July 31, 2025

NERA Economic Consulting
RFI Administrator
Kathleen.Orlandi@nera.com
Abigail.Sinotte@nera.com
Luke.Heald@nera.com

NRG Energy, Inc. Response to
Request for Information Regarding New Generation in Pennsylvania

NRG Energy, Inc. ("NRG") appreciates this opportunity to provide feedback to the Request for Information ("RFI") released on behalf of Duquesne Light Company, FirstEnergy Pennsylvania Electric Company, PECO Energy Company, Citizens' Electric Company, and Wellsboro Electric Company ("EDCs") via the EDC's RFI Administrator, NERA Economic Consulting ("NERA" or "RFI Administrator"). The EDCs state that they "are jointly gathering feedback on what strategies, such as long-term power purchase agreements ('PPAs') for capacity attributes, could incentivize the construction of new dispatchable generation or the expansion of existing dispatchable generation for the benefit of Pennsylvania ratepayers." NRG thanks the EDCs and NERA for seeking such feedback to better understand the tools available to address customer needs in the Commonwealth in a reliable, equitable, and affordable manner. There are many energy challenges facing the region and an ongoing and robust discussion can help identify meaningful solutions, many of which are described below.

NRG is a Fortune 500 company operating in the United States and Canada, and delivers innovative solutions that help people, organizations, and businesses achieve their goals while also advocating for competitive energy markets and customer choice. NRG serves approximately 8 million energy and energy services customers across the country. NRG has three offices in the Commonwealth to support its substantial investment in serving our customers, in Philadelphia, Pittsburgh and Wyomissing, staffed with hundreds of employees that support our businesses. NRG's retail energy subsidiaries include Electric Generation Suppliers ("EGSs") and Natural Gas Suppliers ("NGSs"), which serve customers of all sizes across the Commonwealth.[1] In addition to serving the electric supply needs of customers, NRG also owns and operates a large power generation fleet and provides demand response services in Pennsylvania and throughout the country. In February 2025, NRG announced a new venture with GE Vernova, Inc., and Kiewit Corporation aimed at rapidly bringing new electricity generation capacity to market in response to growing demand for

[1] NRG's licensed retail companies include: Direct Energy Business, LLC; Direct Energy Business Marketing, LLC; Direct Energy Services, LLC; Energy Plus Holdings LLC; Gateway Energy Services Corporation; Green Mountain Energy Company; Independence Energy Group LLC d/b/a Cirro Energy; Reliant Energy Northeast LLC d/b/a NRG Home/NRG Business/NRG Retail Solutions; Stream Energy Pennsylvania, LLC; and XOOM Energy Pennsylvania, LLC

computing power and generative AI.[2] The venture will work to advance four projects totaling over 5 gigawatts (GW) of efficient, new natural gas combined cycle power plants for the ERCOT & PJM markets. NRG generally observes that the competitive wholesale and retail markets can be relied upon to induce sufficient entry into the PJM market to ensure both reliability and affordability. We also support reasonable improvements to market rules to better achieve these outcomes. As such, we are skeptical that Pennsylvania's regulated utilities have a significant role in forcing new entry through their procurement activities. However, NRG has in the past agreed to power purchase agreements whereby our company proposed to bring online new resources in relation to a regulated-utility procurement.

NRG notes that the Commonwealth has a surplus of energy resources to meet its demand for the foreseeable future. Recent capacity market results have demonstrated, however, that reserve margins are shrinking when considering the PJM region as a whole. Pennsylvania's combination of dispatchable resources (including the fuel to power such resources), growing renewable resource fleet, and opportunities for direct consumer participation have established the standard by which other states in the region should continue to emulate. Within that framework, NRG comments below on particular avenues which appropriately assign risk to those who are best enabled to manage it.

Retail Competition as a Means to Support Resource Adequacy

Pennsylvania's existing retail market supports resource adequacy by aligning retail customer commitments to take supply service provided by EGSs with the revenues that ultimately flow to power generation located in the Commonwealth and elsewhere. While many parties focus on PJM and its wholesale auctions as a source of revenue for the investment in and continued operation of power plants, the capacity market is intended to operate parallel to organic, retail market activities. NRG's risk policies include a hedging requirement, whereby we bilaterally contract for supply in the wholesale market to meet the retail contractual obligations we undertake for our customers. In this way, when a customer chooses to do business with NRG, we support resource adequacy as a buyer of generation and transmission services to supply those customers. These retail relationships can and do flatten volatility to which end-use customers might otherwise be exposed to by offering them the opportunity to contract for energy products that need not reflect rapid increases or decreases observed in PJM's energy and capacity markets from one day, month, or year to another day, month, or year.

Very recently, it was possible for everyday Pennsylvanians to purchase a long-term retail contract that brought them through and past the 2025-2026 and 2026-2027 PJM Delivery Years, with prices that were lower than utility default service—even though the utility price had yet to reflect the upswing in the PJM capacity market. NRG urges the EDCs, in concert with the Pennsylvania Public Utility Commission ("PAPUC"), to encourage customers to be aware of potential price spikes at

[2] See Press Release NRG Energy, GE Vernova and Kiewit Accelerating New Generation Capacity to Support Demand Growth, Businesswire, February 26, 2025, https://www.businesswire.com/news/home/20250225753165/en/NRG-Energy-GE-Vernova-and-Kiewit-Accelerating-New-Generation-Capacity-to-Support-Demand-Growth

wholesale, and to consider their retail purchasing options accordingly. If there are specific and demonstrable concerns that Pennsylvania customers, through their retail arrangements, may not have sufficient supply, there may be incremental steps available to obtain those assurances.

Perhaps most important in considering how shrinking—but still reliable—reserve margins impact customers across the Commonwealth is to consider how load serving entities, and specifically competitive retailers (i.e., EGSs) like NRG's retail companies, use the energy markets to provide the most efficient, affordable prices to their customers. Because the retail market structure is the exclusive jurisdiction of state public utility commissions, unlike wholesale markets, it is important to recognize the vital role retail markets have in ensuring resource adequacy. As discussed above, when NRG signs up a new retail customer, the company engages in a policy of "back-to-back hedging." On day one of service with a retail customer, we estimate the customer's load, make adjustments for extreme weather, and then bilaterally purchase the supply that is necessary to cover that estimated load. These bilateral contracts provide us the certainty that the rates that our customers have agreed to pay are adequate to cover the obligations we have made to upstream parties who have agreed to furnish us energy (or are adequate to cover the cost of operating our own power plants). In turn, those upstream contracts that we, as a "load-side" party sign, are a major source of revenue to our counterparties, that is, the power plants in PJM. Those revenues are sometimes more important, if less visible, than PJM's own energy and capacity markets. The former Three Mile Island—now renamed the Crane Energy Center—is an excellent example of how that occurs at scale[3], but this activity happens day-in, day-out on a more mundane basis as well, with retailers like NRG's hedging our supply costs from power plant owners who wish to "sell" and thus lock in a certain amount of revenue associated with their production of (or their opportunity to produce on demand) energy.

To be clear, the incentives facing sellers and buyers already align, and encourage the hedging of loads in support of resource adequacy. Notably, it is the fact that EGSs are not a cost-of-service regulated utility that motivates such entities to address price and volume risks in the face of rising energy costs. If a competitive retailer fails to raise adequate revenue from customer contracts to cover its costs, these entities have no recourse to retroactively effective adjustments clauses or other tariffs. A return to that kind of energy economy would actually mean an elimination of the positive incentives that today exist, and which are related above, for licensed EGSs to align supply with demand within the Pennsylvania retail market. Understood properly, eliminating customer choice and binding customers to a marketplace dominated by the incentive structure extant during the era of "cost of service" regulation would be detrimental to resource adequacy. Pennsylvania's regulated utilities should thus take steps to encourage active customer shopping and especially encouraging customers to enter into longer-term contracts.

[3] *See* Press Release "Constellation to Launch Crane Clean Energy Center, Restoring Jobs and Carbon-Free Power to The Grid" September 20, 2024. https://www.constellationenergy.com/newsroom/2024/Constellation-to-Launch-Crane-Clean-Energy-Center-Restoring-Jobs-and-Carbon-Free-Power-to-The-Grid.html

Actionable Demand-Side Steps in Pennsylvania to Support Resource Adequacy

In embarking on the project to introduce competition to the energy markets nearly three decades ago, state regulators, PJM, and federal regulators have spent substantial attention to ensuring the supply side of the market is robustly competitive and dynamic. Yet, over the years, less attention has been given to improvements on the demand side, which should be a co-equal and active force in any market across from the supply side. Demand-side participation has yet to meet its potential in Pennsylvania, despite the lofty promises that were made when the foundational technology investments in advanced metering were made.

For the demand side of Pennsylvania's market, NRG makes two actionable and concrete recommendations that, with the cooperation of the PAPUC and EDCs, should be pursued in the short term:

- Rate design for utility-offered default products should reflect the peak-demand-related services, such as the provision of capacity; all utility default customers should be on a time-of-use ("TOU") rate; and
- Smart-device programming has become commonplace in most PJM states, and Pennsylvania, with the support of the EDCs, should establish programs that allow customers and their suppliers to more readily optimize such affordable, customer-side devices in relation to the energy and capacity markets

With respect to rate design, Pennsylvania's residential default service consumers should be paying a rate that reflects the increased costs of serving peak demand in an on-peak period by default. Optional TOU rates have failed to achieve any substantial level of enrollment in Pennsylvania. Adopting such rates as opt-out would set the table for a reduction in capacity costs by actually conveying a price signal that customers could act around and provide a more meaningful benchmark for competitive retail products available in the shopping marketplace. A TOU rate for default shopping would both offer opportunities for the customers on it to save money and would reduce capacity obligations for Pennsylvania as a whole.

Meanwhile, realizing that retail pricing is a fundamental building block to galvanize demand-side actions, the Commonwealth and its EDCs should additionally consider programs to encourage the adoption and automation of distributed energy resources, and smart thermostats especially, that facilitate load-serving entities' reductions of peak load during those hours when capacity costs (and transmission costs, which are also demand-related, and which weigh on consumer affordability) are incurred. The demand side of this market is exclusively jurisdictional to the PAPUC and is ideally situated to address the retail market design it is charged to regulate. In its Final Implementation Order for the Phase V Energy Efficiency and Conservation program (EE&C) the PAPUC notes the importance of demand response and set a state-wide budget allocation of 10% for such programs for the 2026 – 2031 period.[4] Moreover, based largely on comments submitted by NRG, the Commission encouraged the EDC "to explore partnerships with EGSs as part of their

[4] *Final Implementation Order*, Energy Efficiency and Conservation Program, Pennsylvania Public Utility Commission, Docket No M-2025-3052826, June 18, 2025.

Phase V EE&C plan development process.[5] NRG is working with the EDCs with the goal of bringing a viable solution for their consideration.

Large Load-Specific Actions to Support Resource Adequacy

The concern raised by the PJM Independent Market Monitor and by FERC Commissioner Mark Christie in recent proceedings involving a Pennsylvania data center is that new large loads may sap the system of the existing resources that hitherto been expected to supply other customers in a relatively low-load-growth environment.[6]

The PAPUC currently has an open docket to consider potential model tariff design for large load additions in the Commonwealth.[7] Stakeholders, including the EDCs, should consider whether the anticipated and realized data center load growth will disrupt the region's resource adequacy in a way that the wholesale market is incapable of solving. If the answer is "yes," then there is a straightforward answer: requiring data centers to bring their own new capacity to the table before interconnecting to the system. NRG stands ready to serve the needs of these customers.

Requiring new large loads to be incrementally matched to supply raises certain policy challenges; for example, should the matching be 1:1, should the load be treated as truly firm, and what are the particulars of the tenor and generator attributes of the contracting requirement? If Pennsylvania policy makers were to make such requirements overly restrictive, it could cause large loads to locate elsewhere on the PJM grid. However, to the extent that the Commonwealth, through the EDCs' interconnection tariffs, wants to ensure that new large loads are supplied through incremental investments in generation capacity, it has the legal right to do so. Other states have required long-term contractual commitments on the part of retailers seeking to serve load in a state—although typically in a manner that imposes that requirement across all loads, and not for a particular customer class or vintage of load.

Utility-Sponsored Generation is Not a Workable Solution

Certain utilities have argued that the era of data centers requires them to get back into the power-generation game through Commission-approved power plants that would be charged to all customers. It would be a profound irony if Pennsylvania, in an effort to avoid a perceived cost shift associated with the growth of data centers, to end up perpetuating one by requiring utilities to sign

---

[5] Ibid, p. 121.
[6] *See* Concurrence of Commissioner Christie. PJM Interconnection, L.L.C.. 189 FERC ¶ 61,078, November 1, 2024 at P 2: "Co-location arrangements of the type presented here present an array of complicated, nuanced and multifaceted issues, which collectively could have huge ramifications for both grid reliability and consumer costs." *See also* FERC Docket No. ER24-2172. Answer and Motion For Leave to Answer of the Independent Market Monitor for PJM. July 10, 2024 at 6-7: "While the proposed amendment to the ISA is creative, its benefits to the co-located load come at the expense of other customers in the PJM markets. If this approach were extended to all the nuclear plants in PJM, the impact on the PJM grid and markets would be extreme."
[7] PAPUC Docket No. M-2025-3054271. *En Banc* Hearing Concerning Interconnection and Tariffs For Large Load Customers.

long-term power purchase agreements (or utility-owned generation) that all residential or other commercial and industrial customers, not just data centers, were obliged to pay for. This "solution" would actually ensure the outcome that regulators are ostensibly trying to avoid by entertaining the concept. Such a return to utility-based long-term power purchase agreements (or utility-owner generation) should be discarded out of hand. It is accordingly problematic that the RFI expressly targets new generation. It could be appropriate, as described below, for a regulated utility to establish a longer-term default product through some resource mix that includes longer-term wholesale contracts, but those contracts should be based on the resources that are capable of providing the least-cost energy and capacity, which naturally will include both existing and new resources. What the EDCs seem to be proposing in this RFI would result in cost shifting between new large loads and existing customers.

While energy markets are widely traded and the result of thousands of hourly auctions and the forward estimations of those auctions' cleared results that unfold over any given year, capacity markets are a more momentous event (an annual auction, with subsequent residual or incremental auctions) and these markets are indeed tightening.[8] This has left capacity buyers more dependent on the centralized auctions that PJM runs, or alternatively to take matters into their own hands by self-arranging new capacity (both generation and demand resources). In its own reaction to high capacity prices, PJM itself has implemented a multitude of capacity market and interconnection rule changes, and these are likely to facilitate a moderation in pricing over time and expedite new entry.[9]

While there have been many reactions to capacity market clearing prices, it is imperative that stakeholders and policy makers not panic by adopting hasty and poorly conceived solutions to force generation into the mix via contracts backed by promises of ratepayer or taxpayer money. Notably, in those places where regulated utilities themselves bear the responsibility for capacity in PJM, pricing has consistently been higher than the competitive market's clearing price.[10]

---

[8] *See* Press Release "PJM Auction Procures 134,311 MW of Generation Resources; Supply Responds to Price Signal." July 22, 2025. [20250722-pjm-auction-procures-134311-mw-of-generation-resources-supply-responds-to-price-signal.pdf]

[9] *See* FERC Docket Nos. ER25-682 (which proposes various capacity market updates regarding the treatment of qualifying resources that are retained under a "reliability must run" agreement as capacity, retention of a dual-fuel fired combustion turbine plant as the reference resource, updates to the Non-Performance Charge based on the RTO net CONE, and the Base Residual Auction schedule); ER25-712 (enabling a one-time reliability-based expansion of the eligibility criteria for PJM's interconnection process Transition Cycle #2); ER25-778 (intended to facilitate the rapid expansion of existing and planned generating facilities on PJM's system through the expedited Surplus Interconnection Service process); ER25-785 (which requires all Existing Generation Capacity Resources to offer into the capacity auctions beginning with the 2026/2027 Delivery Year); and ER25-1357 (which implemented a narrow price cap and floor for the 2026/2027 and 2027/2028 RPM Base Residual Auctions).

[10] *See* Appalachian Power Company Fixed Resource Requirement rates for Delivery Years 2020/2021 ($480.98/MW-Day), 2021/2022 ($465.33/MW-Day), 2022/2023 ($503.29/MW-Day), 2023/2024 ($450.17/MW-Day), and 2024/2025 ($464.74/MW-Day). https://www.pjm.com/markets-and-operations/billing-settlements-and-credit/frr-lse-capacity-rates (Retrieved July 25, 2025.)

On this last point, it is of vital importance to understand that interceding actions taken by regulated utilities to produce capacity investment will have a chilling effect on market-based investments. However, it may be reasonable to at least consider Pennsylvania's current regulatory structure, which allows the default supply procurement product to be sourced at least partially from long-term contracts.[11] Any Request for Proposals that results from this RFI should make clear that this is the statutory scheme by which the utilities are proceeding in order to signal to possible bidders a measure of certainty around what they are bidding into, and the RFP should also include a clear explanation of the utilities' source of authority to engage in any joint procurement.

Meanwhile, efforts to re-insert the local distribution utilities directly into the generation business, except through their role in providing default supply service, not only flout existing Pennsylvania law,[12] but also fail to extract any advantage the utility may claim to have. Simply put, no utility, whether the EDCs sponsoring this instant RFI or anywhere else can enter the market any faster or cheaper than the independent investment that has given Pennsylvania so many advantages in the electricity sector over the last 25 years. Utilities would be subject to the same interconnection queue and would have to manage the same supply-chain issues that any developer does.

Alternatives to Allocate the Incremental Cost of Providing Grid Services to New Large Loads

The uncertainty in load forecasting for data centers and the impacts on resource adequacy in the Commonwealth and the region has substantial risk implications for the amount of energy supply that a utility should plan to serve. Yet the competitive market in the supply of power allows this risk to be channeled to parties other than a captive base of ratepayers who have nothing to do with data-center development. The EDCs, in an effort to most efficiently serve new loads, should consider that retail load interconnection of very large loads—the source of much of the resource adequacy concerns regionally—be processed through a Network Open Season ("NOS"). In the simplest terms, a NOS would have the EDCs, individually or collectively, who face an oversubscription of large loads relative to their existing grid capacity to develop a bid-based process to expand their grids.

A NOS would operate at a high level as follows: First, in view of the load interconnection requests and potential requests that exist, an electric utility would develop several expansion plans that are sufficient to accommodate lower and higher degrees of very large load interconnection at places on its system that are economically advantageous to data-center development and for which interest has been expressed. The electric utility would then identify the projected, indicative costs by firm-MW served of these interconnections (including any upstream upgrades required). Subsequently, it would tender an offer of service through a NOS and open a period of bidding. Large loads, as well as any party wishing to buy a transferable right for a very large load to interconnect, would express a paired bid of location and volume relative to one or more of the utility's plans. Realizing that interconnection-per-MW is not a uniform commodity with a purely linear value, some flexibility in

[11] 52 Pa. Code 54.186(b)(iii) (permitting "long-term purchase contracts" so long as they are "25% or less of the DSP's projected default service load unless the Commission, after a hearing, determines for good cause that a greater proportion of load is necessary to achieve least cost procurement."
[12] See 66 Pa C.S. Sec 2802(14), 66 Pa C.S. Sec 2804(5), 66 Pa C.S. Sec 2806(a), and 66 Pa C.S. Sec 2806(d).

the post-bid process could be afforded an electric utility (e.g., +/- 15%) to appropriately identify costs of the seemingly most efficient portfolio, subject to bidder consent. This NOS outcome would then be submitted to the Commission to demonstrate both need for the portfolio and as a proposal to allocate costs, so long as the portfolio met an acceptable ratio whereby bids were near or exceeded the total offer cost. On that basis the relevant regulator (e.g., PAPUC) could make an approval of need based on the NOS's expressed demand, and the regulator also could be satisfied that the cost of this expansion was fully funded by bidders, with any surplus being applied to the utility's revenue requirement, or held as a contingency for cost overruns, or even kept as additional remuneration for the electric utility's extraordinary performance. Financial commitments then would be made by bidders, and the electric utility would commence construction, subject to a more limited public convenience and necessity proceeding that concerned only routing, and not necessity, since that criterion would have already been satisfied.

The revenue from NOS bidders could exist as the most significant part of the regulated rate that these customers would otherwise be subject to or, alternatively, exist parallel to the ordinary scheduled rates. This approach resolves two major regulatory problems: load forecast error, which in the regulated transmission-and-distribution-company landscape lacks any market-based check, and the allocation of capital costs that may absent an upfront defrayal be charged to consumers generally who may not have needed the investment.

This NOS approach also has another significant attribute that encourages the data-center economy: the development of a secondary market for the trade in interconnection rights. Once a bidder obtains a right to interconnect through a NOS by making a binding financial commitment, there is no reason why that bidder should not be able to transfer that property right to another party on whatever terms those two parties agree to. This would simultaneously help fund transmission expansion and allow for substitution of less economic for more economic data-center use cases in an uncertain data-center and AI landscape described at the very beginning of these comments. Moreover, it would minimize the arbitrary regulatory device of queueing that has taken a needless center stage in what should be a more streamlined process of network access to the electric grid. NRG submits that the characteristics of the scale and optionality of data-center load growth make this approach well suited to the power sector at the present moment. It is a tool to both advance the data-center industry while protecting other consumers from any risk- or cost-shift in this part of the sector.

Comments on New Electric Generation Facility Pricing

NRG recommends the RFI Administrator and EDCs review the work currently underway at PJM as part of its "Quadrennial Review" wherein an independent consultant and contractors with expertise in engineering, procurement, and construction of generation resources provide estimates for several types of generation resources across the PJM footprint.[13] While NRG does not endorse any

[13] The Brattle Group. *Brattle 2025 CONE Report for PJM: Informing Parameters for PJM's RPM Auctions for Delivery Year 2028/2029 through 2031/2032*. April 9, 2025. https://www.pjm.com/-/media/DotCom/committees-groups/committees/mic/2025/20250411-special/item-1-02-revised-cone-report-final.pdf (Retrieved July 25, 2025.)

specific calculation provided by the independent consultants, we offer this information for purposes of benchmarking. In addition, we encourage the RFI Administrator and EDCs to give due consideration to the timeliness of the data here as well as the calendar time necessary to reserve, construct, and deliver turbine and other supply chain matters.

Thank you for the opportunity to submit these views on the RFI to support resource adequacy in Pennsylvania. We would pleased to continue a dialogue about our comments.

Respectfully submitted,

/Travis Kavulla/
Travis Kavulla
Vice President, Regulatory Affairs
1825 K St. NW, Ste 1203
Travis.Kavulla@nrg.com
(406) 788-3419

/Neal A. Fitch/
Neal A. Fitch
Sr. Director, Regulatory Affairs
Neal.Fitch@nrg.com
(713) 302-1284

/Leah Gibbons/
Leah Gibbons
Sr. Director, Regulatory Affairs
lgibbons@nrg.com
(301) 509-1508