January 09, 2025

Submitted Via E-Filing

Pennsylvania Public Utility Commission,
Attention: Secretary Rosemary Chiavetta
400 North Street
Harrisburg, PA 17120

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

Dear Secretary Chiavetta:

Keystone Energy Efficiency Alliance would like to thank the Pennsylvania Public Utility Commission ("PUC" or "Commission") for hosting the November 25, 2024 Technical Conference on Resource Adequacy and for this opportunity to present at the technical conference and to provide formal comments in regards to the matter.

Keystone Energy Efficiency Alliance ("KEEA") is Pennsylvania's trade association for the energy efficiency industry. With our sister organization the Energy Efficiency Alliance of New Jersey, we represent 70 business members across Pennsylvania and New Jersey. Our mission is to champion efficiency as the foundation of a clean, just, and resilient energy economy.

The Commission has a pivotal role in ensuring resource adequacy by balancing affordability, reliability, and security with the broader implications of our electricity structure. We believe that this is fully within the power and duty of the PA PUC. These responsibilities include impacts on markets, developers, equity, and the environment.

We urge the PUC to take a critical eye to inherent bias toward capital expenditure from utilities and the unique role that the Commission itself can play, rather than pushing this down to the utilities. To strengthen its role, the PUC should leverage existing tools and seize emerging opportunities. As stated by many others at the November 25 convening we, too, applaud this

Technical Conference and encourage the PUC to exercise its authority to continue to convene such conferences at regular intervals.

We recommend the following actions:

1. **Expand Energy Efficiency Initiatives and Enhance Demand Response Programs**

The PUC has a critical opportunity to enhance Pennsylvania's energy landscape by expanding energy efficiency initiatives and strengthening Demand Response programs under Act 129. Energy efficiency remains one of the most cost-effective strategies for reducing demand, and its impact can be amplified by embracing pilot projects and innovative technologies. To ensure these programs achieve their full potential, the PUC should adopt meaningful metrics, such as the percentage of customer participation across rate classes, to better evaluate program reach and effectiveness.

At the same time, the PUC should double down on Demand Response initiatives by integrating smart technologies and shifting to more granular, real-time participation opportunities. Leveraging advanced metering infrastructure can optimize demand management, while programs funded by ratepayers, including LIURP and Act 129, should require the deployment of smart technologies like water heaters, appliances, and thermostats wherever feasible. Furthermore, encouraging hyperscalers and other large energy users to actively participate in state Demand Response programs would enhance grid efficiency and resilience.

It is notable that the PUC previously required all utilities to install smart meters but this technology has not been truly leveraged at scale in the Commonwealth.

Participation in DR programs is voluntary, but it presents a significant opportunity for both electricity users and utilities. By electing to participate in utility-level DR programs, and for utilities to engage in PJM-led DR initiatives, stakeholders can create a mutually beneficial system. Any instances of overlapping incentives would serve to further motivate electricity users to reliably reduce consumption during critical periods, enhancing grid stability and overall system efficiency.

According to the associated data from the IRS[1]consumers demonstrate strong support for energy efficiency measures, particularly when there are incentives to do so. In this report[2], a significant portion of the energy efficiency tax credits — more than 940,000 instances nationally – were taken by households earning less than $100,000 annually. Energy efficiency measures from

[1] Form 5695 Residential Energy Credits, by Size of Adjusted Gross Income, Tax Year 2023 (through Filing Season 2024 Cycle 21, May 23, 2024) https://www.irs.gov/statistics/soi-tax-stats-clean-energy-tax-credit-statistics
[2] Id.

higher efficiency equipment to exterior doors to insulation and air sealing were sought after and installed by consumers.

"158,550 Pennsylvanians claimed more than $260 million in tax credits on their 2023 tax returns for installing solar or making other energy efficiency improvements on their homes, according to new data released today by the US Department of the Treasury."[3]

This included the 134,720 who claimed the EE credit, and the 30,670 who claimed the clean energy credit.[4]

Finding ways to accelerate energy efficiency measures should be the very first plank in a strategy to drive more capacity.

2. Support Distributed Energy Resources and Virtual Power Plants

The PUC should promote the development of microgrids as a vital component of grid modernization. Microgrids, as self-sufficient energy systems, can operate independently during extreme weather events, mitigating the risks associated with outages and damage to above-ground infrastructure such as transformers, transmission lines, and utility poles. By enabling microgrids to act as islands of reliability, the PUC can support communities and businesses in maintaining critical operations during emergencies.

A strong example of how the PUC can advance statewide energy goals comes from the Public Utility Commission of Oregon (Oregon Commission). In November 2024, the Oregon Commission adopted updated Distribution System Planning (DSP) guidelines under Docket No. UM 2005 [5]. These guidelines, initially established in December 2020 and now revised, provide a clear framework for utilities to enhance transparency and align their DSPs with state policy objectives.

The 2024 updates aim to strengthen the connection between investment planning and rate recovery while ensuring that DSP investments are coordinated with other planning processes. The order requires utilities to present detailed analyses of grid needs, forecasts, and investment plans in both five-year near-term action plans and 10-year long-term strategies. This

[3] Flora Cardoni, 'Almost 160,000 Pennsylvanians saved money on their taxes this year thanks to home solar and energy efficiency projects', August 2, 2024 https://environmentamerica.org/pennsylvania/center/updates/pennsylvanians-saved-more-than-260-million-on-their-taxes-thanks-to-home-solar-and-energy-efficiency-projects/?utm_medium=email)

[4] Table 3. Form 5695 Residential Energy Credits, by State,Tax Year 2023 (through Filing Season 2024 Cycle 21, May 23, 2024) https://www.irs.gov/statistics/soi-tax-stats-clean-energy-tax-credit-statistics

[5] https://edocs.puc.state.or.us/efdocs/HAU/um2005hau332756033.pdf

comprehensive approach ensures that planning efforts support state energy goals, improve accountability, and facilitate smarter, more strategic grid investments.

The Commission should consider opening a docket to evaluate the value of Distributed Energy Resources (DERs), including energy efficiency, using frameworks such as the Total System Benefit model. Drawing inspiration from New York's *Grid of the Future* proceeding, the Commission could require utilities to propose DER investment strategies that offer targeted incentives for DERs, including energy efficiency measures, to offset traditional infrastructure spending. This approach would not only promote innovation but also ensure cost-effective and sustainable grid modernization.

Additionally, the *Volts* podcast episode, *"The Promise of Residential VPPs*[6]*"* highlights key insights into the potential of Virtual Power Plants (VPPs) at the residential level. Among the most salient points is the concept of leveraging existing equipment, such as heating and cooling systems and water heaters, to enable immediate participation. Over time, this approach can evolve by transitioning to "smart" appliances during replacements, facilitating broader adoption, scalability, and the economic benefits of a connected, efficient network.

3. Leverage Revised FERC Order No. 1920-A to Lead Integrated Resource Planning

The state needs to play an active, leading role in transmission planning for near-term and the 20-year horizon, and now it has the authority and mandate to do so. Sufficient transmission is a critical part of resource capacity planning, and we encourage the PUC to take on this responsibility and opportunity with vigor, both in concert with and, if necessary, independent of the RTO, to devise an effective plan to meet surging demand. The PUC has a significant opportunity to strengthen Pennsylvania's energy future by leveraging the revised FERC Order No. 1920-A, scrutinizing utility preparedness filings, and revisiting previously proposed projects. FERC's updated order grants states a greater role in grid planning and cost-sharing with Regional Transmission Operators, empowering the PUC to actively shape grid modernization efforts. By leveraging this expanded authority, the PUC can advocate for equitable cost allocation among stakeholders and drive the adoption of forward-looking infrastructure improvements that enhance reliability and resilience.

We note that this revised order resulted from a re-hearing specifically requested by the PA PUC in Docket No. RM21-17-000[7]. We also note Governor Shapiro's letter to PJM[8] in support of a

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[6] David Roberts, Volts Podcast: The Promise of Residential VPPs (2024) https://www.volts.wtf/p/the-promise-of-residential-vpps

[7] Comments And Limited Protest Of The Pennsylvania Public Utility Commission To PJM's Compliance Filing Concerning Ferc Order 2222 Docket: ER22-962-000, March 31, 2022. https://www.puc.pa.gov/media/1880/ferc-papuc-comments-and-protest-er22-962-03312022.pdf

[8] Governor Josh Shapiro's letter to PJM Interconnection, LLC, June 12, 2024 https://ucs-documents.s3.amazonaws.com/clean-energy/letter-from-governors-PJM.pdf

robust process actively engaging states in transmission planning. The revised order gives the PUC a particular role in considering cost allocations from the Regional Transmission Organization:

> *"Order No. 1920-A largely leaves the original rule intact…The changes in today's rehearing order enhance the role of state regulators in the long-term regional transmission planning process, especially their role in shaping scenario development and cost allocation."*[9]

A new report from **Grid Strategies**, "Strategic Industries Surging: Driving Power Demand" points to the revised forecasted electric load growth well above even the 5-year doubling in load projected by FERC. The report further notes an especially high increase of 30GW expected in the PJM territory. While it is unclear how much of this load may actually be realized, transmission investment is warranted. It states,

> *" Large-scale transmission is the lowest-cost method to address load growth, but according to FERC data, only 55 miles of high-capacity transmission (345 kV and up) were built in 2023…While it is not clear how much investment is specifically intended for load growth, reliability and load growth are inextricably tied. NERC's Interregional Transfer Capability Study, released in November 2024, identified 35 GW of prudent interregional transmission additions. If built, interregional transmission will enhance access to energy, dispatching existing resources more efficiently."*[10]

4. Scrutinize Utility Preparedness Filings

Additionally, under Title 52, utilities are required to submit Preparedness filings addressing mission-critical equipment and infrastructure. These filings represent a vital tool for ensuring system reliability. The PUC should rigorously evaluate these plans and consider establishing a broader working group or formal docket to promote coordinated resource planning across the Commonwealth. This collaborative approach would foster innovation, enhance resilience, and ensure that Pennsylvania's energy system can adapt to evolving challenges.

5. Reassess Previously Proposed but Unpursued Projects

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[9] FERC Strengthens Order No. 1920 with Expanded State Provisions, November 21, 2024 *https://www.ferc.gov/news-events/news/ferc-strengthens-order-no-1920-expanded-state-provisions

[10] Grid Strategies, "Strategic Industries Surging: Driving Power Demand (December 2024) https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf
See Also, Ed Cooks, Energy Gang Podcast: The Trouble with Transformers (2024) https://www.woodmac.com/podcasts/the-energy-gang/trouble-with-transformers/

The PUC can take advantage of today's elevated electricity prices by strongly encouraging utilities to revisit previously shelved projects. Many of these initiatives, which may not have been financially viable in the past, could now provide cost-effective solutions to bolster system capacity and reliability. By reassessing these projects, the PUC can unlock new opportunities to strengthen Pennsylvania's energy infrastructure and secure long-term benefits for ratepayers.

6. Explore Rate Reform and Utility Business Model Reform

The PUC should take bold steps to modernize utility business models and rate structures by prioritizing rate reform grounded in sound economics to drive efficiency, reliability, and innovation in utility operations

Reports from McKinsey & Company[11] and the Regulatory Assistance Project[12] provide valuable insights into how modernized rate structures can drive efficiency, reliability, and innovation in utility operations. Notably, states like North Carolina have implemented Performance-Based Incentives and Regulations (PBR), and their ongoing refinements to these frameworks offer Pennsylvania the opportunity to learn from their experience. By analyzing these lessons and adapting proven strategies, the PUC can position Pennsylvania to achieve significant advancements in utility performance and grid resilience.

We encourage the PUC to explore and model non-traditional rate structures so that rates align rather with who is using the power but how it is used and the shape of the load profile. Embracing forward-thinking rate structure recommendations and implementing data-driven reforms will enable the PUC to build a more adaptive and sustainable energy framework. These efforts are essential to ensuring Pennsylvania remains at the forefront of energy innovation and reliability, paving the way for a cleaner, more efficient, and future-ready energy system.

The PUC should actively engage utilities and stakeholders in a comprehensive, longer-term exploration of utility business model reform. Across various states, commissions have taken innovative approaches to address emerging challenges and opportunities in utility operations and planning:

- **Illinois Commerce Commission (ICC):** The ICC adopted the state's first Renewable Energy Access Plan (REAP), a comprehensive roadmap to ensure Illinois meets its renewable energy policy goals while collaborating with regional transmission

[11] McKinsey & Company, "Solving the Rate Puzzle the Future of Electricity Rate Design" March 8, 2019
https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/solving-the-rate-puzzle-the-future-of-electricity-rate-design

[12] Mark LeBel, Improving Utility Performance Incentives in the United States: A Policy, Legal and Financial Framework for Utility Business Model Reform, October 26, 2023
https://www.raponline.org/knowledge-center/improving-utility-performance-incentives-in-the-united-states-a-policy-legal-and-financial-framework-for-utility-business-model-reform/

organizations.[13] Additionally, the ICC established a schedule for 2025 Performance Metric Workshops and Grid Plan Workshops to enhance accountability and forward planning.[14]

- **Minnesota Public Utility Commission:** Minnesota regulators initiated stakeholder-driven workgroup processes to tackle key issues such as electrification plans, distribution data reporting requirements, cost-benefit analyses, proactive grid upgrades, and flexible interconnection. The state also emphasized Distributed Energy Resources (DER) and Distributed Energy Management Systems (DERMS) to modernize grid operations.[15]

Utility system planning and regulatory settlements across the region have also revealed business model challenges that underscore the need for reform:

- **Indiana:** Duke Energy's preferred energy plan delayed coal plant retirements, resulting in reduced projected investments in clean energy.[16]
- **Ohio:** AEP Ohio reached a settlement with stakeholders to address concerns related to data centers and grid modernization.[17]

By adopting a similar approach, the PUC can foster collaboration among stakeholders, develop forward-looking strategies, and address pressing issues such as grid modernization, equitable cost-sharing, and the integration of renewable energy resources. These efforts will ensure Pennsylvania's energy framework remains adaptive, resilient, and aligned with evolving policy and market demands.

7. Explore Additional Opportunities to Enhance Resource Capacity

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[13] ICC adopts Illinois' first Renewable Energy Access Plan, June 4, 2024 https://www.illinois.gov/news/press-release.30099.html

[14] 2025 Performance Metrics Workshops and Grid Plan Workshops https://www.icc.illinois.gov/informal-processes/Performance-Metrics-and-Grid-Plan-Workshops

[15] Minnesota Public Utility Commission, Notice of Working Groups Process and Soliciting Stakeholders, September 27, 2024 https://www.edockets.state.mn.us/documents/%7B10403492-0000-CE17-AE37-46B56E095A08%7D/download?contentSequence=0&rowIndex=9

[16] Rebecca Thiele, IPB News, 'Duke Energy plans to delay Gibson coal plant retirement. Activists say it's a 'step backward'', October 7,2024 https://www.wfyi.org/news/articles/duke-energy-plans-to-delay-gibson-coal-plant-retirement-activists-say-its-a-step-backward

[17] Ethan Howland, Utility Drive 'AEP Ohio reaches agreement with stakeholders on data center interconnection rules' October 24, 2024 https://www.utilitydive.com/news/aep-ohio-data-center-agreement-stakeholders-indiana-epri/730873/

A. The Wall Street Journal piece "5 Ways to Disaster-Proof the Energy Grid" enumerated these strategies in the following list.[18]

- Utilities can better prepare for extreme weather with better preparation using Artificial Intelligence predictive modeling and real-time emergency logistics.
- Bolster utilities' battery capacity to allow storage during surplus power flows and discharges when needed. *We note that this has been paired with Virtual Power Plants, as have California, and now Florida and New England.*
- Supporting micro-grid installations so that critical services like community centers, hospitals, etc. can continue operations during extreme weather emergencies.
- Strengthen existing transmission lines, retrofitting them with lighter, advanced conductors. *We note that the Brattle Group estimates a 10% increase in transmission capacity with reconductoring alone. We encourage the PUC to actively encourage utilities to pursue these opportunities, like the current PPL dynamic line rating pilot underway and to publicize the results.*
- Control customer demand with smart technologies and demand management programs to throttle back usage when needed.

B. Work with the new Industrial Decarbonization program, RISE PA, to pave the way for simpler access to data and analysis of load shapes for small and mid-size industrial customers, who are less likely than large manufacturers or industrial rate class customers to have a Certified Energy Manager on staff or as a contracted service. Encourage utilities to support RISE PA and to consider partnering with private industry or academics to evaluate load profiles.

By analyzing loads, the PUC can gain valuable insights into inductive and resistive electrical loads, usage patterns, and areas of inefficiency. These insights can guide strategic efforts to address problematic usage with high power factors, supporting power factor correction for commercial and industrial electricity consumers. Such measures improve efficiency, lower costs, and extend the lifespan of equipment, enhancing the resilience of the energy system as a whole.

C. The PUC should explore the integration of thermal energy networks, leveraging existing infrastructure to maximize efficiency while identifying opportunities for natural gas utilities to transition toward more sustainable and diversified energy solutions.[19]

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[18] Amy Myers Jaffe, The Wall Street Journal, "5 Ways to Disaster-Proof the Energy Grid", November 11, 2024
https://www.wsj.com/us-news/climate-environment/energy-grid-extreme-weather-power-outages-c77e97e2

[19] David Roberts, Volts podcast: Thermal energy networks are the next big thing (2025)
https://www.volts.wtf/p/thermal-energy-networks-are-the-next?utm_source=podcast-email%2Csubstack&publication_id=193024&post_id=152878898&utm_campaign=email-play-on-substack&utm_medium=email&r=1aiz26&triedRedirect=true

8. We support NRDC recommendations to weatherize existing natural gas power plants. Given that natural gas constitutes a significant portion of the power supply in the PJM territory—and was the most de-rated resource in the summer 2024 capacity market auction—enhancing the reliability of existing gas plants is imperative to ensuring grid stability and meeting capacity needs.

9. We respectfully express strong reservations about PJM's Reliability Resource Initiative, as referenced during their testimony. While we recognize the importance of maintaining system reliability, we urge the PA PUC to prioritize advancing large-scale clean and renewable energy projects, particularly those stalled in the log-jammed interconnection queue. These projects represent a critical opportunity to diversify and decarbonize Pennsylvania's energy portfolio. We strongly oppose the preferential treatment of new gas-powered facilities that bypass established interconnection processes, and we respectfully recommend that the Commission withhold its support for this initiative in favor of promoting a fair, transparent, and forward-looking approach to resource development.

Conclusion

By prioritizing these strategies, the PUC can deliver greater reliability, sustainability, and equity for Pennsylvania's energy system while fostering innovation and economic growth across the Commonwealth. The Keystone Energy Efficiency Alliance appreciates this opportunity to comment, and we welcome any questions you may have on these recommendations.

Sincerely,

Jeaneen Zappa
Executive Director
Keystone Energy Efficiency Alliance