TESTIMONY OF THE NATURAL RESOURCES DEFENSE COUNCIL

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Chair Miller, Senator Flynn, and honorable members of the Senate Democratic Policy Committee, thank you for the opportunity to testify today on this critical issue, which is obviously top of mind for your constituents and will continue to be for the foreseeable future.

My name is Robert Routh, and I am a senior attorney with NRDC (Natural Resources Defense Council), an international non-profit organization with over three million members and online activists. Since 1970, NRDC's lawyers, scientists, and other environmental specialists have worked to protect our natural resources, public health, and climate. In my role as Pennsylvania Policy Director for the Climate & Energy Department, I work to advance decarbonization across all 67 counties in the Commonwealth with most of my attention paid to statewide efforts in Harrisburg. My job is to advocate for laws and policies that will drive a more sustainable, equitable, and prosperous clean energy economy for all in Pennsylvania.

The energy transition is at an inflection point. With electricity demand projected to grow meaningfully for the first time in decades, fossil assets retiring, poor winter reliability from gas generators, seemingly intractable interconnection queue delays, and transmission planning badly in need of updating to keep pace with a changing grid, there is significant and increasing need to address overlapping goals: supporting rapid electrification and decarbonization while reducing overall costs and ensuring grid reliability. As the largest net electricity exporter in the country, Pennsylvania is uniquely poised to benefit from this opportunity. State policymakers can play a role to ensure the electric grid is prepared; not by panicking, but by enacting smart reforms to properly incentivize the buildout of clean, reliable generation.

The price impacts that your constituents and those across the 13-state PJM footprint will experience to varying degrees starting in June can be traced back to the most recent capacity auction held by PJM in July 2024 for the 2025-26 delivery year. PJM's capacity market is set up to ensure that there is enough electricity to meet demand on the hottest and coldest days of the year. Capacity auctions are designed to happen annually to procure sufficient power supply for three years in the future, including a healthy reserve margin for reliability. Power plants are paid to commit to be available (or customers are paid to conserve during emergencies) whether that electricity is ultimately needed or not; those power plants are also paid when they do sell their electricity to the grid. The July 2024 auction saw a clearing price of $269.92/MW-day, resulting in total costs of nearly $14.7 billion spread across the region, which compares to just $2.2 billion at the previous auction. This nearly seven-fold price spike was foreseeable and preventable. PJM's failure to allow for new clean, reliable energy to come online in a timely manner and to plan for more transmission has forced the bill onto ratepayers.

Contributing Factors to Rising Electricity Costs

Pennsylvania has four large, conventional coal-fired power plants still in operation, and each is scheduled to either retire or attempt to fuel-switch to gas by 2028. Since 2011, over 40 GW of coal-fired plants have retired across PJM, largely due to being economically out-competed by high efficiency combined cycle units burning low-cost gas. During most of this period, PJM markets appeared to be working as they should: lower-price gas resources underbid less efficient coal units, lowering prices and sending retirement signals. However, two separate problems were allowed to develop during the late 2010s and early 2020s.

First, even though new gas-fired plants can be individually quite reliable, they have a disturbing tendency to fail in large numbers at the same time. Widespread gas fleet failures were the primary cause of PJM *near*-blackouts in 2014 and 2022 and occurred with tragic results in Texas in 2021. Of the 2022 gas plant failures in PJM, 63% were due to mechanical or preparation problems at the respective plants; and of the 31% of outages that were caused by gas supply issues, the majority appeared to be due to loss of upstream supply, not insufficient pipeline infrastructure. During Winter Storm Elliott, Appalachian gas production fell by approximately 30%.

Before the July 2024 capacity auction, PJM did not sufficiently account for this risk of simultaneous plant failures in its markets and planning. The result was a false sense of reliable supply abundance. As PJM planned around a summer peak that it was well supplied for, these risks of winter blackouts grew unchecked. After Elliott, it became obvious that this was untenable, and PJM reformed its capacity market to use a more sophisticated risk assessment approach that accounts for plants potentially being unavailable when most needed. The outcome was a major derating of the gas fleet: plants that had been considered as high as 92%–95% available/reliable fell to just 62%–79%. The July 2024 capacity auction was the first to use these new values and revealed a previously hidden capacity shortage.

The second long-simmering problem is that sometime around 2020, PJM's interconnection queue stopped working. Essentially no projects submitted to PJM since September 2020 have begun construction. Of the 157,765 MW of projects submitted to PJM since then, exactly 1 MW had gone into service before the last capacity auction. As of November 2024, there are 1,935 solar or solar hybrid projects, 593 storage projects, 166 wind projects, and 38 gas projects active in PJM's queue, which have been there for an average of 1,112 days. This includes both new projects and upgrades to existing facilities. Below is a table showing the nameplate capacity, capacity rating, and capacity value of each resource type waiting in PJM's queue.

Technology	Nameplate	Capacity Rating	Capacity Value
Battery	51 GW	59%	30.1 GW
Gas CC	3 GW	79%	2.4 GW
Gas CT	2.4 GW	62%	1.5 GW
Solar	100 GW	9% - 14%	9 - 14 GW
Solar + Storage	32.9 GW	14% - 59%	4.6 - 19.4 GW
Wind	36.9 GW	35% - 41%	12.9 - 15.1 GW
Total			**60.5 - 82.5 GW**

The nameplate capacity of resources in the queue far exceeds the 135 GW of resources that cleared in PJM's auction. Adding even a fraction of this queued generation could significantly improve reliability and affordability if they were able to come online. To be clear, not all projects in the queue will be built. However, this is counterbalanced by the fact that, until recently, PJM had not accepted any new applications for several years, so we have limited insight into how many projects are waiting in the wings when PJM reopens the queue. Given the high prices in the last auction and the prospect of higher prices yet to come, it is reasonable to expect commercial interest. The overall conclusion is clear: the reliability challenges that PJM faces could be met by deregulated markets *if* resources were able to interconnect in a timely manner.

Unfortunately, these long-simmering trends came to a head in July 2024 and, coupled with increased load forecasts driven largely by anticipated data center buildout, resulted in astronomical prices for consumers. Absent significant changes, this situation was very likely to worsen over the next two capacity auctions, scheduled for July 2025 (delivery year 2026-27) and December 2025 (delivery year 2027-28).

The capacity price "collar" settlement agreement that the Shapiro administration reached with PJM following its filing of a Section 206 complaint with the Federal Energy Regulatory Commission (FERC) in December 2024 (arguing that PJM's markets were unjust and unreasonable) will help mitigate the severity of the price impacts and buys time to fix structural, underlying issues with the interconnection queue and capacity market. There have also been a series of proposed reforms submitted to FERC by PJM in recent months intended to address the growing supply/demand imbalance. These proposals range from encouraging with near-term impacts to concerning and not fit for purpose.

Moreover, there are also state legislative solutions available to address these challenges.

Solutions to the Problem

No doubt some will seek to misrepresent PJM's current situation as calling for panicked construction of new gas-fired power plants. There is no evidence to support those claims. PJM's reliability issues are purely a matter of timing and of ensuring that new resources can be brought into service quickly enough to meet load growth and retirements. To be sure, Pennsylvania and the wider region will need to build new, reliable sources of generation to keep costs down.

While we await official text for the six bills included in Governor Shapiro's Lightning Plan to fully dive into the details, NRDC is encouraged to see that his legislative package appears specifically tailored to address energy supply and demand. The Shapiro administration has consistently stated that PJM's market and rules are broken and hurting consumers and, relatedly, that it is challenging to build new sources of generation in Pennsylvania and across PJM. Framed as an "all of the above" energy proposal, the Lightning Plan is aimed at making it possible to build energy projects by addressing the financing and siting challenges that limit projects from breaking ground and serving the grid.

For example, the proposed Reliable Energy Investment Tax Credit – included among reforms to the existing "Economic Development for a Growing Economy" (EDGE) tax package – would incentivize developers that meet certain criteria (nameplate capacity, capital investment, jobs created, capacity factor, CO_2 emissions, etc) to construct new energy facilities or expand/modify existing facilities in Pennsylvania.

The proposed Reliable Energy Siting and Electric Transition (RESET) Board would bring Pennsylvania in line with the majority of other states that have some statewide entity with the authority to handle siting decisions for key energy projects. The specifics will be critical, but the cosponsor memos released thus far indicate this board will be technology-neutral and authorized to approve generating facilities that meet the minimum capacity threshold of 25 MW (as well as energy storage facilities). This legislation should provide greater uniformity and predictability for energy project developers but must still recognize the need for community engagement and other prerequisites for project success.

The proposed "Community Energy" bill would build on familiar, commonsense proposals to authorize community solar in Pennsylvania by allowing consumers the option to choose from a diverse array of energy sources, including solar, geothermal, methane digesters, or energy storage devices. These resources could theoretically bypass the PJM interconnection queue by providing power to communities that choose to share energy at the distribution level, thereby saving money while providing more electricity and benefiting all other communities that don't choose to participate.

Next, Governor Shapiro's proposal to update the moribund Alternative Energy Portfolio Standards (AEPS) and establish the new Pennsylvania Reliable Energy Sustainability Standards Act (PRESS) will ensure market signals that diversify the Commonwealth's energy portfolio and mitigate the problems we face from having placed too many eggs in one energy basket. Every technology eligible for AEPS credits today would continue to be eligible for PRESS credits; no existing type of energy would be excluded while many new, diverse types will become eligible (21 total), including advanced nuclear reactors and geothermal. The version of PRESS introduced last session would expand the two tiers of power sources under the current AEPS into three tiers and require that minimum amounts of all three types exist – and increase – in Pennsylvania between now and 2035. This legislation would send a crucial signal to electric utilities, generators, and investors that Pennsylvania wants new, innovative energy resources built here.

Meanwhile, the administration is also planning to introduce reforms to Act 129, Pennsylvania's flagship energy efficiency law that directs electric utilities to reduce energy use within their service territories, a law that was passed back in 2008. Any changes should be designed to put downward pressure on the demand side of the equation.

And the proposed Pennsylvania Climate Emissions Reduction Act (PACER), which followed from the recommendations of Governor Shapiro's RGGI Working Group, would establish a market-based price on carbon pollution from existing fossil plants. This would create significant investment opportunities resulting from the sale of Pennsylvania carbon allowances (think a limited license to pollute) that could be dedicated to additional energy efficiency measures and direct on-bill rebates to electric customers.

Finally, outside the scope of the Lightning Plan, NRDC urges that it would not be cost-effective to invest public resources in, or saddle ratepayers with the costs of, new gas plants before making sure the ones we already have work when we need them. If PJM could rely on its gas fleet to perform at 90–95% reliability during winter storms (as it had previously), there would be no imminent capacity problem. In the July 2024 auction, 87,110 MW (nameplate capacity) of gas-fired units cleared, with an average capacity rating of 76%. Raising that reliability value to an entirely achievable 90% **would add 12.2 GW of capacity to the system**, saving billions of dollars over the next few years and delaying resource adequacy shortfalls until 2028.

Critically, this would buy PJM and project developers much-needed time to process the interconnection queue and build the storage, wind, and solar resources that will keep the system reliable well into the 2030s. PJM and Pennsylvania should work together to ensure full compliance with rigorous weatherization standards at power plants. And gas wellheads are under state jurisdiction. The General Assembly should consider all necessary measures to ensure that we never see a repeat of the 30% loss of gas production that occurred during Winter Storm Elliott.

For example, gas plants with liquid fuel backup are among the most reliable performers during winter storms, with 94.4% availability during Elliott. The General Assembly should consider actions to strongly encourage dual fuel upgrades at existing gas plants. This is already a requirement in New York, and it underlies the key point that maximizing the reliability of Pennsylvania's existing fleet is a more immediate and cost-effective solution than devoting resources to constructing new fossil plants.

Conclusion

The electricity supply situation in PJM is precarious, and if not managed carefully, could cost consumers tens of billions of dollars and risk life-threatening winter power outages. Commonsense options exist to meet the region's reliability needs, but both PJM and Pennsylvania must act quickly and decisively. We know what is causing rising electricity prices, and we have a diverse array of tools available to fix the problem. NRDC looks forward to working with the General Assembly and relevant stakeholders in the months ahead to lower consumer bills, reduce climate pollution, and grow and protect energy jobs.

Thank you for the opportunity to testify, and I look forward to answering any questions.

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