combat climate change. New York will run squarely into this jurisdictional conflict as it moves to realize the CLCPA's mandate to "protect our communities, our economy and our state" against the threat of climate change.[28]

Various courts have held that FERC can assert authority over resource adequacy through mandatory capacity markets,[29] set the capacity requirements for states,[30] and set eligibility requirements to participate in capacity markets.[31] The last ruling is especially troubling, as it establishes that FERC may exclude resources built according to state mandates from wholesale markets.[32]

On the other hand, Courts appear to acknowledge states' authority to pursue environmental goals:

> State and municipal authorities retain the right to forbid new entrants from providing new capacity, to require retirement of existing generators, to limit new construction to more expensive, environmentally-friendly units, or to take any

[26] 16 U.S.C. § 824.
[27] *See* Connecticut Dep't of Pub. Util. Control v. FERC, 569 F.3d 477, 481 (D.C. Cir. 2009); New Jersey Board of Public Utilities v. FERC 744 F.3d 74 (3rd Cir. 2014).
[28] L. 2019, ch. 106.
[29] Connecticut Dep't of Pub. Util. Control v. FERC, 569 F.3d 477, 481 (D.C. Cir. 2009).
[30] *Id*.
[31] New Jersey Board of Public Utilities v. FERC 744 F.3d 74 (3rd Cir. 2014).
[32] *Id*.

other action in their role as regulators of generation facilities without direct interference from the Commission."[33]

The apparent conflict may to come to a head in the coming months as FERC is expected to issue orders on BSM and similar issues in PJM.[34] If FERC does not approve a workable mechanism for state-supported resources to contribute to resource adequacy outside of FERC-regulated capacity markets, state authority over generation will be rendered largely moot: states will be able to cause low-carbon resources to be built, but they will be effectively excluded from the FERC jurisdictional markets that govern resource adequacy. This will prevent state-supported low-carbon resources from replacing fossil-fuel power plants.

A successful outcome of cooperative engagement with NYISO is the most straightforward path for the state to achieve its goals. However, regardless of the means, the State's role with respect to resource adequacy should be:

- Establishing resource adequacy standards;
- Where necessary, procuring resources to fulfill mandated targets;
- Overseeing LSE and utility compliance with CLCPA and resource adequacy requirements; and
- Direct transmission and distribution investments

7) What, if any, next steps should the Commission take with respect to resource adequacy matters?

After receiving reply comments in this docket, we recommend that the PSC hold a technical conference as soon as possible to address the major questions and topics in this docket and to help identify the next steps for the PSC to take. As part of that inquiry, the PSC should seek comments on:

- the issues experienced and "lessons learned" from the California resource adequacy program and the ERCOT "energy only" approach;
- how state regulators can more effectively oversee a resource adequacy program within a state while maintaining and enhancing reliability;
- gaps between current resource adequacy constructs and the needs of the zero-carbon power system mandated by New York law.
- Reforms to energy and ancillary services markets
- Approaches to better incorporating flexible load into resource adequacy

[33] *Connecticut Dep't of Pub. Util. Control v. FERC*, 569 F.3d 477, 481 (D.C. Cir. 2009). These rights retained by states and municipal authorities are meaningless if RTOs/ISOs can ignore or block market access for resources preferred by states even where states are not exceeding their authority under the FPA.
[34] *See* FERC Docket No. EL18-178.

The PSC also should monitor FERC's actions in the PJM capacity market proceeding in FERC (Docket No. EL18-178). FERC may issue an order requiring a much broader application of minimum offer price rules/BSM under the mistaken view that such mitigation is necessary to keep rates reasonable in the PJM capacity market. There is a risk that FERC will apply the same flawed reasoning concerning BSM in NYISO. New York can proactively avoid the potential imposition of BSM by considering a market design that limits NYISO's control over capacity procurement, under which BSM would have reduced or nor relevance.

The PSC should also determine the legal steps required to reassert state authority over resource adequacy. Conversations with FERC and NYISO about such steps would be instructive and informative and give the state more information about the various paths forward for resource adequacy.

As part of the next phase of the inquiry, the PSC should consider performing a scenario-based analysis of the different policy and technology pathways for achieving the CLCPA in the most cost-effective manner. For example, an analysis could consider different levels of distributed, utility-scale, solar, wind, storage, EVs, transmission and distribution system investments and enhancements. Separately, it could assess the varying levels of energy and ancillary services necessary to achieve the State's energy goals under different scenarios.

III. Related Issues

While we applaud the PSC for commencing this proceeding to reconcile resource adequacy programs with the state's public policy goals, we note that there are several other related initiatives that are beyond the scope of this proceeding but that must be addressed to achieve the targets in the CLCPA. They include the following:

- **Reforming the Article 10 process**: The siting of large-scale renewable projects under the state's Article 10 process has resulted in significant delays and only three approved projects—the Cassadaga Wind Project and the recently approved Eight Point Wind and Baron Winds projects. None of the three approved projects have yet commenced construction. Dozens of projects either are in the queue or have withdrawn their applications. Streamlining this process would significantly help reduce costs and allow for faster penetration of renewable resources.

- **Improving the interconnection process**: The NYISO interconnection process and the utility interconnection process could also use significant improvements to reduce delays and associated costs. NYISO is undertaking efforts through its class year redesign to reduce the time it takes for projects to move forward. The PSC also needs to encourage the incumbent utilities to be nimbler and identify opportunities for speeding up the utility interconnection process.

- **Correctly valuing hybrid resources:** The PSC and the NYISO should create policies for addressing hybrid resources such as renewables + storage to tap their full value potential. Presently the market mechanisms are absent to help unlock their full value proposition.

Respectfully submitted on the 8th day of November 2019.

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