**BEFORE THE**
**NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Docket No. 07-21-11**
**Proposal No. PRN 2021-117**

# COMMENTS OF PJM INTERCONNECTION, L.L.C. ON THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION PROPOSED RULE N.J.A.C. 7:27F CONTROL AND PROHIBITION OF CARBON DIOXIDE EMISSIONS

## I. INTRODUCTION

PJM Interconnection, L.L.C. ("PJM") respectfully submits the following comments to the New Jersey Department of Environmental Protection ("DEP") on proposed rule N.J.A.C. 7:27F (the "Rule") that seeks to limit carbon dioxide ("$CO_2$") emissions from certain fossil fuel-fired stationary emission sources in the State of New Jersey, including electric generating units ("EGUs"). PJM offers these comments as the independent, federally regulated regional transmission organization ("RTO") responsible for ensuring reliable power delivery across the bulk electric system for all or part of 13 states and the District of Columbia, including the entire state of New Jersey.

PJM is committed to leveraging its subject matter expertise to assist states in the advancement of state energy policy.[1] As an example, PJM and the state of New Jersey have been working jointly on transmission solutions for New Jersey's offshore wind policies,[2] and PJM recently made a filing with the Federal Energy Regulatory Commission ("FERC") to further that effort along. PJM has also committed, through its strategic planning efforts, to facilitate state and

[1] "PJM Introduces State Policy Solutions Group," PJM Inside Lines, June 29, 2020, https://insidelines.pjm.com/pjm-introduces-state-policy-solutions-group/.
[2] "FERC Filing Advances N.J. Offshore Wind Initiative," PJM Inside Lines, Jan. 27, 2022, https://insidelines.pjm.com/ferc-filing-advances-n-j-offshore-wind-initiative/.

federal decarbonization policies reliably and cost-effectively.[3] It is within this context that PJM offers its comments.

PJM stands ready to assist the state of New Jersey in advancing its policy objectives. Simultaneously, PJM intends to work with New Jersey to ensure that we are able to maintain reliable power delivery for residents and businesses in the state while these state policies are advanced. This important and shared responsibility of "keeping the lights on" is not a given. One need only look at the various regional power grids across the country to understand some of the mutual challenges faced by grid operators today.[4] As such, PJM stands ready to partner with policymakers and regulatory authorities, such as the DEP, to ensure that certain accommodations and safeguards are codified to maintain grid reliability for residents and businesses in any given state while state energy policies are simultaneously being effectuated.

Specifically, PJM respectfully requests that the DEP incorporate the following changes into the Rules:

- Align compliance deadlines with the PJM Planning Period: PJM respectfully requests that the DEP change its emission limitation compliance dates from January 1 (2024, 2027 and 2035) to June 1 to align with the PJM Planning Period.
- Allow for additional reliability safeguards in the Rule beyond the stated Reliability Must Run safeguard through the addition of language akin to "and additional reliability considerations as determined independently by PJM to maintain reliable grid operations only." Additionally, PJM would appreciate the opportunity to work with

[3] PJM Strategy – Powering Our Future, presented Feb. 24, 2021, to PJM Members Committee, https://www.pjm.com/-/media/committees-groups/committees/mc/2021/20210224/20210224-item-02-strategy-refresh-presentation.ashx.

[4] For e.g., ISO-New England published its Winter Outlook 2021/2022, which stated as follows: "ISO New England expects electricity supplies to meet consumer demand this winter if the weather is mild. But certain conditions, including extreme weather, could put New England's bulk power system at heightened risk."

DEP on reliability guidance, similar to the guidance that PJM just recently advanced with the Illinois Environmental Protection Agency.

## II. COMMENTS

PJM respectfully submits the following comments:

### A. Align Compliance Deadlines With PJM Planning Year

Proposed rule N.J.A.C. 7:27F "seeks to achieve reductions of $CO_2$ emissions from fossil fuel-fired EGUs by requiring those EGUs to meet output-based emission limits for $CO_2$ that become more stringent over time."[5] The DEP is proposing to use January 1 of 2024, 2027 and 2035 as the compliance deadlines for when EGUs with a nameplate capacity equal to or greater than 25 MWe must comply with the defined output-based emission limit for $CO_2$ or cease operation. For reasons stated within this section, PJM recommends the DEP consider using compliance deadlines that align with the PJM "Planning Period"[6] rather than the beginning of each calendar year.

The PJM Planning Period begins on June 1 of each calendar year and extends through May 31 of the following year. Electric system operators, transmission owners, generation owners, load-serving entities and other PJM stakeholders utilize the Planning Period calendar to plan the electric system and make long-term generator and transmission investment decisions.

For example, PJM administers a capacity market to procure future capacity commitments from generators in order to ensure long-term electric reliability and resource adequacy. The capacity market utilizes a series of forward-looking auctions to procure electric capacity

[5] Proposed Rule N.J.A.C. 7:27F, p. 12.
[6] See Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, Article 1 – Definitions, p. 23. "Planning Period" shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

commitments from existing and planned capacity resources[7] three years into the future. PJM's capacity market has demonstrated itself to be a useful mechanism in obtaining sufficient electric capacity to meet system reliability standards and sending forward price signals to developers as to where and when new capacity is most valued. The use of such market forces provides orderly generator entrance and exit opportunities that maintain the efficient and effective reliability needs of the electric grid. Since its inception in 2007, PJM's capacity market has facilitated the entry of new, more efficient and economic resources, which has also produced a 32% overall decline in the $CO_2$ emission rate across the PJM region.

PJM's primary capacity auction is called the Base Residual Auction. It is held on an annual basis and procures the majority of capacity commitments for the specified future Planning Period (e.g., the 2021/2022 Base Residual Auction was held in 2018 and procured capacity to be available between June 1, 2021, and May 31, 2022). If a resource "clears" the Base Residual Auction, it takes on a commitment to provide its capacity for the entire Planning Period. Under PJM's market rules, resources cannot commit to only part of the Planning Period.

Should a resource deactivate during a year for which it had a capacity commitment, the resource must replace the capacity commitment. If that resource fails to replace that commitment, it would be subject to a daily Capacity Resource Deficiency Charge.[8] The resource would need to replace this capacity with a resource that meets the capacity equivalent of the retiring resource, which could be an uncommitted resource in New Jersey or even a resource outside of the state of New Jersey.

[7] A capacity resource may include electric generation, customer-side demand response, customer-side energy efficiency upgrades and a qualified transmission upgrade.
[8] See PJM Manual 18, Section 9.1.3, https://www.pjm.com/~/media/documents/manuals/m18.ashx.

Setting the compliance date within the Planning Period rather than in alignment with it may impact a generator owner's decision to participate in PJM's capacity market and take on an annual capacity commitment it could not fulfill. Aligning the compliance dates with the Planning Period timeline will provide a more efficient process for the exit of existing resources from the system. Thus, PJM respectfully requests that the DEP change its emission limitation compliance dates from January 1 (2024, 2027, and 2035) to June 1, to align with the PJM Planning Period.

### B. Additional Reliability Safeguards

It is critical that maintaining electric reliability remains at the forefront of any conversation concerning the evolving configuration of the grid and the generating resources that serve it. PJM commends the DEP's proposal for "allow[ing] affected existing EGUs to apply for an extension of compliance, if the EGU must continue to operate to ensure electric grid reliability."[9] Included within this proposed extension criteria is "if the EGU is designated as a 'Reliability Must Run unit' or an 'RMR unit' by PJM or the New York Independent System Operator (NYISO)."[10]

PJM can determine if a resource is needed to operate beyond a unit's requested retirement date for reliability purposes. The DEP's draft regulations contemplate this occurrence as a "Reliability Must Run" determination by PJM. This process allows the resource to recover its operating costs through a formulaic rate specified in the PJM Tariff or a FERC-approved Cost of Service Recovery Rate in exchange for remaining in service until the requisite reliability-based transmission upgrades are put in place.[11] The cost of remaining in operation is in addition to the cost of the transmission upgrades. PJM cannot compel a deactivating resource to remain in service,

[9] Proposed Rule N.J.A.C. 7:27F, p. 23.
[10] Id.
[11] See PJM Open Access Transmission Tariff, Section V, 113.2, Notice of Reliability Impact.

but historically, this option has shown to be effective for maintaining reliability as resources come off the system.

However, PJM also depends on other services from its generators for ensuring reliability. This consideration becomes especially acute when contemplating the transition to the clean energy future. Grid services currently offered by today's resources may – at specific times or specific locations – be required to facilitate New Jersey's transition toward their clean energy future in a manner that preserves grid reliability. As recently noted by the North American Electric Reliability Corporation ("NERC"), "[p]rioritizing reliability during the grid's transformation and as governmental policies are developed will support a transition that assures electric reliability in an efficient, effective, and environmentally sensitive manner. … The shift to more and more inverter-based resources (IBR)[12] brings unique opportunities but also integration challenges that can and must be addressed to assure continued reliability. This is not an argument against the transition but a recognition that, without a collective focus, system reliability faces risk that is inconsistent with electric power's essentiality to the continent's economy as well as the health and safety of its population."[13]

For example, one notable type of reliability service many thermal EGUs are able to provide is Black Start capability.[14] Black Start units are designated generators that are able to start and initiate system restoration without using an outside electricity supply, and as a result are able to be called upon during widespread outages in order to restore electricity to the grid. As part of providing startup power to the system, Black Start units are able to serve critical load in each of

[12] Inverter-based resources include intermittent resources such as wind, solar and storage.
[13] 2021 Long-Term Reliability Assessment, North American Electric Reliability Corporation, Dec. 2021, p. 5, https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf.
[14] See Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, Article 1 – Definitions, p. 3. "Black Start Capability" shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

the PJM transmission zones.[15] Having Black Start generators available for grid restoration is required under NERC Standard EOP-005-3 – "System Restoration from Black Start Resources" and is part of PJM's compliance obligations as a Transmission Operator.[16] Replacing existing Black Start resources in New Jersey with renewable Black Start capable resources is a theoretical possibility; however, this approach has not been practically implemented and tested in PJM and will require a deliberate transition period to ensure grid reliability is preserved.

Also, the identity of Black Start units is not publicly available due to these units' critical nature. The New Jersey Board of Public Utilities ("BPU") is able to obtain the identity of Black Start units through a confidential information request made to PJM, and that information can only be shared with authorized persons at the BPU and third parties that execute a nondisclosure agreement with PJM.[17] If the DEP decides to include Black Start units within its compliance extension criteria, or other generators whose attributes are confidential in nature, it is essential that discussions between PJM, the BPU and the DEP, as well as any recommendations made by the BPU to the DEP containing confidential information, are shielded from any public disclosures directed by the Open Public Records Act.

More generally, there are a number of other grid-based essential services PJM relies on to reliably operate the system, such as:

- Inertia and primary frequency response
- Reactive power capability
- Ramping capability (upward and downward)

[15] PJM-defined critical load includes the electricity needed for units with faster startup times (four hours or fewer), safe shutdown of nuclear facilities and electric-powered gas compressor stations.
[16] NERC Standard EOP-005-3 – System Restoration from Black Start Resources, https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-005-3.pdf.
[17] See PJM Operating Agreement, Section 18.17.4, Disclosure to Authorized Commissions.

- Short circuit
- Stability
- Flexibility (the ability of a unit to turn on and off quickly and frequently in a single operating day)
- Regulation
- Fuel and energy assurance

PJM recommends that the DEP consider the full breadth of reliability services the system depends on, such as Black Start capability as well as the other services listed above, when affording compliance extensions to resources that may be unable to meet their emission targets by the respective dates.

To note, PJM recently worked with the Illinois Environmental Protection Agency in advancing reliability guidance associated with the Illinois Climate and Equitable Jobs Act.[18] PJM would be more than willing to work with DEP on similar reliability guidance associated with the Rule. However, if the DEP does not believe it has the authority to advance such guidance, PJM respectfully requests that the DEP include language akin to "and additional reliability considerations as determined independently by PJM to maintain reliable grid operations only" to its compliance extension framework. This will help ensure that residents and businesses do not experience any interruption in service as the DEP advances these regulations.

### C. Other Reliability Considerations

There are several other reliability-based comments PJM would like to highlight to the DEP on proposed rule N.J.A.C. 7:27F.

[18] Illinois Climate and Equitable Jobs Act: PJM Reliability Guidance, Feb. 15, 2022, https://www.pjm.com/-/media/committees-groups/committees/oc/postings/illinois-ceja-reliability-guidance.ashx.

### 1. Energy Transition in PJM Study

PJM recently completed the first phase of reliability analyses related to the evolving energy mix entitled "Energy Transition in PJM: Frameworks for Analysis."[19] This is a living study that will be iterated upon over time. PJM, again, is committed to facilitating state and federal decarbonization policies and fully concurs that an energy transition is underway to cleaner resources. In the study, PJM synthesized the diverse set of state policies within its footprint into three scenarios in which an increasing amount of energy is served by renewable generation on an annual basis (10%, 22% and 50%), up to 70% carbon-free generation when combined with nuclear generation. Currently, renewables represent approximately 6% of the annual energy, a total of over 40% carbon-free when combined with nuclear's contribution to the energy mix in 2020.

The study's initial findings suggest five key focus areas for PJM's stakeholder community, and here, PJM highlights three of these focus areas:

- **Correctly calculating the capacity contribution of generators is essential:** A system with increased variable resources will require new approaches to adequately assess the reliability value of each resource and the system overall.
- **Flexibility becomes increasingly important with growing uncertainty:** The study reaffirmed the need for operational flexibility to address the uncertainty of variable resources. Findings include 50% steeper net-load ramping periods, frequent dispatch of generators to their economic minimum and lower capacity factors for thermal resources.

[19] Energy Transition in PJM: Frameworks for Analysis, Dec. 15, 2021, https://www2.pjm.com/-/media/library/reports-notices/special-reports/2021/20211215-energy-transition-in-pjm-frameworks-for-analysis.ashx.

- **Thermal generators provide essential reliability services today, and an adequate supply will be needed until a substitute is deployed at scale:** PJM and stakeholders must ensure that the market structure provides the right incentives to maintain these reliability services.

It is important that PJM highlight these considerations and especially the third consideration in its comments to the DEP. PJM seeks to facilitate state and federal decarbonization policies and has stated that it seeks to do so *reliably*. A proliferation of policies within the footprint that serve to accelerate the retirement of thermal resources before a substitute that meets particular engineering parameters is in place may very likely result in reliability violations and has the potential to leave customers without power under certain scenarios. PJM seeks to support the advancement of New Jersey's energy transition in a manner that preserves grid reliability; the additional reliability safeguards per the request made in these comments will allow for the balance of system decarbonization to occur while keeping the lights on for New Jersey, its residents and its underlying economy.

### 2. General Reliability Considerations Associated With Generator Retirements

Whenever a resource announces to PJM its intention to deactivate, PJM conducts a series of studies to identify possible reliability issues associated with the unit coming offline. PJM has no vested interest in either keeping a plant running or closing down but must make sure the transmission system continues functioning reliably. If a unit's deactivation results in reliability violations on the system, then PJM will work to identify transmission solutions that resolve the violation.

This type of analysis is conducted for every resource announcing its intention to deactivate from PJM operations. Larger units coming off the system tend to pose a greater risk to reliability

and the likely need for reliability-driven transmission upgrades. When there is the potential for multiple large-scale retirements occurring within the same time period and in close proximity to each other, which could be the case when units are adhering to policy-based compliance dates like the one proposed by the DEP, it carries with it amplified considerations and complications for PJM to maintain reliability. PJM would like the DEP to be cognizant of the fact that multiple large-scale facilities seeking retirement in New Jersey at the same time may result in transmission upgrades that are significant in scale and timing, which, if needed, could result in one or more units remaining in operation beyond their requested deactivation date to maintain reliability while the required transmission upgrades are constructed.

### 3. Replacing Thermal Resources With Renewable Resources

New Jersey is expecting to see substantial renewable capacity come online over the next two decades. This includes specific targets for offshore wind, in-state solar and energy storage resources.[20] The simultaneous retirement of in-state thermal capacity is also possible as these new renewable resources are integrated. Although proposed rule N.J.A.C. 7:27F does not explicitly state that it seeks fossil fuel deactivations to align with incoming renewable projects, the Rule's compliance years do roughly align with New Jersey's targeted commercial operation dates for its offshore wind facilities. It is critical that planned renewable resources and/or other providers of reliability services such as batteries are in place and providing adequate capacity and other reliability services before proposed rules necessitate the retirement of thermal resources.

PJM would like to briefly mention here that should any policy aim to synchronize the retirement of thermal resources with the integration of renewables that it consider the capacity contributions of different resource classes and not plan for a one-to-one megawatt offset. For

[20] 2019 New Jersey Energy Master Plan, https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

example, one megawatt of coal or natural gas does not equate to one megawatt of solar or offshore wind, as the latter renewable resources will not run as often at peak and therefore will have lower capacity contribution. More nameplate capacity of renewable resources will be needed to replace the nameplate capacity of the retiring fossil fuel units.

Additionally, the integration of more intermittent, renewable resources will necessitate that New Jersey's load have greater access to balancing resources on system. New Jersey is currently a net energy-importing state.[21] The retirement of dispatchable resources from within the state coupled with the integration of more in-state intermittent resources will increase New Jersey's reliance on a robust interstate transmission network that can import energy when needed.

## III. CONCLUSION

PJM appreciates the opportunity to comment in this docket. Pursuant to the information provided within these comments, PJM again requests that the following changes be made to the DEP regulations:

- Align compliance deadlines with the PJM Planning Period: PJM respectfully requests that the DEP change its emission limitation compliance dates from January 1 (2024, 2027 and 2035) to June 1 to align with the PJM Planning Period.
- Allow for additional reliability safeguards in the Rule beyond the stated Reliability Must Run safeguard through the addition of language akin to "and additional reliability considerations as determined independently by PJM to maintain reliable grid operations only." Additionally, PJM would appreciate the opportunity to work with

[21] State Net Import/Export Map (Hourly), Markets & Operations, https://www.pjm.com/markets-and-operations/state-import-export-map.

DEP on reliability guidance, similar to the guidance that PJM just recently advanced with the Illinois Environmental Protection Agency.

PJM is readily available to answer any and all inquiries from the DEP staff within this proceeding.

Respectfully submitted,

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