

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

New York Independent System Operator, Inc

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Docket No. ER21-502-000

**MOTION TO INTERVENE AND COMMENTS
OF THE MARKET MONITORING UNIT ON THE
NEW YORK ISO'S ICAP DEMAND CURVE RESET**

Potomac Economics moves to intervene and file comments concerning the New York Independent System Operator's ("NYISO's") filing on November 30, 2020 in the above captioned proceeding. The NYISO's filing proposed ICAP demand curves for the 2021/2022 Capability Year. The NYISO filing also proposed a methodology and required inputs for annual updates to the ICAP demand curves for the Capability Years 2022/2023, 2023/2024 and 2024/2025.

Potomac Economics is the Market Monitoring Unit ("MMU") for NYISO and is responsible for monitoring the electricity markets. As the MMU, we are expected to provide comments on the ICAP Demand Curve Reset ("DCR") study and the NYISO's recommendations for the proposed curves.¹ Potomac Economics has a unique perspective and responsibility that cannot be represented by any other party. It should therefore be permitted to intervene herein.

¹ NYISO MST Section 30.4.6.3.1 states: "The ICAP Demand Curve periodic review schedule and procedures shall provide an opportunity for the Market Monitoring Unit to review and comment on the draft request for proposals, the independent consultant's report, and the ISO's proposed ICAP Demand Curves."

I. NOTICE AND COMMUNICATIONS

All correspondence and communications in this matter should be addressed to:

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II. BACKGROUND AND PURPOSE

In accordance with MST 5.14.1.2, the NYISO periodically conducts the Demand Curve Reset (“DCR”) process to ensure that the capacity demand curves are set at levels that provide efficient incentives for market-based entry that satisfies the NYISO’s resource adequacy needs. The demand curves produce stable spot prices and lead to price discovery, which facilitates forward contracting for both capacity and energy that is needed to support investment in new and existing generation.

The NYISO contracted with the Analysis Group to perform a study recommending levels for the capacity demand curves in each of the four capacity localities. After a lengthy process where it received feedback in numerous stakeholder meetings and written comments, the Analysis Group finalized the DCR Report. Throughout this process, we provided verbal and written comments on a range of issues. Ultimately, the NYISO considered the Analysis Group report and stakeholder feedback before filing the proposed demand curves on November 30.

We generally concur with the assumptions underlying the NYISO’s proposed demand curves and provided an affidavit supporting the NYISO’s proposed assumptions on a number of key issues. However, this filing provides our concerns regarding the NYISO’s proposed amortization period, which we find unreasonable. If adopted, this assumption would lead to inflated demand curves.

III. SUMMARY OF COMMENTS ON THE PROPOSED AMORTIZATION PERIOD

NYISO proposes the costs of the Demand Curve proxy unit (the “Peaking Plant”) be amortized over a period of 17 years, while previous demand curve resets used an amortization period of 20 years. It is important to recognize that 20 years was already a very conservative assumption given that the project is assumed to have \$0 residual value at the end of the 20-year period. In reality, most generators have significant residual value after 20 years because they generally produce substantial net revenue for decades after the first 20 years of operation.

NYISO proposed a shorter 17-year amortization period due to the requirement that New York’s power system be “zero emissions” by 2040 under the Climate Leadership and Community Protection Act (“CLCPA”). The CLCPA is a New York state law passed in 2019 which requires the New York State Public Service Commission (“NYSPSC”) to develop regulations aimed at several environmental targets. To justify the reduced amortization period, NYISO cites the Analysis Group, which says that this avoids “speculation” about how the peaking unit would be affected by the CLCPA.² Neither NYISO nor the Analysis Group analyze the text of the CLCPA or explain why it is reasonable to conclude that the CLCPA would lead all thermal generation to stop earning net revenue after 2039. In reality, NYISO’s 17-year assumption is highly speculative because it is equivalent to assuming the unit would be compelled to retire in 2040.

While retirement of all fossil generation in 2040 is a theoretical possibility, Section IV discusses why this would be an extremely unlikely outcome based on the available information. Even if all thermal generators were to retire in 2040, Section V discusses countervailing factors that would tend to increase net revenues during the years before 2040. Hence, assuming a 17-

² NYISO Transmittal Letter at p. 52.

year amortization period is unreasonable and will result in excessively high demand curves. Instead, we recommend retaining a 20-year amortization period. The effects of adopting a 20-year amortization period are substantial as shown in the following table.

Table 1 – Impact of the Shortened Amortization Period

Zone	Estimated Net CONE Impact	
	Price Impact (\$/kW-year)	Percentage Impact (%)
C	\$7.68	9.4%
G (Rockland)	\$10.15	8.9%
J	\$7.88	4.8%
K	\$10.80	10.2%

IV. NYISO’S ASSUMPTION THAT THERMAL RESOURCES WILL HAVE NO VALUE IN 2040 IS SPECULATIVE AND CONTRARY TO EVIDENCE

The NYISO states that its proposed 17-year amortization period does not reflect a supposition that all existing gas-fired generation will retire, and that speculative assumptions would be needed to justify a longer amortization period given the lack of CLCPA eligibility rules.³ The NYISO’s reluctance to make specific assumptions about potential compliance measures is understandable given the lack of certainty about alternative technologies and their eligibility.

However, using a 17-year amortization period is identical to assuming the Peaking Plant will cease operation in 2040, since it eliminates all residual value after that date. In fact, it is scarcely conceivable how resource could remain in operation and earn no net revenue unless it ceased supplying any market product, including energy, all forms of operating reserves and capacity. Absent such an explanation, one must conclude that the NYISO is assuming that all thermal resources retire or otherwise cease operation in 2040.

³ NYISO Transmittal Letter at p. 52.

A 17- year amortization period should not be approved without compelling evidence that it is a likely result of the CLCPA. In the remainder of this section, we discuss the available information, which suggests that is extremely unlikely that a thermal generator would cease earning market revenue in 2040.

A. There is no indication that the CLCPA will require existing units to retire

The CLCPA does not directly establish any requirements for how power generators will comply with its 2040 “zero emissions” target. Instead, it requires the NYSPSC to establish programs aimed towards this target at a future date:

“No later than June thirtieth, two thousand twenty-one, the commission shall establish a program to require... (b) that by the year two thousand forty (collectively, the "targets") the statewide electrical demand system will be zero emissions. In establishing such program, the commission shall consider and where applicable formulate the program to address impacts of the program on safe and adequate electric service in the state under reasonably foreseeable conditions. The commission may, in designing the program, modify the obligations of jurisdictional load serving entities and/or the targets upon consideration of the factors described in this subdivision.”⁴

As of the time of writing, the NYSPSC and other state regulatory agencies have not issued any regulations or guidance with respect to the 2040 “zero emissions” target. Importantly, the CLCPA also provides for a future extension or modification of program requirements if justified by system reliability needs:

“The commission may temporarily suspend or modify the obligations under such program provided that the commission, after conducting a hearing as provided in section twenty of this chapter, makes a finding that the program impedes the provision of safe and adequate electric service; the program is likely to impair existing obligations and agreements; and/or that there is a significant increase in arrears or service disconnections that the commission determines is related to the program.”⁵

⁴ Chapter 106 of the Laws of the State of New York of 2019.

⁵ Chapter 106 of the Laws of the State of New York of 2019 .

Until regulations are issued, the implications of the CLCPA’s “zero emissions” target are unclear. Possibilities include:

- Existing fossil plants will be able to comply by switching to non-emitting fuels such as green hydrogen or renewable natural gas,
- The “zero emissions” target for statewide electrical demand will be interpreted on a ‘net’ basis allowing some internal fossil generation, or
- Critical peaking units will be permitted to continue to operate to ensure reliability.

Hence, it would be highly speculative to assume all thermal units must retire by 2040, as NYISO does in its proposed Demand Curves. These types of speculative assumptions have not been deemed reasonable by the Commission in the past. For example, the Commission previously rejected NYISO’s recommendation in the DCR to include speculative compliance costs regarding vague environmental regulatory risks.⁶ It should similarly reject parameters based on speculative assumptions regarding future regulations implementing the CLCPA.

B. Assuming that all dispatchable peaking plants have no value in 2040 is highly speculative and contrary to available information

Available evidence does not support NYISO’s treatment of retirement by 2040 as the default compliance option for the Peaking Plant. Multiple consultants have been engaged by NYISO and New York State to study possible paths for New York’s power system under the CLCPA. Each of these studies has concluded that large quantities of dispatchable, flexible resources (consistent with the characteristics of new peaking plants) will be needed to preserve reliability in a system otherwise dominated by intermittent renewables and battery storage:

⁶ In the last DCR, the Commission stated that “NYISO’s conclusion that a peaking plant design without SCR emissions controls risks not obtaining necessary approvals under Article 10 is speculative. As the Commission found in the last ICAP Demand Curve reset, ‘[w]hile there is always a risk that regulations will change in the future, we cannot base the finding of viability on speculation that the [U.S. Environmental Protection Agency] or New York State regulators will act at some point in the future;’ rather, the ICAP Demand Curve reset process takes place every four years ‘so that changed circumstances, such as new regulations, can be taken into account.’” *New York Independent System Operator, Inc.*, 158 FERC ¶ 61,028 (2017) at pp. 31-32.

- The Analysis Group, who also served as NYISO’s consultant for the DCR, performed a study which simulated the impacts of climate policy on the New York power system. The study identified the need for an undefined dispatchable “backstop resource” if CLCPA targets are met to avoid loss of load events when renewable and storage resources are unavailable. Even after inclusion of 95 GW of intermittent renewables, 16 GW of energy storage and substantial transmission expansion, Analysis Group found a need for 32 GW of this dispatchable resource.⁷
- The Brattle Group was commissioned by NYISO to conduct long-term modeling of New York’s power system complying with CLCPA mandates. The study found a need for 20 to 33 GW of dispatchable thermal capacity in 2040, assumed to switch to a generic zero-emissions fuel. In an alternative scenario that did not allow such dispatchable thermal resources to remain in service, Brattle found extreme outcomes including incremental ‘overbuild’ of renewable and storage capacity by over 100 GW and massive (on the order of 50 percent) curtailment of renewable generation.⁸
- Energy and Environmental Economics (“E3”) was commissioned by the New York State Energy Research and Development Authority (“NYSERDA”) to study pathways to meet long-term CLCPA goals. The study found a need for “firm capacity” to ensure reliability as intermittent renewable penetration grows, including 17 GW of combustion turbine and combined cycle facilities switching to zero-emissions biogas.⁹

Each of these studies emphasizes that its authors cannot predict which particular technology will meet the need for dispatchable capacity, and that technologies that do not yet exist in commercial form may be necessary. This point underscores the dubious nature of NYISO’s assumption that a new peaking plant will operate for only 17 years. While future

⁷ Analysis Group, *Climate Change Impact and Resilience Study – Phase II* (“Analysis Group Climate Study”), September 2020, at pp. 8-9, https://www.nyiso.com/documents/20142/16311872/03b_Climate%20Change%20Impact%20and%20Resilienc e%20Study%20Phase%20II%20Final%20Report_APPROVED%20-%20No%20Appendices.pdf/7ec19a60-a023-9167-c5a1-b0f02d6cabb6.

⁸ The Brattle Group, *New York’s Evolution to a Zero Emission power System*, presented at NYISO Installed Capacity Working Group Meeting on June 22, 2020, at pp. 13-15 and 62-70, <https://www.nyiso.com/documents/20142/13245925/Brattle%20New%20York%20Electric%20Grid%20Evoluti on%20Study%20-%20June%202020.pdf/69397029-ffed-6fa9-cff8-c49240eb6f9d>.

⁹ Energy and Environmental Economics, *New York State Decarbonization Pathways Analysis*, June 24, 2020, pp. 14-16, <https://climate.ny.gov/-/media/CLCPA/Files/2020-06-24-NYS-Decarbonization-Pathways-CAC-Presentation.pdf>.

outcomes are uncertain, available evidence suggests that a scenario where all thermal plants retire is even more speculative and dependent on unknown technologies than a scenario where some are retained or switch to alternative fuels, such as renewable natural gas. NYISO should avoid relying on speculative scenarios and instead retain the conventional 20-year amortization period of the Peaking Plant until the nature of CLCPA compliance options becomes clear.

C. New gas-fired plants are already being proposed with options for complying with 2040 targets

Although the implementing regulations of the CLCPA have not been promulgated, gas-fired generators are already evaluating options for complying with the 2040 “zero emissions” target. One possible option is for gas-fired units to switch to burning zero-emissions fuels such as ‘green’ hydrogen produced using renewable electricity or renewable natural gas. To the extent such fuels would require the Peaking Plant to incur modification costs or reduce energy and ancillary services revenues, such impacts would be reflected in future Demand Curves.

At least one gas-fired generation project in New York has incorporated the flexibility to burn alternative fuels in its public development plans. The Danskammer Energy Center, currently in the NYISO interconnection process, describes in its New York State permitting application that it expects to be able to comply with CLCPA requirements by switching to an alternative fuel in the future:

- The developer’s proposed gas turbine can be retrofitted in the future to convert to up to 100 percent hydrogen firing if the necessary fuel supplies and infrastructure are developed. The turbine manufacturer offers a hydrogen roadmap with only minor upfront scope adjustments, providing the option to increase hydrogen-firing capability over time.¹⁰

¹⁰ Danskammer Energy LLC, *Fourth Supplement to Application*, NYSPSC Master Matter 18-01253/18-F-0325, Application of Danskammer Energy, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 for Approval to Repower its Danskammer Generating Station Site Located in the Town of Newburgh, Orange County, (“Danskammer Supplement”), at p. 10.

- The project is capable of burning renewable natural gas, which has the same makeup as natural gas, without modifications or retrofit. The developer expects that there will be sufficient supplies of RNG for use by the facility by 2040.¹¹

Danskammer emphasizes that its decision to commit to any of these approaches will ultimately be driven by how the CLCPA is implemented by the NYSPSC and other state agencies, as well as future technical and economic considerations.¹² Both approaches entail uncertainty surrounding the requisite fuel supplies and infrastructure. Peaking plant technologies that use zero-emissions fuels are not currently in widespread use, and it would be inappropriate and speculative to attempt to quantify their costs in the current DCR. However, it is equally speculative to assume that the Peaking Plant has an expected residual value of zero after 2039, given the existence of plausible compliance options.

V. USE OF A 17-YEAR AMORTIZATION PERIOD INCORPORATES IMPACTS OF POTENTIAL FUTURE REGULATIONS IN A ONE-SIDED MANNER

The use of a 17-year amortization period effectively assumes that investors will consider the downside risk associated with the CLCPA's "zero emissions" target, but not any of the upside effects that would result from this and other features of the CLCPA. This unbalanced approach leads to an excessively conservative estimate of the Peaking Plant's revenue requirement. Even if future regulations raise the costs of existing thermal generators, such regulations would lead to commensurate increases in wholesale prices. Additionally, sharp increases in the reliance on intermittent renewable resources will likely lead to much more frequent periods of shortage pricing. The associated increase in shortage revenue will be an additional substantial source of higher net revenues for the Peaking Plant.

¹¹ Danskammer Supplement at p. 19.

¹² Danskammer Supplement at p. 17.

Ultimately, since it would be impossible to account for all potential future impacts of the CLCPA, it is more reasonable to account for its impacts in future DCRs as concrete regulations are issued and the market landscape becomes more clear.

A. If future regulations require additional compliance costs, they will be included in future Demand Curve Resets

The DCR process is conducted every four years so that emerging factors that change the net cost of new entry can be incorporated over time. The Commission affirmed this in the 2013 and 2016 DCR processes saying that “the ICAP Demand Curve reset process takes place every four years ‘so that changed circumstances, such as new regulations, can be taken into account.’”¹³ Thus, the impact of actual regulations implementing the CLCPA, once they are issued, will be reflected in a future Demand Curve Reset appropriately. Simply reducing the amortization period to assume the CLCPA will eliminate all market revenues after 2039 would be inconsistent with how the DCR process is designed to account for changing regulations.

Compliance with the CLCPA may require additional future capital costs such as for the capability to burn alternative fuels. The costs of such equipment would then be included in the cost of a new unit in a future DCR, resulting in higher capacity prices. A peaking plant installed in the next four years will be among the newest most advanced existing thermal generators operating leading up to 2040. Hence, it is not likely to be among the most expensive dispatchable generators to maintain in operation if environmental regulations grow stricter. As a result, a 20-year amortization period without adjustment for additional future capital costs is reasonable for such a unit.

¹³ New York Independent System Operator, Inc., 158 FERC ¶ 61,028 (2017) at pp. 31-32.

B. Even if all fossil fuel generators were required to retire in 2040, they would benefit from higher prices in the years leading up to 2040

However unlikely, if regulations mandating the retirement of all existing gas-fired generators by 2040 were issued, the resulting costs needed to maintain an adequate supply of dispatchable generation would be included in future Demand Curves. This would result in higher revenues for the Peaking Plant in the intervening years because:

- If the DCR reference technology is a gas-fired peaking plant that must retire by 2040, its amortization period will decline in future DCRs, resulting in correspondingly higher future capacity prices,
- If investment in gas-fired units becomes non-viable, future Demand Curves would be set by a more expensive technology such as battery energy storage, causing capacity prices to increase.¹⁴

Since the DCR process is repeated every four years, capacity revenues for the Peaking Plant would increase in future resets if the implementation of the CLCPA required fossil fuel units to retire in 2040. If the present Demand Curves are set using a 17-year amortization period, it will cause levelized revenues of the Peaking Plant to exceed its revenue requirement over the project's life. Hence, it is more reasonable to retain a full 20-year amortization period and account for regulations implementing the CLCPA through the DCR process when they are issued.

C. The CLCPA may increase potential revenues of the Peaking Plant

Much of the discussion of potential impact of other future changes in environmental regulation have assumed that existing suppliers face only downside risks from regulatory changes. However, this ignores that stricter environmental standards, economy-wide emissions

¹⁴ NYISO evaluated battery energy storage for the present Demand Curve Reset and found it to be more expensive than the Peaking Plant. Although storage technology costs could fall in the future, the capacity value of duration-limited resources falls as their penetration grows under NYISO's capacity market rules. Hence, replacement of large quantities of thermal units with storage would require more costly long-duration storage resources over time.

targets and the large-scale entry of renewable resources could lead to higher revenues for the Peaking Plant (i.e., a peaking generator built in the next four years).

The transition to a power system dominated by intermittent renewables contemplated by the CLCPA will tend to increase net revenue from ancillary services and balancing energy purchases and sales of the Peaking Plant.¹⁵ Fluctuations in intermittent generation and forecast errors will increase as reliance on renewable generation rises. This will likely increase the frequency of operating reserve shortages. Given the performance characteristics of the peaking plant, it will realize sizable increases in shortage revenues during these events. The NYISO's own "Grid in Transition" white paper, which outlines market design changes needed to facilitate state policy while preserving reliability, indicates enhancements to shortage pricing and procurement of operating reserves as key ongoing efforts.¹⁶ Hence, the increase role of shortage pricing and associated revenues is well-known to the NYISO.

In addition, the CLCPA requires an 85 percent reduction of economy-wide emissions by 2050. This target is widely considered to require a large-scale conversion of other sectors to electric power, resulting in rapid growth of electricity demand which would lead to higher capacity, energy and ancillary services prices.¹⁷

Hence, the implementation of the CLCPA could benefit generators with the characteristics of the Peaking Plant in significant ways. By adopting a 17-year amortization

¹⁵ A high penetration of intermittent renewable resources is likely to lead to increased price volatility due to unavailability of weather-dependent resources in some hours or days and increased day-ahead forecast error. Energy market volatility increases the option value of flexible units such as the peaking plant that can respond to price spikes in the real-time market.

¹⁶ NYISO, *Reliability and Market Considerations for a Grid in Transition*, December 20, 2019, <https://www.nyiso.com/documents/20142/2224547/Reliability-and-Market-Considerations-for-a-Grid-in-Transition-20191220%20Final.pdf/61a69b2e-0ca3-f18c-cc39-88a793469d50>.

¹⁷ For example, the Analysis Group Climate Study modeled 49 GW of summer peak load and 57 GW of summer peak load in its "CLCPA Case", compared to approximately 32 GW today (see Analysis Group Climate Study at p. 21). This increase is driven by electrification of the vehicle and building sectors.

period without accounting for other provisions of the CLCPA that affect the peaking plant, NYISO is selectively incorporating one potential negative aspect of New York's future regulations without considering other likely effects that would tend to benefit the peaking plant.

When establishing assumptions governing the determination of the Demand Curves under significant future uncertainty, it cannot be reasonable for NYISO to employ one-sided assumptions that consider downward revenue risks while ignoring offsetting factors that would increase revenues. Such an approach promises to produce substantial inefficient costs that will be borne by the State's consumers. Rather, we recommend that the Commission reject the 17-year amortization and direct the NYISO to propose a more balanced and reasonable amortization assumption.

VI. CONCLUSION

NYISO's recommendation to use a 17-year amortization period for the Peaking Plant will result in excessively high Demand Curves. While the CLCPA's target of "zero emissions" by 2040 may affect the status of gas-fired plants, no regulations or guidance have yet been issued. Available evidence from system studies and developers' plans suggests that there is no reasonable basis for treating retirement by 2040 as the most likely outcome. We believe, and others that have studied these issues agree, that alternative more likely compliance options for existing gas-fired units will be available, such as fuel-switching. Future regulations that affect the Peaker Plant's ability to operate or require it to incur compliance costs will be reflected in future DCRs. As such, regulations implementing the CLCPA are best accounted for once they are issued and the market landscape is clarified. Addressing them prematurely through a reduced amortization period virtually guarantees to over-compensate the Peaking Plant over its lifetime and ultimately will raise capacity costs inefficiently.

It may be argued that despite these considerations, investors will take a cautious approach to the CLCPA and require a shortened project life. However, the 20-year amortization period is already conservative given that new resources have substantial residual value after 20 years and have continued to operate profitably for decades after the 20-year mark.

In general, the assumed parameters in the DCR should reflect a reasonable expected value based on the best available information today. In other areas, we believe the NYISO has adhered to this principle. However, this is demonstrably not true regarding its assumed 17-year amortization period, which we find unreasonable and inefficient.

For these reasons, we respectfully recommend that the Commission reject NYISO's proposal to use a 17-year amortization period and direct it to retain its historic 20-year amortization period assumption.

Respectfully submitted,

/s/ David B. Patton

David Patton
President
Potomac Economics, Ltd.

December 21, 2020

CERTIFICATE OF SERVICE

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 21th day of December 2020 in Fairfax, VA.

/s/ David B. Patton
