FirstEnergy

76 South Main Street
Akron, OH 44308

Angelina Umstead, Esq.

(610) 921-6202
Fax: (330) 315-9263

January 9, 2025

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

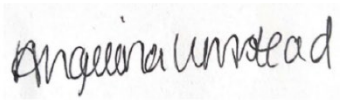
Re: Technical Conference on Resource Adequacy in Pennsylvania
Docket No. M-2024-3051988

Dear Secretary Chiavetta:

Enclosed for filing please find FirstEnergy Pennsylvania Electric Company's Comments in the above-referenced matter.

Please feel free to reach out with any questions or concerns.

Very truly yours,



Angelina Umstead

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Enclosure

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Technical Conference on Resource Adequacy in Pennsylvania	**:** **:**	**Docket No.: M-2024-3051988**

COMMENTS OF FIRSTENERGY PENNSYLVANIA ELECTRIC COMPANY TO THE TECHNICAL CONFERENCE ON RESOURCE ADEQUACY IN PENNSYLVANIA

I. INTRODUCTION

FirstEnergy Pennsylvania Electric Company ("FE PA" or the "Company") respectfully submits these comments in response to the November 15, 2024 Secretarial Letter stating that the Pennsylvania Public Utility Commission ("Commission" or "PUC") will hold a Technical Conference on November 25, 2024, and that a comment period would follow the conclusion of the conference. Comments were initially due on December 27, 2024, however, in a subsequent Secretarial Letter dated November 25, 2024, the comment period was extended until January 9, 2025.

At the Technical Conference held on November 25, 2024, Commissioners posed questions to various panelists and engaged in discussions involving electric resource adequacy challenges in Pennsylvania and possible solutions moving forward. FE PA shares the Commission's concerns surrounding this topic and commends the Commission's efforts in taking a proactive approach to ensuring the continued safe, affordable, and reliable delivery of electricity to all Pennsylvanians. To that end, FE PA submits the following comments in response to the questions posed during the Technical Conference.

II. RESPONSE TO REQUEST FOR COMMENTS

A. Overview of Resource Adequacy Challenge

The Company is deeply concerned about the looming resource adequacy challenges in the PJM Interconnection, L.L.C. ("PJM") footprint and the associated affordability and reliability impacts expected to customers. In furtherance of its task to manage grid reliability, PJM administers its Reliability Pricing Model ("RPM"), which is designed to ensure that sufficient generation capacity is available to serve all load within its footprint. However, PJM cannot direct the build of generation resources, nor does it dictate what types of generation are built to ensure alignment with state or federal specific policies or energy goals. Only the states themselves have the jurisdictional authority to direct that new, generation is built on a timely basis.[1] For this reason, it is incumbent upon the Commonwealth to bridge the gap by setting energy policies that align market outcomes with energy goals while preserving Pennsylvania's status as the powerhouse of PJM. Without prompt actions by the Commonwealth, customers will continue to face increasing costs for less reliable service with no assurance that those costs will lead to much needed additional dispatchable generation.

Electricity demand continues to increase at an unprecedented pace due to electrification and the influx of intensive energy consuming data centers. This demand is dramatically outpacing the rate at which new generation supply is scheduled to or can come online. With compounding supply retirements and the time required for new supply to be built, the gap between supply and demand could continue to grow depending on the realized demand growth. PJM began to identify a potential resource gap in its Resource Retirements, Replacements & Risks report published in

[1] The states' reserved powers under the Federal Power Act include control over in-state facilities used for the generation of electric energy, and also the determination of need for new power facilities, their economic feasibility, and retail generation rates and services. *E.g.*, *Hughes v Talen*, 136 S.Ct. 1288 at 1292 (U.S. 2016).

early 2023.[2] Since that time, PJM has continued to refine its load forecasts. In its August 8, 2024, Planning Committee meeting, PJM listed a potential shortfall of 1,663 megawatt ("MW") Unforced Capacity ("UCAP")[3] beginning in the 2029/2030 delivery year and increasing to 5,562 MW UCAP by the 2034/2035 delivery year.[4] Additionally, the North American Electric Reliability Corporation ("NERC") recently published its 2024 Long-Term Reliability Assessment, finding that North America "faces mounting resource adequacy challenges over the next 10 years as surging demand growth continues and thermal generators announce plans for retirement."[5] Most recently, PJM shared an updated load forecast, which showed the demand in 2030 is approximately 10% higher than it had previously projected.[6] Taking the anticipated 2025 load forecast into account, the PJM Board stated in a letter it released in support of PJM's recent capacity market enhancements, the PJM system could see a capacity shortage as soon as the 2026/27 Delivery Year.[7]

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[2] Energy Transition in PJM: Resource Retirements, Replacements & Risks, published February 2023, *available at* https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx

[3] As defined by PJM, UCAP is the denomination of the Capacity Market. UCAP is also "Unforced Capacity", i.e., Installed Capacity ("ICAP") (summer rated capability) that is not on forced outage. *See* https://www.pjm.com/-/media/committees-groups/task-forces/ccstf/2020/20200625-workshop/20200625-item-03-terminology-for-icap-ucap-cirs-and-elcc-definitions-and-functions.ashx at Slide 2.

[4] PJM Supplementary Information about Effective Load Carrying Capability ("ELCC") Class Ratings calculated for Delivery Year ("DY") 2027/28 – DY 2034/35 (Aug. 6, 2024), *available at* https://www.pjm.com/-/media/DotCom/committees-groups/committees/pc/2024/20240806/20240806-item-08---supplementary-information---elcc-class-ratings.pdf

[5] North American Electric Reliability Corporation (NERC) 2024 Long-Term Reliability Assessment, published December 2024, *available at* https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf

[6] 2025 Preliminary PJM Load Forecast (December 9, 2024), *available at* https://www.pjm.com/-/media/DotCom/committees-groups/subcommittees/las/2024/20241209/20241209-item-03---2025-preliminary-pjm-load-forecast.pdf

[7] Correspondence from the PJM Board of Managers on the filings related to enhancements to the interconnection process and adjustments to the capacity market (December 9, 2024), *available at* https://www.pjm.com/-/media/DotCom/about-pjm/who-we-are/public-disclosures/2024/20241209-board-letter-outlining-action-on-capacity-market-adjustments-rri-and-sis.ashx

Energy supply is not only unable to keep pace with unprecedented demand increases; it is decreasing in the proportion of demand it is projected to meet. Economic and policy pressures at both the state and federal levels have led to the retirement of critical dispatchable generation. Those same policy pressures have prevented investment into new dispatchable generation despite all-time-high capacity market clearing prices of approximately $270/MW per day for most of PJM, which was a nearly ten-fold increase from the prior auction.[8] Moreover, there is a concern that proposed projects that have been approved through the interconnection queue are not actually being built.[9] Without further reform, costs to customers in the PJM footprint could continue to increase without any assurance that those cost increases will result in new dispatchable generation.

Some stakeholders suggest that there is sufficient generation capacity currently in the PJM queue and that addressing the backlog to ensure those resources are realized while leaving the market to work itself out is an adequate remedy to capacity shortfalls. The Company strongly disagrees. While the PJM queue backlog is certainly a concern, the reality is that 97% of the queue consists of variable and intermittent battery, solar, and wind projects that simply cannot be depended upon alone. To the contrary, immediate investment in dispatchable generation is needed to ensure stable, reliable supply. In its December 9, 2024 filing, PJM itself acknowledged the compelling immediate need for construction of new dispatchable generation resources.[10]

The PJM region is not alone in requiring significant investment in new dispatchable resources. Many regions and local utility service territories are grappling with significant load

[8] 2025/2026 Base Residual Auction Report (July 30, 2024), *available at* https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2025-2026/2025-2026-base-residual-auction-report.pdf.

[9] Commercial Deployment of New Generation (September 25, 2024), *available at* 20240925-item-09---pjm-interconnection-queue---presentation.ashx

[10] *See, e.g.,* Docket No. ER25-712, *PJM Interconnection, LLC*, Tariff Revisions for Reliability Resource Initiative at 9, 28-29 (Dec. 13, 2024) (describing resource adequacy issues caused by "thermal generation retirements, their replacement by intermittent renewable resources with low completion rates, and greatly increased load growth" and proposing modifications to the interconnection process to accelerate shovel-ready projects that "best satisfy the need" for reliable capacity that can be available quickly).

growth, primarily coming from data centers, increased manufacturing, and the "energy transition." Importantly, the nature of the load growth identifies the type of generating resources that are needed. In this case, increased data center and manufacturing load drives a need for high-capacity factor, controllable generation; that is, the need is for new dispatchable generation.[11]

The PJM capacity market was originally designed to address issues related to the competitive electricity market by addressing economic, operational, and planning challenges that existed after the day-ahead and real-time energy markets were brought online. More specifically, it was designed to address the so-called "missing money" problem by retaining resources necessary to meet future demand and manage peak conditions. However, the capacity market was built during a time of abundant traditional, dispatchable generation sources that could reliably supply power on demand and were not dependent on weather conditions. Since then, coal, oil, and nuclear plants continue to retire at an accelerated pace.

The marginal-cost economic model that underlies the PJM power markets provides a single clearing price to all resources that clear in the auction. As such, the capacity market was not designed to account for the loss of generation with specific attributes (i.e., dispatchable), and thus is not suitable for addressing the financial strain on traditional dispatchable generation resources. Moreover, PJM has not adjusted its market rules to fully integrate and complement renewable resources with dispatchable resources. Another challenge is the simple fact that significant amounts of PJM capacity resources, particularly the renewable resources and certain nuke units, receive out-of-market subsidies that insulate them from competitive outcomes in the wholesale

[11] "New," meaning new units, not uprates. "Dispatchable," meaning that unit is available 24/7 and that the unit's full capacity can be dispatched by PJM as required by system conditions. *See generally PJM Manual 12: Balancing Operations*, *available at* https://www.pjm.com/-/media/DotCom/documents/manuals/m12.pdf. Intermittent units – generation that is only available during limited periods – is not dispatchable (because of its limited availability). Variable generation – generation that is subject to external factors that result in moment-to-moment changes in its available output – is not dispatchable (because the unit's output is not subject fully to central control).

power markets. More fundamentally, the marginal-cost economic model that underlies the PJM power markets does not sufficiently support the capital cost for new investment; a fact that was understood at market inception.[12]

Again, FE PA is committed to advocating for its customers and promoting solutions that result in reliable and affordable electric service in the future. The Company strongly believes that the best solution for customers includes prioritizing immediate investments in dispatchable generation while simultaneously implementing strategies to manage and levelize costs for customers. This will assure a reliable energy supply while maintaining long-term affordability to customers. Further, the solution must also include legislation and rules at the state level that address the nature of generation supply, current demand circumstances, and the resource adequacy challenge faced by all customers.

B. What is the Right Mix of Resources?

FE PA supports development of all resources in Pennsylvania that address the projected gap between increasing load and capacity resources. However, the world today is dramatically different than when the capacity market was designed. As discussed earlier in these comments, the current PJM market construct was not designed to solve the challenges presented today. As a result, the Company has very real concerns that the markets are not going to be able to compensate for the gap in capacity needs in sufficient time to ensure sufficient grid resources are available, leading to the conclusion that state-initiated out of market solutions must be considered.

As the Company considers what effective out of market solutions might look like, it emphasizes three critical criteria to consider in order to ensure success: customer impact, timing,

[12]*See, e.g.,* Docket Nos. OA97-261, *et. al*., *PJM*, Transcript of Technical Conference, pp. 233-36 (5/9/1997) (Mr. Falkenburg: "And when people build new generation, what happens is that the price drops and they lose money." Mr. Shanker: "That's competition.").

and risk management for all affected parties. The Company's foremost priority is to ensure safe, reliable, and affordable service to its customers. In light of this, FE PA is focused on identifying solutions that maintain service quality without causing disruptions or undue financial impact to those it serves. Second, timing is of utmost importance. Generation shortfalls could be expected as early as 2026 or 2027 and it is estimated that it will take approximately five to six years – at the earliest - to bring new dispatchable generation online. As a result, there is a very short window to identify a solution before customers are impacted. Given this limited timeframe, FE PA recommends practical, immediate actions that can be implemented swiftly while minimizing risks to customers. Lastly, the Company recognizes that these solutions will come with a cost. To that end, it is critical that any successful solution ensures access to the needed capital investment while mitigating financial risks for all parties involved.

Nuclear generation, including the potential for small modular reactors ("SMRs"), is an attractive option for Pennsylvania because these resources are not intermittent. However, the timeline, financial uncertainty, and ongoing technological advancements associated with the development of nuclear generation may not meet the urgency of the issue in PJM's footprint. The development of new gas-fired generation resources could help meet the near-term gap between supply and demand while keeping Pennsylvania on track to meet longer-term goals. Adding these resources will not slow the need for development of solar, wind, and energy storage generation, as a balanced mix of all types of generation is needed to meet this significant challenge.

FE PA also recognizes the criticality of resources that can be rapidly developed while ensuring their successful implementation and providing sufficient and timely cost recovery. Such resources could include natural gas peaker plants that could capitalize on the abundant gas supply in Pennsylvania. Additionally, modular battery storage systems, combined heat and power plants

("CHP"), and SMRs could also help bridge the resource gap until longer term solutions can be realized.

With new load from data centers and electrification coming on in unprecedented abundance and pace, Pennsylvania must focus on the most efficient and effective way to bring new dispatchable generation to commercial operation within the timeframe for need. Given the significant lead times and complex challenges involved in developing new generation projects, states cannot afford to delay action. For example, the addition of dispatchable on-demand generation brought online most recently in the PJM region, Guernsey Power Station in Valley Township, Ohio, started construction in 2019 and was not brought online until 2023.[13] However, permits for this generator were filed three years earlier in 2016.[14] At this pace, newly permitted generation would not be available until after 2030, missing the projected emergence of the capacity gap. Immediate state action towards resolving the projected gap is imperative to ensure sufficient dispatchable capacity to maintain grid reliability and provide stable, affordable energy. Finally, while dispatchable resources must make up the bulk of the potential solution and distributed energy resources ("DER") cannot feasibly close the resource adequacy gap alone, options such as energy storage, demand response, and load optimization can serve an important function in addressing a portion of the gap by reducing the need for new centralized resources.

[13] https://guernseypowerstation.com/economic-benefits-community/.
[14] https://www.naturalgasintel.com/news/power-developers-file-for-1650-mw-natgas-fired-plant-in-ohio/.

C. How to Facilitate Completion of Construction of Resources?

Keeping the criteria listed above in mind, the solutions need to be initiated and implemented at the state level. There is an immediate need for state rules and legislation that address the nature of generation supply, current demand circumstances, and the timing of resource adequacy challenges for all customers.

As a first step, the solutions must include a means to direct or effectively incentivize new dispatchable generation with high ELCC; the metric used to evaluate the reliability contribution of a given power resource. ELCC resources are quick to respond to changes in demand, can complement intermittent renewable resources, and ultimately, can meet demand during peak times. While resource selection is a critical piece to working toward a solution, it is also important to focus on reviewing and revising the pre-construction approval process. Permitting alone for a transmission project can take up to seven years with construction taking another three years. Since 2022, the average time it takes for new generation to move through the interconnection process is five years. Efforts should be focused on developing strategies to streamline the permitting process and other PJM queue activities while simultaneously seeking a resource solution.

As the Company maintains that Pennsylvania should consider a portfolio approach while addressing this challenge, FE PA has several suggested potential frameworks for ensuring that the proper resources are brought online to close the resource adequacy gap. The Company discusses these only as concepts for the Commission to consider, as further investigation into these models and collaboration with relevant stakeholders are important to determine the viability of each.

State-initiated solutions to assuring that necessary resources are brought online might include state-owned generation. State-owned generation can provide greater control over cost

and price stability. Unlike private generators, state-owned facilities would have the ability to prioritize public interests with a focus on more stable and predictable pricing for customers. Additionally, states are in a unique position to bypass some of the financial and permitting challenges that can cause delays in the private sector leading to more timely construction of new generation to meet the demand.

Other possible solutions might include state or utility-run competitive procurement processes whereby either state entities or utilities (either individually or in collection) would conduct competitive procurements to address capacity, energy and attribute needs identified through state-level evaluation, analysis and planning. The ultimate outcome would be power purchase agreements ("PPA") for the desired output and durations that tie to system needs based on long-term forecasts, with net costs allocated to utility customers or taxpayers. Financial certainty tied to long-term PPAs could reduce investment risk and remove challenges for developers to secure financing for new generation projects. Developers would be incentivized to build new projects that are aligned with market needs and policy goals set by the state. Moreover, state-run processes could coordinate permitting and siting to help reduce some of the barriers to developers and ultimately streamline the process for the development of new generation.

Another solution might include strategic reserve models. Strategic reserve models can be particularly useful because they maintain a dedicated pool of electricity generation resources that do not participate in the day-to-day market operations. These resources are only dispatched under certain conditions to help ensure grid reliability. Because they operate outside the market, they do not affect market pricing. However, they can act as a safety net to prevent blackouts during supply shortages.

What Can the PUC do to Ensure Resource Adequacy?

Given its stance as a leader in the energy policy space, the PUC is uniquely poised to be viewed as an invaluable voice in providing overall education to key non-industry Pennsylvania stakeholders and decisionmakers who may not yet understand the significance of this discussion and the need for cooperative solutions. Importantly, the PUC acts as an impartial authority to bring utilities and other stakeholders together. This role allows it to present unbiased information about challenges like reliability, affordability, and market dynamics. The PUC also has many platforms available to communicate with the public and decisionmakers regarding the risks of capacity shortages and the importance of diversifying energy sources in an accessible way.

FE PA commends the PUC in holding the Technical Conference to discuss these very important issues and encourages continued active engagement in the dialogue with PJM and other national-level forums. This will ensure interstate cooperation and reduction of regional free ridership to the benefit of Pennsylvanians. FE PA suggests that the Commission create and maintain an ongoing forum amongst stakeholders oriented towards attempting to leverage existing solutions to maximum ability while brainstorming the most feasible path towards implementing real, effective solutions.

Additionally, FE PA suggests that the Commission explore its historic policy stances on default service program ("DSP") period terms. Specifically, the Commission could reconsider a term beyond the current three- to four-year approach. The Commission could also review its historical stance on contract durations and encourage input from the demand projection reports currently required under Section 524 of the Pennsylvania Public Utility Code.

For any functional solutions directed, the Commission should consider how such solutions might be better funded through DSP or other mechanisms on a non-bypassable basis in order to

ensure that non-shopping customers are not inordinately bearing the burden of the costs for any individual solutions. To that point, any solution, whether long or short-term, associated with DSP or otherwise, must incorporate a "beneficiary pays" methodology. Costs associated with each solution must be allocated to the entire region as opposed to the customers of a singular electric distribution company. Similarly, costs should be allocated on a non-bypassable basis rather than to any limited class of ratepayers.

Finally, it must not be forgotten that unprecedented load growth and the needed changes to supply cannot be sustained without adequate transmission. The Commission should support the thoughtful and proactive buildout of transmission which will support new load and economic development while ensuring that new and existing generation is able to meet the current needs of Pennsylvanians.

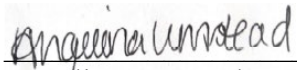
III. CONCLUSION

FE PA appreciates the opportunity to comment on this complex and evolving topic. Although there does not appear to be a quick or simple solution, the Company applauds the Commission for attempting to get ahead of the issue and solicit comments from all interested parties. As always, providing safe and reliable service is a priority to FE PA, and the Company is looking forward to working with all stakeholders on tackling the multi-faceted issues outlined above. FE PA strongly believes that an 'all of the above' approach will be necessary to ensure the continued safe, reliable, and affordable flow of electricity to all Pennsylvanians. Beyond basic utility service, economic development relies upon stable and reliable energy; failing to address the resource adequacy issues highlighted above could lead to missed opportunities for economic growth within the Commonwealth. Ensuring the electric grid has sufficient capacity to meet demand is foundational to attracting and sustaining businesses and ensuring a high quality of life

for residents. The Commonwealth has a unique opportunity to position itself as a leader in economic development by tackling this critical topic head on.

Date: January 9, 2025

Respectfully Submitted,

By: 

Angelina Umstead
Attorney No. 309615
FirstEnergy Service Company
76 South Main Street
Akron, OH 44308
(610) 921-6202
aumstead@firstenergycorp.com

Counsel for FirstEnergy Pennsylvania Electric Company