October 22, 2025

Representative Elizabeth Fiedler, Majority Chair
Representative Martin T. Causer, Republican Chair
House Energy Committee
317 Irvis Office Building
Harrisburg, PA 17120-2184

Majority Chair Fiedler and Republican Chair Causer:

On behalf of the Data Center Coalition (DCC), I write to you today in respectful opposition to House Bill 1834 ("HB 1834"). DCC is the national membership association for the data center industry. DCC's membership includes leading data center owners and operators, as well as companies that lease large amounts of data center capacity.

Today, there is unprecedented demand for the digital services that have become central to our daily lives and modern economy—everything from the way we work and learn to how we buy groceries, bank, and even access medical care now occurs online. With an average of 21 connected devices per household in the U.S., the role of data centers is expected to grow as consumers and businesses generate twice as much data in the next five years as they did over. [1] This growth is driven by the widespread adoption of cloud services, the proliferation of connected devices, and the rapid scaling of advanced technologies like generative AI, which alone could create between $2.6 trillion and $4.4 trillion.[2]

Data centers are the essential digital infrastructure behind every online purchase, every telehealth appointment, every online news article, and every digital classroom. Data centers enable the essential services and cutting-edge technologies that drive the 21st century economy and enhance our quality of life, ensuring that our homes, businesses, schools, hospitals, manufacturing facilities, and government units operate smoothly and efficiently. Digital infrastructure is a critical component of the United States' global economic competitiveness and keeping Pennsylvanians' data safe and secure domestically.

Data Centers Make Significant Economic Contributions to Pennsylvania

By prioritizing investments in local communities, data centers catalyze supply chain and service ecosystems, creating jobs for thousands of construction professionals as facilities are built, and providing quality, high-wage jobs to support ongoing operations. Every data center comes with years of reliable support for local economies by promoting job creation at restaurants, hotels, car rental agencies, fiber and HVAC installers, steel fabricators, advanced manufacturing facilities, and many other businesses.

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[1] Deloitte, *Consumers embrace connected devices and virtual experiences for the long term* (September 5, 2023), *available at* https://www2.deloitte.com/us/en/insights/industry/telecommunications/connectivity-mobile-trendssurvey/2023/connectivity-mobile-trends-survey-full-report.html.

[2] JLL, Data Centers 2024 Global Outlook, *available at* https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/global/jll-data-center-outlook-global-2024.pdf.

According to a recent PwC report, Pennsylvania's data center industry supported 99,150 total jobs in 2023—including direct, indirect, and induced employment—and contributed $8.35 billion in annual labor income. Over the 2022–2023 period, the industry cumulatively added $27.69 billion to Pennsylvania's Gross Domestic Product (GDP) and generated $2.62 billion in state and local tax revenues.[3]

Data Centers Are Highly Efficient Facilities, Enabling Efficiency Gains Economy-wide and Leading the Clean Energy Transition

Data centers aggregate our collective computing demands efficiently and securely. Previously, these types of computing resources were dispersed across businesses, which was far less efficient and secure. By centralizing computing resources, data centers have been able to leverage innovations in design, equipment, and technology to maximize energy efficiency. While electricity consumption at data centers rose just six percent from 2010 to 2018, computing output jumped 550 percent, marking significant gains in efficiency and productivity.[4]

Moreover, data centers are highly incentivized to continue operating as efficiently as possible. According to the U.S. Chamber of Commerce, energy is the largest operating item for data centers, comprising 40-80 percent of total annual expenditures.[5] Apart from meeting sustainability commitments, data center companies strive to maximize energy efficiency to keep costs low for customers and for supporting their own operations.

It is important to recognize that data centers are not simply large consumers of electricity; they also facilitate efficiency gains and energy savings for homes, businesses, industrial consumers, and utilities across the economy. Many technologies and strategies deployed across Pennsylvania—including smart thermostats, smart meters, managed electric vehicle ("EV") charging, smart lighting, and grid enhancing technologies—require the digital infrastructure provided by data centers.

Moreover, leading data center owners and operators have not stopped at energy efficiency: the data center industry also represents half of all contracted corporate renewable energy in the U.S.[6] This aggressive investment in clean energy technologies is in line with the industry's broader sustainability goals: many data center companies have committed to achieving carbon neutrality and supporting their operations with 100 percent clean energy within the next 10 years. Data center companies are also actively supporting next-generation clean electricity technologies from utility-scale hydrothermal power and long-duration storage to the development of small modular reactors ("SMRs") and nuclear fusion efforts.

These massive investments in energy technologies underscore industry's unparalleled interest and commitment to advancing affordable, abundant, reliable, and sustainable power for all grid customers.

Data Centers Are One Part of Increasing Electricity Demand Tied to Economic Growth

After nearly two decades of relatively flat electricity consumption, the U.S. is experiencing a significant increase in power demand driven by several economic growth trends. As noted by Lawrence Berkeley National Laboratory in the 2024 U.S. Data Center Energy Usage Report, "This surge in data center

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[3] PwC, Economic contributions of U.S. data centers, 2017-2023 (February 2025), *available at* https://www.centerofyourdigitalworld.org/2025-impact-study.

[4] Lawrence Berkeley National Laboratory, "Recalibrating global data center energy-use estimates," Science Magazine, *available at* https://datacenters.lbl.gov/sites/default/files/Masanet_et_al_Science_2020.full_.pdf.

[5] U.S. Chamber of Commerce Technology Engagement Center. *Data Centers: Driving Economic Growth in the Digital Economy*. U.S. Chamber of Commerce, *available at* https://www.uschamber.com/assets/documents/ctec_datacenterrpt_lowres.pdf.

[6] S&P Global, "Data centers account for half of US clean energy procurement but only 20% in Europe: report," October 31, 2024 *available at* https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/103124-data-centers-account-for-half-of-us-clean-energy-procurement-but-only-20-in-europe-report.

electricity demand…should be understood in the context of the much larger electricity demand that is expected to occur over the next few decades from a combination of electric vehicle adoption, onshoring of manufacturing, hydrogen utilization, and the electrification of industry and buildings.[7]" Supporting growing electricity demand through timely and prudent investments in new generation, transmission, and distribution infrastructure—along with investments in energy efficiency, grid enhancing technologies, and other innovative strategies—is essential to the nation's economic growth, global competitiveness, and national security.

In recent years, Pennsylvania has experienced a surge in interest from prospective data center customers. That surge is part of a national trend. As every segment of the economy becomes increasingly dependent on digital services, the development of data centers, which make those services possible, has accelerated across the country to meet those needs. Data centers require a massive amount of electricity. Those needs create both challenges and opportunities.

On one hand, data center-driven load growth challenges utilities to build the infrastructure required to serve those customers' demands in a timely manner while mitigating the risk of those investments to all customers. On the other hand, data center-driven load growth will generate significant new revenues for electric utilities, and those revenues can create downward pressure on the rates that all customers pay as noted by PPL in its April testimony in the Pennsylvania Public Utility Commission (PUC) *En Banc* hearing.[8] Earlier this year, PG&E, a major investor-owned utility in California, estimated that the 10 GW of new data center load growth could benefit all ratepayers by spreading fixed grid costs across higher total energy consumption —potentially reducing average electricity costs by more than ten percent.[9] And, in a recent video, Georgia Power confirmed that data centers will not impact electric bills for Georgia residents. New rules established by the Georgia Public Service Commission help ensure that data centers pay for the infrastructure to support their operations.[10]

The Public Utilities Commission Is Best Positioned to Lead on Issues of Cost Allocation and Rate Design

Addressing those challenges and leveraging those opportunities calls for utilities, regulators, and all stakeholders to collaborate and develop balanced, durable regulatory solutions. It is therefore prudent for the utilities, regulators, and customers (including data centers and other large load customers) to work together to develop reasonable terms and conditions for large load customers. The Public Utilities Commission has regulatory responsibility and authority, expertise, experience, and processes in place to ensure that cost allocation and rate design are fair and reasonable for all customers. The Commission is best positioned to ensure appropriate cost allocation given the complex and highly technical nature of utility cost allocation and rate design and that the practicality and legality of any changes require detailed

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[7] Lawrence Berkeley National Laboratory, "2024 United States Data Center Energy Usage Report," *available at* https://eta.lbl.gov/publications/2024-lbnl-data-center-energy-usage-report.

[8] PPL Electric Utilities Corporation, "Testimony of Joseph B. Lookup, Vice President-Transmission & Distribution Planning and Asset Management," En Banc Hearing on Interconnection and Tariffs for Large Load Customers Docket No. M-2025-3054271, available at https://www.puc.pa.gov/pcdocs/1875751.pdf.

[9] Pacific Gas & Electric, "G&E Data Center Demand Pipeline Swells to 10 Gigawatts with Potential to Unlock Billions in Benefits for California", Press Release, July 31, 2025 *available at* https://investor.pgecorp.com/news-events/press-releases/press-release-details/2025/PGE-Data-Center-Demand-Pipeline-Swells-to-10-Gigawatts-with-Potential-to-Unlock-Billions-in-Benefits-for-California/default.aspx?utm.

[10] Georgia Power, "Your Base Rate is Staying the Same until 2028" *available at* https://www.georgiapower.com/rate-freeze.html (last accessed Oct. 20, 2025).

analysis to be fully understood. They can ensure appropriate cost allocation through public proceedings that are evidence-based, transparent, carefully considered, and open to stakeholder participation.

HB 1834 imposes a rigid, inflexible structure on both data centers and utilities and deprives the Commission of the necessary discretion to craft structures that are both adaptable to varieties of corporate structures and durable for long term growth. It would undermine the thoughtful work the Commission has already undertaken to address large load growth in the Commonwealth through a collaborative and data-driven stakeholder engagement process.

Pennsylvania Should Continue to Leverage Equitable and Sound Rate Design Principles

The data center industry is committed to paying its full cost of service for the electricity it uses. DCC has been engaged in regulatory proceedings and similar discussions throughout the country regarding appropriate cost allocation among ratepayers. A recent study by Virginia's Joint Legislative Audit and Review Commission (JLARC) determined that in Virginia, the largest data center market nationally, rates appropriately allocate costs to the customers responsible for incurring them, including data center customers.[11] In Arizona, another top data center market, the Arizona Corporation Commission came to a similar conclusion.[12]

Aligned with sound ratemaking principles, no customer, industry, or class should be singled out for differential or disparate rate treatment unless that approach is backed by verifiable cost-based reasoning. Data centers are but one large end user of electric utilities and part of a larger portfolio of end users driving increased electricity demand. Any rate design that focuses on a single end use, without showing a measurable difference in service requirements or cost responsibility, risks creating unjustified distinctions among similar customers.

Equitable electricity rates are the bedrock of a just and reliable grid. Section 1301 of the Pennsylvania Utility Code already requires that every rate be "just and reasonable." That outcome is best achieved through the application of and adherence to sound ratemaking principles that have served Pennsylvania and our nation well, in both periods of load growth and flat electricity demand. A well-designed rate structure includes, but is not limited to, the following principles:

1. **Non-discrimination**: No customer, industry, or class should be singled out for differential rate treatment unless such distinctions are backed by verifiable cost-based reasoning.

2. **Cost causation**: Customer rates should reflect the actual costs of service. The ratemaking process should ensure that incremental costs are fairly attributed to the loads or customer classes they impact. Cost allocation methods should establish a clear link to usage and be accurate, transparent, and reproducible by others outside the utility.

3. **Limit cross-subsidization**: Rates should avoid creating unfair subsidies between customer groups or loads, ensuring that costs are distributed equitably among those who incur them.

4. **Transparency**: The ratemaking process should be open and accessible, providing customers with the necessary information and a clear understanding of how rates are determined.

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[11] Joint Legislative Audit and Review Commission (JLARC), "Data Centers in Virginia," page v and 45, https://jlarc.virginia.gov/pdfs/reports/Rpt598-2.pdf.

[12] Chairman Kevin Thompson, Correspondence from Commissioner, "In the Matter of the Commission's Inquiry and Review of the Existing Rate Classifications and other Potential Issues relating to Data Centers," Arizona Corporation Commission, Docket E-00000A-25-0069, available at https://docket.images.azcc.gov/E000042869.pdf?i=1760901036994

HB 1834 deviates from these long-standing principles by imposing punitive and disparate treatment on the data center industry without transparent, verifiable data showing unique and measurable costs on the grid. By directing utilities to collect more revenue than costs incurred, HB 1834 immediately violates cost causation and limiting cross-subsidization principles. It would significantly chill capital deployment in Pennsylvania, erode fairness, and set a precedent that any future new sectors would be at risk for harsher terms despite similar load profiles.

Mandatory Curtailment Puts Essential Services at Risk

Digital infrastructure supports and facilitates essential services such as emergency services and first responders, hospitals, government services, financial transactions, and cyber security. Due to the essential nature of their operations, data centers must maintain uninterrupted operations in order to provide essential connectivity and data flow to their customers and to the many end users who rely on constant, seamless access to data and underlying applications.

Some reliability risks, including sudden utility power outages due to storms, natural disasters, and other causes, are inherently outside data center companies' control. Data centers need to remain operational during emergencies to ensure that access to essential data and services continues uninterrupted for clients, end users, and the general population.

The mandatory curtailment provision included in HB 1834 fails to recognize the unique role of data centers in supporting essential services. Data centers cannot simply "turn off." Facilities would utilize backup generation to maintain continuity of service. Backup generation is highly regulated at the federal and state level, and mandatory curtailment puts data centers at risk of violating air permits with no clear regulatory relief. This would put data centers at significant risk, introduce market friction, and damage Pennsylvania's competitiveness as a data center market.

DCC supports exploring well-structured, voluntary demand-response and load-flexibility programs for large load customers that allocate risk appropriately, provide clear incentives and compensation, and allow customers to meet their sustainability commitments.

DCC strongly urges the Committee to not advance HB 1834 and to defer to the collaborative and stakeholder driven process at the Public Utilities Commission. Thank you for your consideration and attention to these important issues. Please do not hesitate to reach out to DCC for any additional information or questions.

Sincerely,

Dan Diorio
Vice President, State Policy
Data Center Coalition
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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

En banc Hearing Concerning Interconnection and Tariffs for Large Load Customers	))	M-2025-3054271

COMMENTS OF THE DATA CENTER COALITION

I. About Data Center Coalition

The Data Center Coalition ("DCC") respectfully submits these comments to the Pennsylvania Public Utilities Commission's ("PAPUC" or "Commission") regarding large load customer model tariffs for electric distribution companies. DCC commends the Commission for holding this *en banc* hearing and for seeking expertise from stakeholders before the electric distribution companies make proposals to address large load customer growth.

DCC is the national membership association[1] for the data center industry, representing 36 leading data center owners and operators who maintain data center infrastructure across the country and globe, as well as companies that lease large amounts of data center capacity. DCC empowers and champions the data center community through public policy advocacy, thought leadership, stakeholder outreach, and community engagement. As the voice of the data center industry, DCC also advocates for a highly skilled and diverse technology workforce, greater access to clean energy, and a competitive business environment to support the growth and success of this essential business sector. DCC members are actively investing in growth to continue to build out Pennsylvania's digital infrastructure. As electricity demand rises, the Commission's decisions on

[1] The Data Center Coalition is a membership organization of leading data center owners and operators. Public testimony and written comments submitted by DCC do not necessarily reflect the views of each individual DCC member. A list of current DCC Members is accessible at https://www.datacentercoalition.org/members.

forecasting practices, rate design, and interconnection policy will shape whether that growth translates into resilient infrastructure and fair prices for all customers.

II. Introduction

Imagine a world where every online transaction, medical appointment, remote class, and virtual meeting flows seamlessly, ensuring that our daily lives remain uninterrupted and connected. Data centers make this possible. The demand for digital services is at an all-time high, playing a vital role in Americans' daily routines. Our work, education, grocery shopping, banking, and even medical care increasingly occurs online. Data centers are at the heart of this transformation, providing the essential digital infrastructure that support the applications, platforms, and services we rely on every day, ensuring we remain connected in our modern lives and that businesses, organizations and individuals are able to remain competitive and grow our 21st century economy.

Digital demand continues to accelerate, with an average of 21 connected devices per U.S. household.[2] Analysts project the amount of data we use to double within the next five years compared with the last decade.[3] Meanwhile, generative AI's rapid adoption, worth $2.6 trillion to $4.4 trillion in worldwide value by 2030,[4] drives a need for dense, energy-efficient compute in proximity to users. If Pennsylvania keeps fostering data center development through clear permitting, grid upgrades, and balanced rate structures, the state will lock in a resilient foundation for jobs, tax revenue, and statewide innovation.

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[2] Deloitte, *Consumers embrace connected devices and virtual experiences for the long term* (September 5, 2023), *available at* https://www2.deloitte.com/us/en/insights/industry/telecommunications/connectivity-mobile-trends-survey/2023/connectivity-mobile-trends-survey-full-report.html.

[3] JLL, Data Centers 2024 Global Outlook, *available at* https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/global/jll-data-center-outlook-global-2024.pdf.

[4] McKinsey, *How data centers and the energy sector can sate AI's hunger for power* (September 2024), *available at* https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-sate-ais-hunger-for-power.

In recent years, Pennsylvania has experienced a surge in interest from prospective data center customers. That surge is part of a national trend. As every segment of the economy becomes increasingly dependent on digital services, the development of data centers, which make those services possible, has accelerated across the country to meet those needs. Data centers require a massive amount of electricity. Those needs create both challenges and opportunities. On one hand, data center-driven load growth challenges utilities to build the infrastructure required to serve those customers' demands in a timely manner while mitigating the risk of those investments to all customers. On the other hand, data center-driven load growth will generate significant new revenues for electric utilities, and those revenues can create downward pressure on the rates that all customers pay.

Data centers are not the only customers ushering in a new era of load growth for electric utilities. As the economy modernizes and electrifies, driven by environmental and economic imperatives, electric utilities anticipate an increasing volume of requests for higher capacity service from a range of large loads. Those include data centers, but also include advanced electrified manufacturing facilities, hydrogen production facilities, battery manufacturing facilities, and transportation charging hubs, among others. Moreover, as the industrial economy modernizes and electrifies, the lines between data centers and other industrial customers are blurring, as an increasing number of "traditional" industrial facilities include data processing capabilities. Like data centers, both "traditional" large load industrial facilities and hybrid large load customers may require significant utility investments in transmission and distribution infrastructure.

Again, these trends present both challenges and opportunities for electric utilities and their customers. Addressing those challenges and leveraging those opportunities calls for utilities,

regulators, and all stakeholders to collaborate and develop balanced, durable regulatory solutions. It is therefore prudent for the utilities, regulators, and customers (including data center and other large load customers) to work together to develop reasonable terms and conditions for large load customers. Those terms must reasonably protect utility customers from the risk of stranded costs but must also reasonably allow large load customers the opportunity to do business in Pennsylvania. With these goals in mind, DCC respectfully requests that the Commission consider DCC's recommendations, as discussed herein and summarized below:

1. Transparent, data-driven load forecasting: Require electric distribution companies ("EDCs") to use standardized methodologies, share underlying assumptions, and reconcile near-term customer demand with long-term planning models.

2. Cost-based, non-discriminatory tariff design: Ensure large-load rate structures reflect cost causation, avoid cross-subsidies, and include reciprocal utility obligations such as clear interconnection timelines.

3. Flexible contract terms that balance risk: Allow tailored exit fees, reasonable load-ramp schedules, and flexible collateral options so utilities recover prudent costs while customers can scale responsibly.

4. Load-ramp schedules: Allow multi-year ramps (typically 3–5 years) so utilities can stage infrastructure and customers can scale responsibly.

5. Exit-fee design: Tie exit fees to unrecovered utility investment and permit capacity transfers to the next-in-queue customer so stranded-asset risk stays low.

6. Collateral flexibility: Offer multiple security forms—parental guarantees, letters of credit, surety bonds, or cash—and phase collateral down as project risk declines over time.

III. Data Centers Make Significant Economic Contributions

The importance of data centers is difficult to overstate, in part because nearly every sector of the modern American economy relies on cloud computing, a service facilitated by data centers in some way. The importance of data centers can be measured financially, however. DCC commissioned a PwC 2025 impact study that shows the data center sector is a major economic

force nationally.[5] In 2023 the U.S. data center sector supported 4.7 million jobs, including 603,900 direct positions—up 51% since 2017. Those roles generated 404 billion in wages, a 93% jump over the same period. Direct operations added 231 billion to national GDP, and when indirect and induced effects are included the total 2023 contribution reached 727 billion. The industry also generated 162.7 billion in federal, state, and local taxes, marking a 146% increase from 2017. Notably, each direct data center job sustains more than six additional jobs elsewhere in the economy, underscoring the sector's broad multiplier effect.

While national trends demonstrate the data center sector's macroeconomic weight, the story is even clearer at the state level. PwC's 2025 breakout for Pennsylvania shows that data-center activity is no longer a niche contributor but a pillar of the Commonwealth's economy. In 2023, data centers provided 18,270 direct jobs and supported 99,150 positions statewide. Workers earned 8.35 billion in wages and benefits, and the sector added 14.43 billion to Pennsylvania's GDP—a 9 % year-over-year gain. These facilities also produced 1.36 billion in state and local taxes, funding schools, infrastructure, and public safety.

Taken together, these national and in-state economic impacts confirm that every megawatt of new data center load carries broad economic benefits well beyond the facility fence line. DCC remains committed to collaborating with the Commission, utilities, and stakeholders to promote solutions that ensure grid reliability, equitable cost allocation, and address Pennsylvania's specific energy and infrastructure needs, while enabling data centers to continue fostering innovation and economic opportunities in the state.

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[5] PwC, Economic contributions of U.S. data centers, 2017-2023 (February 2025), *available at* https://www.centerofyourdigitalworld.org/2025-impact-study.

IV. Digital Infrastructure Supports Key Industries in Pennsylvania

Strategic investment in digital infrastructure is redefining Pennsylvania's growth trajectory. University research parks, semiconductor fabs, life science labs, and financial-services data hubs all hinge on secure, high bandwidth computing to model genomes, hedge risk, or automate production. Data centers deliver that backbone, letting firms scale resources instantly, run real-time analytics, and stay competitive in global markets.

Pennsylvania's cell and gene therapy ("CGT") corridor, often called "Cellicon Valley," runs on dense computing. Nearly 10% of the world's CGT companies operate in greater Philadelphia, supporting about 7,000 jobs and generating vast genomic and clinical-trial data sets that must stay inside secure, low-latency data centers to meet HIPAA and FDA requirements.[6] Data center proximity shortens research cycles, protects intellectual property, and anchors continued venture investment in the region's life sciences ecosystem.

Across the state, Pittsburgh's autonomy and robotics hub depends on the same digital backbone. More than 125 companies, with 7,300+ high-impact jobs, train machine learning models, run digital twins, and stream real-time telemetry through regional data centers.[7] Without that capacity, manufacturers could not fine tune yields and robotics firms could not hit millisecond level control tolerances needed for commercial deployment.

Electric vehicle and battery producers also rely on Pennsylvania's growing compute capacity. Since August 2024, the Commonwealth has attracted $284 million in private EV manufacturing investment, alongside $187 million in federal support.[8] Plant operators push

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[6] *Philadelphia Cell and Gene Therapy Industry Sees Rapid Growth*, WHYY (May 28, 2024), *available at* https://whyy.org/articles/philadelphia-gene-cell-therapy-industry-growth/.
[7] Pittsburgh Robotics Network, *Ecosystem Overview*, *available at* https://www.robopgh.org/.
[8] Electrification Coalition, *Pennsylvania EV Policy* (Aug. 2024), *available at* https://electrificationcoalition.org/work/state-ev-policy/pennsylvania-ev-policy/.

terabytes of battery data to data center analytics platforms to extend range, predict failures, and balance smart charging networks, workflows that keep the grid stable while EV adoption climbs.

Autonomous vehicle developers take the dependence further. A recent economic impact study shows Pittsburgh's AV sector already sustains 6,300 direct jobs and produces $2.9 billion in annual output.[9] Each vehicle can generate up to 20 TB of sensor data per hour, which must be ingested and processed in nearby data centers for real-time decision making and fleet optimization.[10] Continued capacity additions are essential if the region wants to scale pilot programs into full commercial service.

Other industries amplify the trend. Philadelphia's financial services and telecom giants depend on local data centers to deliver low latency trading, streaming, and AI driven customer analytics. Finally, researchers modelling Marcellus shale production volumes run high performance simulations on regional clusters, underscoring how data centers bolster Pennsylvania's legacy energy sector with modern analytics.

Together, these examples show that reliable, scalable data center infrastructure is now a prerequisite for growth in some of Pennsylvania's most strategic industries, from precision medicine and advanced manufacturing to fintech, logistics, and energy analytics. Embedding these best practice terms in large load tariffs will let each cluster expand while shielding the wider customer base from unnecessary costs.

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[9] *Pittsburgh's Autonomous Tech Sector Drives 6,300 Jobs and $2.9 Billion in Output*, Technically Pittsburg (Sept. 24, 2021), *available at* https://technical.ly/civic-news/autonmous-sector-economic-impact/.

[10] TEConomy Partners & RIDC, Autonomous Systems in the Greater Pittsburgh Region: Economic Impact Report 12 (Sept. 2021), *available at* https://ridc.org/wp-content/uploads/2021/09/PGH-Autonomous-Systems-Full-Report-1.pdf.

V. Accurate Load Forecasting and Fair Rate Design Will Right-Size Grid Investments and Protect All Pennsylvania Ratepayers

After nearly two decades of relatively flat electricity consumption, the U.S. is experiencing a significant increase in power demand driven by several economic growth trends. As noted by Lawrence Berkeley National Laboratory in the 2024 U.S. Data Center Energy Usage Report, "This surge in data center electricity demand…should be understood in the context of the much larger electricity demand that is expected to occur over the next few decades from a combination of electric vehicle adoption, onshoring of manufacturing, hydrogen utilization, and the electrification of industry and buildings."[11]

Supporting the nation's and Pennsylvania's growing electricity demand through timely and prudent investments in new generation, transmission, and distribution infrastructure; along with investments in energy efficiency, grid enhancing technologies, and other innovative strategies is essential to economic growth, global competitiveness, and national security. As a growing data center market, Pennsylvania is uniquely positioned to create a balanced and durable solution that supports continued economic development and protects *all* customers from unnecessary costs.

A. DCC continues to lead in the call for improved and reformed load forecasting at the state, regional, and utility levels.

Accurate load forecasting and equitable rate structures are critical to aligning infrastructure investments with Pennsylvania's evolving economic and industrial landscape, while protecting ratepayers from unnecessary cost shifts. Improvements in forecasting practices are necessary to ensure grid investments are appropriately scaled and to minimize the risk of stranded assets. As

[11] Lawrence Berkeley National Laboratory, 2024 U.S. Data Center Energy Usage Report (Dec., 2024), *available at* https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report.pdf.

electric demand accelerates, particularly from large new loads, it becomes more important for utilities, regulators, customers, and other stakeholders to coordinate closely and share data openly. Forecasts must be grounded in actual project development timelines and incorporate best practices to ensure they accurately reflect expected growth. A disconnect between near-term customer demand signals (such as from data centers) and the long-term forecasts that guide infrastructure planning can lead to misaligned investments. That gap must be closed through greater transparency, better data sharing, and consistent stakeholder engagement.

Data center demand is different from traditional load growth. It often arrives in large, discrete increments—for example, a 300 MW campus coming online in under two years—which requires more proactive planning to maintain grid reliability and avoid congestion. This demand does not exist in a vacuum. It is frequently tied to and accelerates growth in other strategic sectors, including biotechnology, advanced manufacturing, logistics, and financial services. These industries increasingly depend on collocated or regional data center infrastructure to support AI enabled applications, advanced modeling, and cloud computing. As such, utility planning processes must consider the "load cluster" effect of these interconnected industries.

Public and collaborative forums that include utilities, data center operators, and other large load customers can improve planning by ensuring that project timelines, efficiency efforts, and future growth expectations are fully accounted for. Greater transparency in load forecasting, interconnection processes, and scenario planning will allow infrastructure to be right-sized, cost effective, and responsive to actual demand. With more refined forecasting tools and practices, Pennsylvania can build a more reliable, resilient, and efficient grid that supports economic growth while keeping costs fair for *all* customers.

The data center industry has experienced firsthand the real-world impact of inaccurate or under-forecasting of various energy demand growth drivers. It is critical to ensure that load forecasts accurately model a wide range of demand drivers including EV load growth, broader electrification efforts, the onshoring of industrial manufacturing (such as semiconductor chip, solar, and battery manufacturing), large customer growth (including data centers), and other industry trends. Inaccurate forecasting, coupled with exclusionary transmission planning processes, have had a detrimental effect, not only on the data center industry, but also with community investment, local tax revenue, and overall economic growth.

The data center industry is currently facing substantial uncertainty and billions of dollars in stranded costs and investments due to transmission constraints in multiple markets. In some cases, completed facilities are sitting idle while awaiting access to power previously committed by utilities. These types of transmission constraints have a profound economic ripple effect that extends well beyond our industry, into our local communities: construction crews are sent home from project sites and local revenue projections are thrown into a state of flux. For data centers to continue to effectively serve customers, maintain the integrity of the internet, and spur economic development across the country, the industry needs reliable access to electricity.

B. Pennsylvania should continue to leverage equitable and sound rate design principles.

Equitable electricity rates are the bedrock of a just and reliable grid. Section 1301 of the Pennsylvania Utility Code already requires that every rate be "just and reasonable." That outcome is best achieved through the application of and adherence to sound ratemaking principles that have served Pennsylvania and our nation well, in both periods of load growth and flat electricity demand. A well-designed rate structure includes, but is not limited to, the following principles:

1. Non-discrimination: No customer, industry, or class should be singled out for differential rate treatment unless such distinctions are backed by verifiable cost-based reasoning.
2. Cost causation: Customer rates should reflect the actual costs of service. The ratemaking process should ensure that incremental costs are fairly attributed to the loads or customer classes they impact. Cost allocation methods should establish a clear link to usage and be accurate, transparent, and reproducible by others outside the utility.
3. Limit cross-subsidization: Rates should avoid creating unfair subsidies between customer groups or loads, ensuring that costs are distributed equitably among those who incur them.
4. Transparency: The ratemaking process should be open and accessible, providing customers with the necessary information and a clear understanding of how rates are determined.

For large load tariffs, those principles translate into three concrete tools: (1) minimum contract terms paired with exit-fee schedules that reflect unrecovered investment; (2) negotiated load-ramp schedules that give both customer and utility time to build; and (3) collateral rules that accept multiple security forms and taper as risk falls. Together these tools keep utilities whole without deterring investment.

Customer classes must be established based on load characteristics, including aggregate load shape, total consumption, and customer count, because those factors drive system costs. End use is irrelevant to cost causation, and tying rates to a customer's business activity would let utilities single out data centers, or any new sector, for harsher terms than peers with identical load profiles. Data centers must meet the same standard as any other large customer class. Punitive tariffs, surcharges, or bespoke rate structures should not be instituted without transparent, verifiable cost studies showing that data centers impose unique, measurable costs on the grid. Absent that proof, disparate treatment would erode fairness, chill capital deployment, and invite litigation. The Commission should therefore demand a rigorous cost-of-service showing before approving any deviation from uniform treatment.

The same evidence standard must apply to non-rate requirements such as security deposits, collateral, minimum bill thresholds, contract lengths, exit fees, and emergency service provisions. These terms shape project viability and should be uniform across all large loads, paired with reciprocal utility duties. Public proceedings that let customers test assumptions deter overreach and spare the Commission from redesigning tariffs each time a new industry scales up. It also signals to investors that Pennsylvania values consistent, principle-based regulation.

Cost causation remains the bedrock of fair ratemaking. Proper allocation starts with detailed engineering studies, moves through transparent functionalization and classification, and ends with reproducible allocation factors. When rates mirror usage, customers that drive peaks see marginal costs, while those that flatten load curves benefit, preventing distorted incentives that raise everyone's bills. Strict adherence to this framework shields residential and small-business customers from cross subsidies, preserves Pennsylvania's appeal to capital intensive projects, and upholds the non-discrimination mandate in the Public Utility Code. Data centers already pay their full cost of service and often fund associated infrastructure (breakers, transformers, substations) plus pre-connection and facility costs that protect other ratepayers from stranded assets.

Utility accountability is equally important. In other jurisdictions, prolonged power-delivery timelines, often due to understaffed engineering teams, supply chain bottlenecks, or demand-forecast errors, have delayed data center projects and slowed regional growth. If additional obligations are placed on large customers, utilities should meet corresponding performance benchmarks, including defined delivery deadlines. The Commission should continue to review cost allocations and rate designs in contested proceedings, supported by open data, workshops, and stakeholder engagement.

Ultimately, a non-discriminatory, cost-based tariff framework benefits Pennsylvania's entire economy. Data centers contribute high wage jobs, local tax revenue, and technological innovation. By ensuring that each customer pays its fair share of system costs, the Commission supports continued data center development while maintaining affordable, reliable service for residential and small business users. This balanced approach preserves Pennsylvania's competitive edge and promotes long term grid resilience.

As with all forecasting and ratemaking concepts, robust stakeholder engagement is key to delivering outcomes that serve all ratepayer classes and industries—Commission-initiated or other public workshops, granular cost allocation reports, and open-data initiatives can build trust in rate setting processes and ensure accountability. DCC remains committed to being a collaborative partner, an active participant in these dialogues, and a solution-oriented stakeholder in this proceeding.

VI. Contract Terms Should Balance Risk and Protect All Ratepayers

A well-structured contract does more than set prices; it defines who carries risk at each stage of a project. By pairing commitment periods with clear exit fees, phasing load in over time, and right-sizing collateral to actual exposure, a tariff can fund needed upgrades without shifting stranded asset risk to other customers.

A. Minimum contract terms and exit fees should align commitment with cost recovery.

Minimum contract terms and exit fee schedules give everyone a clear picture of who pays and for how long. When a large load customer commits to take service for, say, 10 years and backs that promise with an exit fee that steps down only as utility investment depreciates, the utility can size transformers, feeders, and substation upgrades with confidence. Other customers benefit

because the risk of stranded assets—the upgraded facilities that outlive the customer that prompted them—remains on the customer that caused the expense.

Contract length and fee amounts must also track local conditions. A utility facing long lead times for transmission upgrades may need a longer minimum term than a utility with ample spare capacity. Likewise, areas with rapid load growth might justify tiered exit fees that fall faster, since a replacement customer is likely. DCC's view is simple: match the contract to the dollar value and recovery period of the specific investments required and revisit those inputs when cost studies or system conditions change.

Exit fee design should also promote efficient capacity transfers. If a customer's plans change, the tariff should let the utility offer the reserved capacity to projects in the queue before levying a penalty. Any exit fee should then apply only to the unrecovered portion of the utility's investment, net of what the replacement customer picks up. This approach keeps ratepayers whole, discourages speculation, and ensures that capacity flows to projects ready to build.

B. Load ramp schedules provide flexibility to utilities and large load customers.

Load ramp provisions give both the utility and the large load customers some breathing room. Utilities gain the months they need to plan and build substations, transformers, and where required, new generation. Large load customers get the runway to install equipment, recruit tenants, and tune operations to real world demand. A structured ramp aligns cash outlays with actual load, reducing carrying costs for the utility and penalty risk for the customer.

DCC backs tariffs that lock in this flexibility while keeping the timeline finite. A negotiated, multi-year ramp—typically three to five years—should be the default, with the specific milestones worked out case by case. That approach recognizes the diversity of large load projects without shifting risk to other ratepayers. When paired with the minimum term and exit fee tools

described above, a well-designed ramp lets projects scale responsibly and keeps the grid ready when the load arrives.

C. Collateral requirements should be flexible and consider different business models.

Collateral requirements serve a clear purpose: they protect the utility— and by extension all customers— if a large load project stalls or fails to pay. The design, though, must avoid forcing every developer into the same financial mold. Data center operators span public corporations, private equity backed ventures, and real estate investment trusts; each has different balance sheet tools. A tariff that accepts multiple security forms (parental guarantees, letters of credit, surety bonds, or cash) gives credit-worthy customers the latitude to choose the lowest cost option while still covering the utility's exposure.

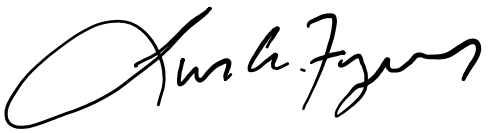
Timing and tapering are just as important as form. Utilities should allow a realistic runway, often tied to tenant lease milestones, before collateral must be posted, so capital is not locked up years before revenue starts. Once the project proves up and utility risk falls, collateral should step down on a transparent schedule. Phasing the requirement off in defined tranches frees capital for reinvestment, aligns with declining utility risk, and dovetails with the exit fee and load ramp tools outlined above to create a balanced, financeable tariff framework.

Taken together, these terms form a single, balanced package. Minimum service periods and exit fees secure cost recovery, load ramps match capacity buildout to verified demand, and flexible collateral protects the utility while preserving capital for growth. Adopted as a set, they give the Commission a rate structure that encourages investment, shields existing ratepayers, and keeps the grid ready for Pennsylvania's expanding digital economy.

VII. CONCLUSION

These comments point to one integrated framework: transparent, data-driven load forecasts; cost based, nondiscriminatory tariffs; and a contract toolkit (minimum terms, step-down exit fees, negotiated load ramps, and flexible collateral) that aligns payment risk with actual utility investment. Together, these pieces fund grid upgrades when they are needed, prevent stranded assets, and give data center developers the certainty to build in Pennsylvania. The result is lower average costs as new megawatts spread fixed charges, faster infrastructure delivery, and statewide economic gains measured in jobs, GDP, and tax revenue. By applying these proven tools under clear Commission oversight, Pennsylvania can protect ratepayers today and capture the benefits of tomorrow's digital economy.

Respectfully submitted,



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PENNSYLVANIA DATA CENTERS: DRIVING THE DIGITAL ECONOMY

Pennsylvania Data Center Industry

Employment and Labor Income

18,270 direct jobs in the Pennsylvania data center market in 2023

99,150 total employment contribution in 2023—a **5% increase** from 2022
(including direct, indirect, and induced effects)

$8.35 billion total contribution to labor income in 2023—a **7% increase** from 2022
(including direct, indirect, and induced effects)

GDP and Taxes

Including direct, indirect, and induced effects, the data center industry contributed **$14.43 billion to Pennsylvania GDP** in 2023—a **9% increase** since 2022

$14.43 billion
total GDP contribution in Pennsylvania in 2023

In total, the Pennsylvania data center industry directly and indirectly generated **$1.36 billion in state and local tax revenues in 2023**

The latest government spending data suggest that the data center industry's total state and local tax contribution of $1.3 billion in Pennsylvania in 2022 was sufficient to fund nearly all provision and support of parks and recreational facilities and activities in the state (including playgrounds, public beaches, swimming pools, tennis courts, museums, zoos, etc.).

Industries enabled by data centers include:

Advanced Manufacturing | Cybersecurity | E-commerce | Education | Financial Services
Government Services | Healthcare | Public Safety | Remote Work

U.S. Data Center Industry

603,900 direct jobs in 2023—51% increase from 2017
4.7 million in total employment in 2023—60% increase from 2017
$404 billion in total labor income in 2023—93% increase from 2017

Each job in the data center industry supports **more than six jobs** elsewhere in the economy.

$3.5 trillion total cumulative contribution to U.S. GDP from 2017 to 2023

$162.7 billion total tax contribution to federal, state, and local governments in 2023—146% increase from 2017

Source: PwC, "Economic Contributions of Data Centers in the United States, 2017-2023," February 2025

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www.datacentercoalition.org
www.centerofyourdigitalworld.org/2025-impact-study

Testimony

Submitted on behalf of the
Pennsylvania Chamber of Business and Industry

Public Hearing on Data Centers

Before the:
Pennsylvania House Energy Committee

Presented by:

Amy Brinton
Director, Government Affairs

Harrisburg, PA
October 22, 2025

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Good morning Chair Fiedler, Chair Causer, and members of the House Energy Committee.

Thank you for the opportunity to appear before you today. My name is Amy Brinton, Director of Government Affairs for the Pennsylvania Chamber of Business and Industry, the largest, broad-based business advocacy organization in the Commonwealth. Our nearly 10,000 members are of all sizes, of all commercial and industrial sectors, and include companies involved in all aspects of the technology and energy industries, and beyond.

I would also like to thank you for the opportunity to speak with you today about an emerging transformative opportunity: the expansion of artificial intelligence (AI) and data centers, and why Pennsylvania is poised to lead this effort nationally, and even globally.

AI is the fastest growing tech sector and is increasingly integrated into industries ranging from healthcare to manufacturing, driving an unprecedented demand for data processing, storage, and real-time computing.

This is not just a technological shift; it is a generational change and requires a level of infrastructure readiness that few regions can provide. Meeting this demand means building robust, scalable systems that can support the energy, water, land, and workforce needs of data centers. As companies search for ideal locations to power this technology revolution, Pennsylvania stands out as a prime location thanks to our unique combination of abundant natural resources, infrastructure, and workforce.

Pennsylvania's History of Energy and Innovation Leadership

Pennsylvania has consistently been a driving force in American industrial innovation. As the "Keystone" of the nation's energy, manufacturing, and technology landscape, the Commonwealth has played a pivotal role in powering economic growth

throughout history. Coal-fired generation once formed the foundation of our energy portfolio, delivering affordable, reliable electricity to homes, businesses, and industries, fueling economic expansion beyond the industrial revolution.

Over the past twenty years, Pennsylvania's energy landscape has undergone a historic transformation. A combination of market forces and a shifting regulatory environment has led to the retirement of many coal-fired power plants. At the same time, the rapid development of natural gas, particularly from the Marcellus Shale, has made natural gas the dominant source of energy in the Commonwealth. This shift has not only redefined our energy mix but reinforced our position as a global and national energy leader. Today, Pennsylvania is the number one exporter of electricity, second-largest natural gas producer, and third largest energy producer in the nation. [1]

From the coal and steel that powered the industrial revolution to the natural gas and advanced technologies that define our economy today, Pennsylvania has always been a leader in times of change. Now, as we enter this new era defined by digital infrastructure, where data is becoming as essential as electricity or water, Pennsylvania is once again poised to lead. The rise of data centers marks the next phase in our technological evolution, and with our abundant resources, we are uniquely positioned to become a national hub for this next generation of investment.

Pennsylvania's Competitive Advantages

Energy and Water

Pennsylvania's status as an energy powerhouse is more than a source of pride, it is a strategic advantage in attracting next-generation digital infrastructure. Our

[1] https://www.eia.gov/state/analysis.php?sid=PA

ability to produce, export, and deliver reliable, affordable energy makes us an ideal location for supporting the power-intensive needs of data centers.

In today's digital economy, where uptime and high-performance computing are essential, access to stable energy and sufficient water resources is critical, and Pennsylvania offers both. Our strong energy infrastructure ensures the reliability companies require, while abundant water supplies provide a strategic edge, especially as data centers face growing scrutiny over water use for cooling and thermal management. Communities with a legacy of industrial activity often have existing water infrastructure, making it easier and more cost-effective for data centers to operate without straining municipal systems. Pennsylvania's abundant water resources offer long-term security that few other states can match.

The data center industry is also investing in sustainability. In 2024, U.S. data centers accounted for half of all corporate clean energy procurement, and many are pioneering waterless cooling, recycled water use, and closed-loop systems. In Virginia, for example, 83% of data centers use no more water than a large office building, and many rely on recycled or non-potable water.

While Pennsylvania's water resources offer a strategic advantage, we must balance industry growth with environmental stewardship. Water utilities are already developing best practices to supply data centers responsibly while protecting infrastructure and ratepayers. This thoughtful approach underscores a broader truth: we do not have to choose between economic growth and sustainability, we can and must pursue both through smart planning.

To fully realize this opportunity, we must take proactive steps to ensure these critical assets can meet growing demand, not just from anticipated data center development, but also from broader system needs. PJM Interconnection, which manages the grid across Pennsylvania and much of the Mid-Atlantic, has warned of

potential generation shortfalls in the coming years, driven by accelerating demand and the retirement of dispatchable baseload generation.

This is not a distant concern, but a near-term reality requiring immediate attention. As AI, cloud computing, and other data-intensive technologies drive energy consumption, we must address the forecasted gap in generation capacity by adding more reliable baseload resources to the grid, including coal, natural gas, and nuclear energy.

To position Pennsylvania for long-term economic growth, we must leverage our energy assets strategically. While the PA Chamber supports an "All of the Above" energy approach, our vast natural gas supply, strong pipeline network, and existing generation capacity form a foundation few states can rival. We must ensure policies also support investment in reliable, dispatchable generation and a resilient electric grid. This includes streamlining permitting processes, investing in transmission infrastructure, and supporting the development of both traditional and emerging energy technologies.

With thoughtful planning and forward-looking policy, Pennsylvania can turn a looming energy challenge into a long-term competitive advantage.

Location

In today's digital economy, where speed and resiliency are paramount, Pennsylvania stands out as an ideal hub for next-generation technology deployment. Our combination of physical and digital infrastructure, paired with a strategic location in the Northeast, gives us a distinct competitive edge, offering high-speed, low-latency connectivity essential for cloud computing, financial services, and AI applications that rely on real-time data transfer.

Beyond connectivity, Pennsylvania offers a diverse range of siting opportunities, including brownfield locations already situated near key infrastructure such as substations, transmission lines, highways, and fiber-optic networks. Many of these sites have been off the tax rolls for years, and data center development presents a unique opportunity to bring them back into productive use, generating a reliable source of local tax revenue that can be used to support local communities with funding for schools, libraries and infrastructure.

Workforce

Workforce development must remain a top priority, as it is a foundational opportunity for data center growth. No matter how much is invested in the development of data centers, success depends on building a robust pipeline of qualified workers. From HVAC technicians to engineers, every aspect of data center construction and operation relies on a diverse range of professionals, spanning skilled trades to advanced STEM degrees.

Employers are already signaling that talent is a limiting factor. Companies want to expand in Pennsylvania, but they need confidence that the workforce will be available. That is why proactive collaboration between industry, educators, and policymakers is essential; to scale training programs, modernize curricula, and build the workforce of the future.

Fortunately, Pennsylvania is well equipped with a strong foundation of world-class educational institutions and workforce training programs. From globally recognized leaders in AI and computer science like Carnegie Mellon University to hands-on, career-ready technical schools like Penn College of Technology, we offer a full spectrum of talent development. This diverse ecosystem positions us to lead in building, maintaining, and innovating the infrastructure behind AI and data centers.

Continued investment in training and certification programs, especially through community colleges and apprenticeship partnerships, will ensure Pennsylvanians are equipped to fill the jobs these new facilities will create. Whether it is electrical work, control systems, cybersecurity, or systems engineering, the demand for skilled talent is growing, and Pennsylvania must be ready to meet it with a qualified and diverse workforce.

Enabling Economic Opportunity

From a fiscal perspective, data centers are powerful economic engines, generating significant revenue with minimal strain on infrastructure or services. In 2023, the U.S. data center industry supported 4.7 million jobs and contributed $162.7 billion in taxes to local, state, and federal governments, funding essential services like schools, roads, public safety, and health care. These revenues are long-term investments that continue to drive growth year after year.

An example of this is Loudoun County, Virginia, where tax contributions from data centers totaled $875 million in 2024, accounting for 38% of the county's overall tax revenues, while only comprising 3% of the land in Loudoun County[2]. Prince William County, Virginia, generated $166 million in tax revenue in 2024, with over half supporting local schools. This can be replicated across the Commonwealth, creating new funding streams for schools and other vital infrastructure.

Data centers contribute through multiple channels, including real estate and property taxes, payroll and income taxes, and indirect local spending that supports small businesses, service providers, and construction trades. These facilities are typically long-term, capital-intensive investments that generate sustained tax revenues for decades beyond the initial construction phase.

[2] Data Center Coalition- https://www.datacentercoalition.org/cpages/faq

As previously noted, many of these projects are well-suited for the redevelopment of former industrial or underutilized brownfield sites that often sit vacant and have not been on the tax rolls for years. Repurposing these sites for modern infrastructure, not only revitalizes communities and improves land use, but also restores a critical revenue stream for local governments and communities.

At a time when municipalities are seeking stable funding sources for schools, emergency services, and infrastructure upgrades, data centers offer a compelling solution. Beyond direct fiscal benefits, they serve as catalysts for broader economic growth, driving demand across sectors where Pennsylvania has long-standing strengths. Data center projects boost demand for steel, HVAC systems, electrical equipment, and construction services, creating immediate opportunities for manufacturers, contractors, and skilled trades across the Commonwealth.

In addition to fiscal contributions, data centers generate ripple effects across Pennsylvania's broader economy and can be anchor institutions within regional tech ecosystems. Their presence attracts startups, R&D initiatives, and innovation hubs that thrive on proximity to high-performance computing infrastructure. This accelerates growth in sectors like cybersecurity, fintech, biotech, and advanced manufacturing, those industries increasingly reliant on real-time data processing and AI capabilities.

Supporting data center growth positions Pennsylvania to build a more dynamic and diversified economy, one that creates family-sustaining jobs, strengthens supply chains, and enhances the Commonwealth's leadership in both traditional and emerging industries.

Ensuring Pennsylvania is Ready for Data Center Growth

While Pennsylvania's foundational assets are strong, realizing their full potential requires proactive leadership and a clear strategy. Efficient, coordinated, and

predictable permitting processes are essential. Investors and developers frequently cite permitting uncertainty as a major barrier to site selection. By streamlining approvals and offering a clear path for energy-intensive infrastructure projects, Pennsylvania can position itself as a top-tier destination for investment.

Continued investment in modernizing essential infrastructure is also critical. This includes upgrading transmission and distribution systems to accommodate new industrial loads, improving local water systems where needed, and expanding infrastructure access to development-ready sites. Coordination among utilities, municipalities, and private developers is key to reducing delays and aligning resources effectively.

Concerns about grid strain are understandable, but data centers are not passive consumers, they are active contributors to grid infrastructure. Many facilities co-locate near power plants and help to fund substations, transformers, and system upgrades. Regulators in states like Virginia and Arizona have confirmed that data centers pay their fair share of grid costs, and their investments often enhance reliability for all customers.

In Pennsylvania, this principle is upheld through well-established cost allocation practices that ensure fairness across all ratepayers. Direct costs, such as dedicated substations or feeder lines, are assigned solely to the data center, while shared system upgrades that benefit the broader grid are distributed proportionally across all customer classes. These practices, grounded in traditional ratemaking principles and approved by the Pennsylvania Public Utility Commission (PUC), are applied consistently across sectors, whether the new customer is a household, hospital, manufacturer, or data center. This framework ensures that infrastructure investments are made responsibly, transparently, and in a way that supports both economic growth and grid resilience.

As we build for the future, Pennsylvania's growth must be both innovative and sustainable. This requires thoughtful infrastructure and land use planning, paired with policies that protect communities while enabling investment. As the legislature considers proposals like House Bill 1834, it is essential that any regulatory framework not only safeguard ratepayers but also supports the Commonwealth's ability to attract and retain transformative industries.

The PA Chamber supports the underlying goals behind House Bill 1834 and recognizes its inclusion of key principles, such as financial safeguards, load ramping schedules, ratepayer protections, and curtailment measures. However, as currently drafted, the bill raises a few concerns.

Certain provisions may unintentionally discourage investment, complicate utility operations, and weaken Pennsylvania's competitive position in the fast-growing data center sector. However, with thoughtful revisions, House Bill 1834 has the potential to strike the right balance of promoting responsible growth while maintaining system reliability and affordability.

Cost Recovery Prohibition (Section 4)

While we strongly support the principle that existing ratepayers should not subsidize new, large-load customers, Section 4's blanket prohibition on cost recovery raises operational concerns. Utility cost allocation is complex, and many infrastructure upgrades serve multiple customers and purposes. Strictly separating all costs "that would not have been incurred but for" a data center's demand is impractical and could expose electric distribution companies (EDCs) to unrecoverable financial risk. This creates risks for EDCs and could ultimately shift this risk to other ratepayers.

Renewable Energy Mandate (Section 6)

While the PA Chamber supports efforts to diversify Pennsylvania's energy mix, we are concerned that the mandates in this section could create challenges to energy affordability and reliability, both of which are critical to our economic competitiveness. Mandates to increase renewable energy targets could inadvertently distort the energy market by favoring certain technologies over others, rather than allowing market forces to determine the most efficient and reliable energy solutions.

Contract Review (Section 7)

We certainly realize that regulatory oversight is important, however, the current language requiring PUC review of data center contracts raises concerns about feasibility, confidentiality, and timing. The PUC may lack the technical capacity to assess regional transmission impacts without PJM's involvement, and the bill does not clearly define the scope or consequences of the review process. Therefore, we recommend clarifying the PUC's authority and incorporating PJM's expertise to ensure timely and informed evaluations.

Conclusion

Pennsylvania has always been a leader in industrial innovation and data centers are the next chapter in this legacy. With unmatched energy resources, a reliable water supply, robust industrial and digital infrastructure, a skilled workforce, and a strategic geographic location, the Commonwealth has all the ingredients to become a national, and even global, leader in data center investment and AI-driven innovation.

This opportunity goes beyond data centers; we are positioning Pennsylvania at the forefront of the next major economic transformation. Achieving that vision demands a clear and deliberate strategy: modernizing energy and water infrastructure, streamlining permitting to reduce delays, investing in transmission and reliable

baseload generation, and preparing our workforce for the demands of a rapidly evolving technological landscape.

Just as Pennsylvania led previous industrial and energy revolutions, we can lead again, this time in the era of AI and digital infrastructure. However, doing so requires bold policy decisions, strong public-private partnerships, and a shared commitment to sustainable, forward-looking economic growth.

On behalf of the Pennsylvania Chamber of Business and Industry, I thank you for your time and leadership on this important issue. We look forward to working together to ensure Pennsylvania remains a place where innovation thrives, businesses grow, and communities prosper.

Again, thank you for the opportunity to join you here today. I am happy to take any questions at this time.

Pennsylvania State Building and Construction Trades Council AFL-CIO

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Testimony before the
Pennsylvania House Energy Committee
Public Hearing on HB 1834
October 22, 2025

TESTIMONY BY: Robert S. Bair, President
Pennsylvania Building and Construction Trades Council

Members of the Energy committee, thank you for allowing us to present testimony on HB 1834. The Pennsylvania State Building Trades is very supportive of the Governors' efforts to attract data centers to our commonwealth, and we look forward to working with the developers to build them. We are in support of common-sense legislation to help facilitate the buildout of data centers while protecting rate payers and making sure our power grid continues to provide reliable power to all customers in Pennsylvania.

We have some concerns about the mandatory 25% renewable component, and we think incentivizing the developers to use renewables if the footprint of the site allows is a better approach. We also support the PUC taking the lead on cost allocation and rate design as they have the technical resources to facilitate and implement, much like the state of Virginia.

The other component of importance is the generation of electricity to feed large demand load customers, The Trades would support more buildout of onsite generation for data centers utilizing our brown fields, old coal mine sites and areas with access to natural gas as the generation source. Those sites are large enough for the renewable component we mentioned previously, the power generation, and the data centers themselves while also having the water and infrastructure in place to allow for accelerated construction.

Under current guidelines, Data centers could lose their power in times of emergency and while we completely understand keeping the residents of the commonwealth with power, we also realize as a matter of practice that once running, we just can't shut down these facilities, so we would also be supportive of incentivizing our data centers to overbuild their onsite needs and then returning excess generation to the grid. We would ask everyone on the committee to keep an open mind to the future because as we sit here today, we are talking about large load customers and, for all intent and purpose, additional gas fired baseload generation. But in the near future, we will be having discussions on SMR's and additional baseload nuclear generation.

Crafting HB 1834 to address the immediate needs and concerns of the commonwealth, the residents, and our developers, while also looking forward to working together with new power generation and additional advancements to this industry is paramount to having our commonwealth be the leader in AI and keep our place as the energy capital of the nation.

Prepared Testimony of

Stephen M. DeFrank

Chairman, Pennsylvania Public Utility Commission

before the

House Energy Committee

October 22, 2025

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Introduction

Good morning, Chairman Fiedler, Chairman Causer and members of the House Energy Committee. My name is Stephen DeFrank, Chairman of the Public Utility Commission (Commission or PUC). I appreciate the opportunity to testify before the Committee today regarding House Bill 1834 (HB 1834, or the Bill). The Bill would authorize the Commission to establish a regulatory framework for data center interconnection and operation in Pennsylvania.

Discussion

As is evidenced by the introduction of the bill, data center proliferation is a central topic of interest among many here in the Commonwealth, including at the PUC. The Commission has placed a strategic focus on this newly evolving commercial revolution. On April 24th, 2025, the Commission hosted an *en banc* hearing concerning interconnection and tariffs for large load customers.[1] At the hearing the Commission heard testimony from participants representing electric distribution companies (EDCs), data centers, and advocates. We focused the conversation on the impact of data center interconnection onto the electric grid as well as what rules and procedures should be put in place to effectively interconnect these facilities while protecting existing customers from undue risks and costs. The Commission also received filed comments from over forty interested parties.

We have taken this input and are currently working on a proposed model tariff aimed at addressing important terms. The provisions the Commission endeavors to establish via our model tariff proceeding include, but are not limited to, areas such as appropriate MW size for tariff designations, financial security requirements, minimum contract terms, early termination fees, maximum interconnection study times, load ramping, and best practices utilized in other jurisdictions. The Commission expects to issue a tentative model tariff in the very near future. Next steps after that would be to review the comments in response to our proposal and issue a final model tariff. We would plan to have that done within three to five months of issuing our tentative proposal.

In this same vein of policy discussion, HB 1834 gives an explicit directive for the Commission to establish EDC tariff rules and filing requirements for large load customers via temporary and final regulations. The Bill directs that we address, at a minimum, the following areas:

- Financial security requirements
- Calculations of contributions in aid of construction
- Minimum contract terms
- Load ramping schedules

[1] Docket M-2025-3054271.

- Exit fees
- Measures to mitigate circumvention of customer size thresholds
- Revenue and cost tracking requirements
- End-of-contract processes
- Curtailment
- Cost recovery parameters
- Low-income assistance
- Renewable energy requirements

The Commission's current model tariff proceeding and the parameters of HB 1834 have many similarities. As such, these endeavors are largely complementary. However, there is one very important distinction: any final model tariff adopted by the Commission would not be binding on EDCs, but rather, would establish a set of best practices that the Commission would encourage for utilization as prudent policy provisions. Whereas the HB 1834 provisions would become legally binding if the Bill became law.

Given these circumstances, the Commission is generally supportive of the Bill. With this context laid out and the Commission's general support established, we offer the following input.

- **Commercial Data Center Terminology & Definitions**

HB 1834 explicitly utilizes and defines the term "commercial data center." This term is to include only those customers using 25 MW or more of electricity that maintain computer hardware and software for the purpose of managing or transmitting data.

While logically, it would be most likely that any account using over 25 MWs will be a commercial data center, the future may bring different types of customers that consume significant amounts of electricity. In the interest of not discriminating against only one type of large-load user, the Commission respectfully asks that you consider simply setting the threshold for applicability based on MW demand and not including any basis for the use of the power. To that end, use of the term "large load users" may be considered instead of "commercial data center" in order to avoid any appearance of rate or tariff discrimination for one 'type' of customer.

- **Contribution in Aid of Construction**

HB 1834 requires the PUC to establish the calculation for contributions in aid of construction (CIAC) for transmission and distribution infrastructure. While the PUC has explicit authority over distribution rates, the Commission notes that CIAC for transmission falls under the jurisdiction of the Federal Energy Regulatory Commission.

- **Renewable Energy Requirements**

Section 6 of HB 1834 states that an EDC entering into a contract for electric service with a commercial data center after the effective date of the Bill must ensure that no less than 25% of the electricity supplied under the contract is generated from renewable sources. It is not entirely clear if this provision is intended to only apply to commercial data centers utilizing EDC default service, or, if it would also be applicable to commercial data centers purchasing power from a Commission licensed electric generation supplier (EGS).

The PUC notes that the vast majority of commercial and industrial accounts in the Commonwealth are shopping for power with an EGS. This would likely remain the case for commercial data centers. As such, if this provision only applies to default service customers, it may have minimal impact. Conversely, if this section is intended to apply to all commercial data centers, even if they are enrolled with an EGS, it may present an intervention into the contracts between EGSs and the commercial data centers.

Finally, this 25% requirement may be perceived to be an obstacle for data center investment in the Commonwealth. Applying a prescriptive power purchasing requirement in a time when every watt of electricity is in demand may induce data center developers to invest in other jurisdictions where they have more flexibility. In essence, allowing the commercial data centers to be as flexible as possible in their power procurement is important to foster an attractive environment for data center investment. Furthermore, and even more importantly, allowing such flexibility will help to maintain reliability in the short and medium-term.

Conclusion

I commend the sponsor of legislation for proposing HB 1834 and the Committee for holding this important hearing today. These are extraordinary times in the energy sector. I am confident that with prudent planning, large load customers such as data centers can be integrated into the electric grid in a manner that benefits utility customers, local municipalities, and Pennsylvania as a whole. Mandating that the Commission establish uniform and binding rules for large load interconnection will help to mitigate excessive competition among utilities, and a potential "race-to-the-bottom."

Thank you for the invitation to testify today and I look forward to answering any question you may have.

October 22, 2025

Before the House Energy Committee
Pennsylvania State House of Representatives
Public Hearing – Testimony on HB1834

Written Testimony of Brian Thiry
Director, Strategic Engagement
ReliabilityFirst Corporation

Good morning and thank you for the opportunity to speak with you today. My name is Brian Thiry, and I am the Director of Strategic Engagement at ReliabilityFirst Corporation (RF). My role involves overseeing our state outreach initiatives plus our external engagement with industry including our workshops, webinars, winterization program, assist visits, and our annual Fall Reliability & Security Summit that we just hosted in Washington, D.C. in September. I am an electrical engineer with over 20 years of experience in the electric utility industry. I have held roles in operations, substation and transmission design, auditing, event analysis, and external affairs.

RF is one of the six North American Electric Reliability Corporation[1] (NERC) Regional Entities responsible for preserving and enhancing the reliability, resilience, and security of the bulk power system (BPS, or "system").[2] Collectively, NERC and the Regional Entities comprise the ERO Enterprise. With specific authorities under the Federal Power Act and through a delegation agreement with NERC, RF's mission serves the public good by assuring BPS reliability for over 73 million customers in 13 states (including Pennsylvania) and the District of Columbia.[2] We audit and enforce the NERC Reliability Standards for more than 300 registered entities. We also provide outreach and education to registered entities in our footprint, and technical expertise to state public utility commissions, legislators, and other stakeholders.

RF's role with the states is to serve as an independent, objective technical resource concerning reliability risks. While energy policy should appropriately prioritize BPS reliability, our statements are not intended, and should not be interpreted, as advocating for a specific policy outcome.

Resource Adequacy Reliability Considerations

ReliabilityFirst's testimony[3] to the Pennsylvania House Energy Committee on May 14, 2025, provided background on the resource adequacy challenges we are facing as a region and as a

[1] NERC is a not-for-profit international regulatory authority designated by the Federal Energy Regulatory Commission (FERC) to assure the effective and efficient reduction of risks to the reliability and security of the grid. Through delegation agreements and with oversight from FERC, NERC works with six Regional Entities (including RF) on compliance monitoring and enforcement activities.
[2] RF does not have jurisdiction over the local distribution of electricity, which is a state responsibility.
[3] See the written testimony of Diane Holder before the House Energy Committee.

nation. NERC's annual report, the Long-Term Reliability Assessment (LTRA),[4] projects electricity supply and demand and discusses key issues and trends that could affect reliability. The LTRA shows that approximately 2/3 of the country including the PJM region is at elevated risk over a ten-year horizon. It is important to note that the LTRA reports signaled potential resource adequacy shortfalls in the Midwest (over the ten-year horizon) starting with the 2018 LTRA, which was years before the data center load conversations. The PJM region was raised from normal to elevated risk in the latest 2024 report, with the primary concern identified as the demand growth. [5]

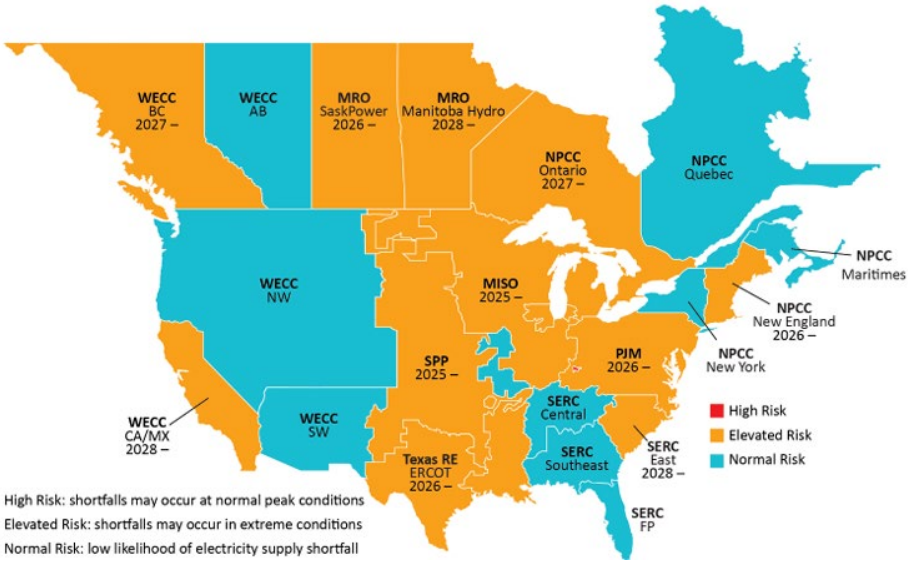

Figure 1: The 2024 LTRA risk map by region (published July 2025)

Demand Growth

One of the leading risk drivers for the electric grid is rapid demand growth. There has been a rapid increase in demand, due to the recent rise in data centers, electric vehicles, and the overall electrification of society. For example, in 2024, PJM forecasted an average 2.3% net energy load growth per year over the next 10-year period,[6] and in 2025 forecasted 4.8% growth (over double the previous year's estimate).[7] In the 2024 LTRA, NERC states that "electricity peak demand and energy growth forecasts over the 10-year assessment period continue to climb; demand growth is now higher than at any point in the past two decades."[8] This is shown in Figure 2 on the right hand side, where the 2024 LTRA peak demand projection has dramatically grown compared to the 2023 and 2022 LTRA projections.

[4] See, 2024 LTRA, 2024 LTRA infographic.
[5] 2024 LTRA at p. 7.
[6] https://www.pjm.com/-/media/library/reports-notices/load-forecast/2024-load-report.ashx at p.2.
[7] https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2025-load-report.pdf at p.6.
[8] 2024 LTRA at p. 8.

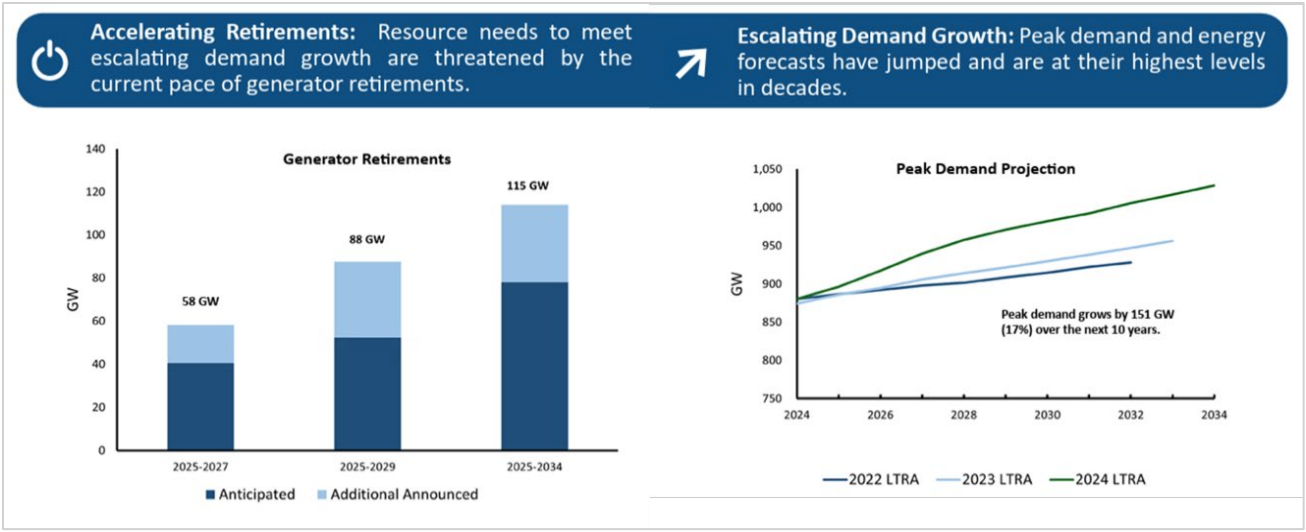

Figure 2: NERC LTRA risk drivers, published in 2024 LTRA Infographic[9]

In its 2024 United States Data Center Energy Usage Report,[10] the Lawrence Berkeley National Laboratory analyzed a range of future demand scenarios. The findings suggest that data centers could consume up to 12% of the total U.S. electricity consumption by 2028 - nearly triple their 2023 share of 4.4%, as seen in Figure 3 below.

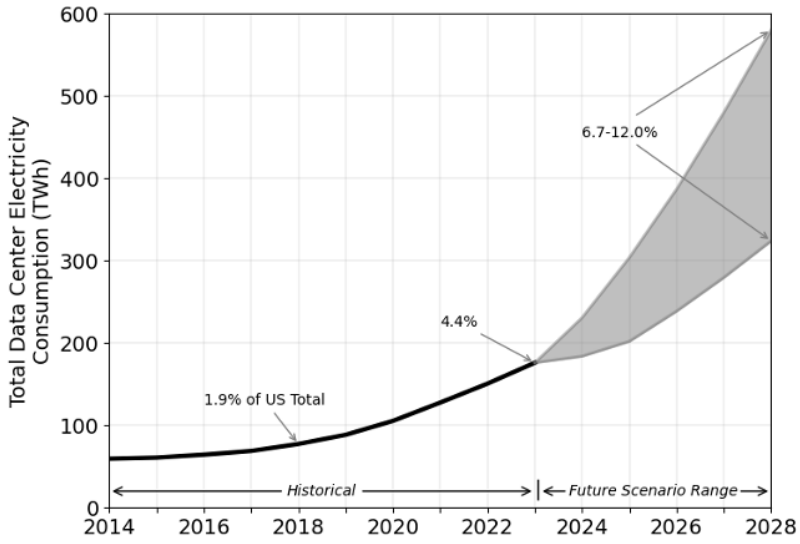

Figure 5.5. Total data center electricity use from 2014 through 2028.

Figure 3: Data center electricity use from 2014-2028, from Lawrence Berkeley National Laboratory[11]

[9] 2024 LTRA Infographic
[10] Lawrence Berkeley National Laboratory's 2024 United States Data Center Energy Usage Report
[11] *Id*. at p. 52.

Data Center Load Growth

This rapid growth in demand is not solely due to data centers, but the focus on data center load growth versus other sources is due to a variety of factors. Perhaps the largest reason for the focus is the high load density for data centers compared to other sources. While the impact of electrification and EVs is more spread out, data centers can sit in a small area and require upwards of 300 MW with some of the latest large loads exceeding 1 GW at a single site.[12] This makes data center load growth more challenging.

The map in Figure 4 from the National Renewable Energy Laboratory shows data center infrastructure in the US, including transmission lines, fiber optic lines, and some of the data centers by size and whether they are currently operating, under construction, or proposed. Many of the existing and proposed data centers are located where the infrastructure can support them – where large loads already exist (so that needed transmission lines needed are already available) or close to large sources of generation (with existing transmission lines and a line directly to a resource). This can further increase demand in these high-demand areas.

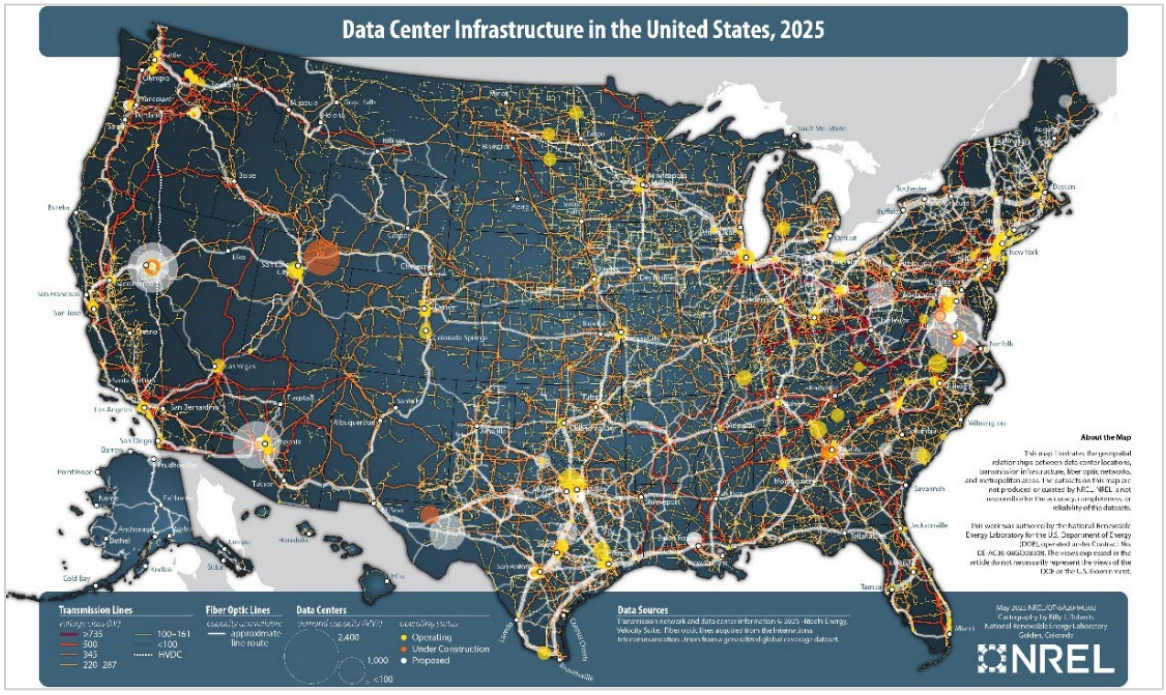

Figure 4: NREL map of data center infrastructure, released May 2025

To meet growing electricity demand from data centers, significant transmission expansion will be needed to transport energy. However, the timelines for building transmission infrastructure (often a decade or more) do not align with the much shorter timelines for data center development. This underscores a broader challenge: while projections to 2030 or 2040 carry considerable uncertainty, long-term planning is essential. FERC Order 1920 requires

[12] NERC whitepaper *Characteristics and Risks of Emerging Large Loads*, at p. 43.

transmission providers to conduct long-term planning for regional transmission facilities over a 20-year time horizon to anticipate future needs.[13] To ensure reliability, efforts to ensure infrastructure is timely built and coordinated is key.

Data Centers and Reliability

Recent events have shown that data center loads have unique reliability and security considerations due to their size (magnitude) and operating characteristics. Current dynamic models face challenges in capturing the unique characteristics of emerging large loads, and accurately modeling the behavior of such loads becomes increasingly critical amidst their rapid development.[14] NERC's Large Loads Task Force (LLTF)[15] discusses and has started publishing documents on how data centers interact with the grid and the associated operational risks, including that many operators lack experience managing such substantial and dynamic loads.

For example, there was an incident in 2024 where data centers tripped themselves offline during a grid-side fault as shown in Figure 5 – described as a "customer-initiated simultaneous loss of approximately 1,500 MW of voltage-sensitive load that was not anticipated by the BES operators."[16]

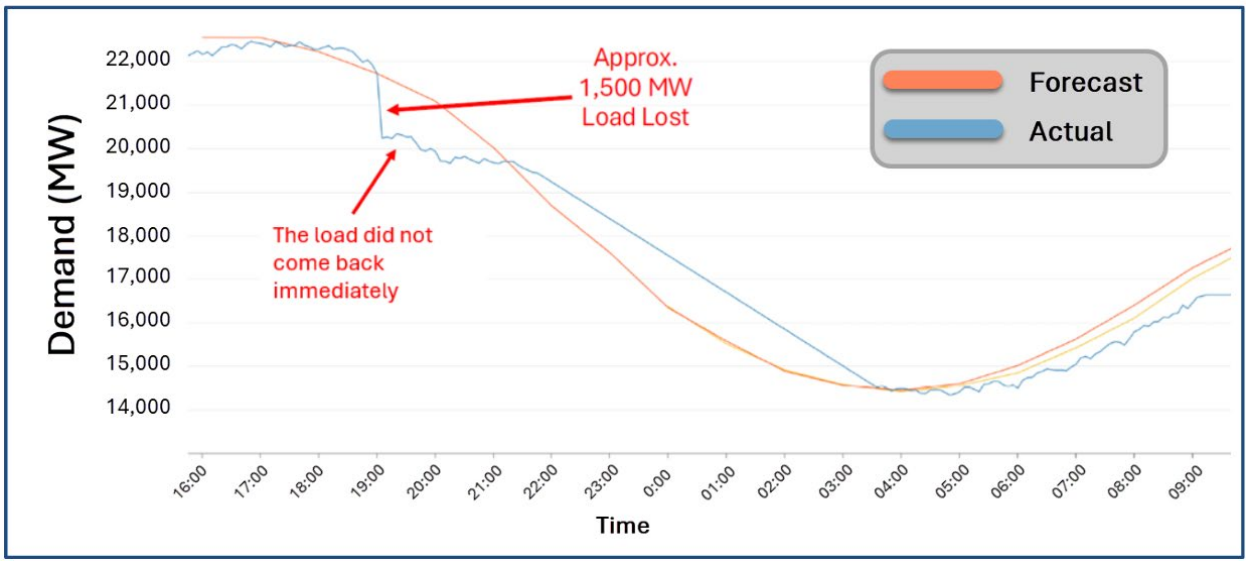

Figure 5: Demand curve showing 1,500 MW load loss event over time, from NERC Large Load Taskforce

In a report on the incident published in January, NERC noted that depending on vendor supplied protection/control scheme settings, "if a certain number of voltage disturbances are seen within a certain time, the data center will transfer its load to their backup system, and it will remain there

[13] https://www.ferc.gov/news-events/news/ferc-strengthens-order-no-1920-expanded-state-provisions
[14] See Large Loads FAQs.pdf for additional information.
[15] Information on the NERC Large Loads Task Force can be found at https://www.nerc.com/comm/RSTC/Pages/LLTF.aspx.
[16] NERC Incident Review - Considering Simultaneous Voltage-Sensitive Load Reductions, at p. 1.

until it is manually reconnected to the grid."[17] Historically, the grid has been planned for large generation losses but not for such significant simultaneous load losses.

The heightened voltage sensitivity of data centers, coupled with rapid fluctuations in their energy consumption, present unique challenges in forecasting and planning for increased demand.[18] To raise awareness of these challenges, NERC has drafted the first of several white papers on the characteristics and risks of emerging large loads (such as data centers), the first of which was released this past July.[19]

NERC's LLTF was tasked with defining large loads. The LLTF has not yet provided a MW threshold or more granular characteristics of large loads, as further analysis and development are forthcoming. For now, the definition is *Any commercial or industrial individual load facility or aggregation of load facilities at a single site behind one or more point(s) of interconnection that can pose reliability risks to the BPS due to its demand, operational characteristics, or other factors. Examples include, but are not limited to, data centers, cryptocurrency mining facilities, hydrogen electrolyzers, manufacturing facilities, and arc furnaces.*[20]

The high priority risks identified in NERC's first white paper on emerging large loads were

- Long-Term Planning (associated with resource adequacy)
- Operations/Balancing (associated with balancing and reserves)
- Stability (including ride-through, voltage and angular stability, and oscillations)

These will be discussed further in the sections below (Large Load Connection Configurations, Large Load Consumption Patterns and Requirements, and Data Center Load Forecasting). Understanding the unique challenges of large load interconnection will help identify potential improvements in planning, operations, and interconnection procedures.

Large Load Connection Configurations

The manner in which large loads connect to the grid can affect reliability. As shown in Figure 6 from the Large Load Task Force (LLTF) whitepaper,[21] front-of-the-meter (FOM), behind-the-meter (BTM), and hybrid loads vary in their characteristics and impacts. For example, while FOM loads are directly connected to the grid (via distribution or transmission) and are usually visible to the utility and system operator, most BTM or hybrid loads are not fully visible and may not undergo rigorous impact analyses during the interconnection queue process.

Because BTM loads are not controlled by (or are subject to limited control by) the system operator, their performance in emergency conditions can be unpredictable – especially if the

[17] *Id.* at p. 7.
[18] NERC Large Loads Frequently Asked Questions
[19] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper
[20] NERC Large Loads Frequently Asked Questions
[21] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper, at p. 19

BTM's load generation trips offline and protection or ride-through systems are not in place. Their impact on the system may not have been studied in these emergency situations – including a potential for the BTM load to unexpectedly shift to grid supply, causing the utility to see a sudden, rapid demand spike that could stress the transmission system. As such, it is critical that any BTM loads that shift to the grid during generator outages be monitored, coordinated, and have clear standards to prevent unexpected demand spikes and ensure reliable operations.

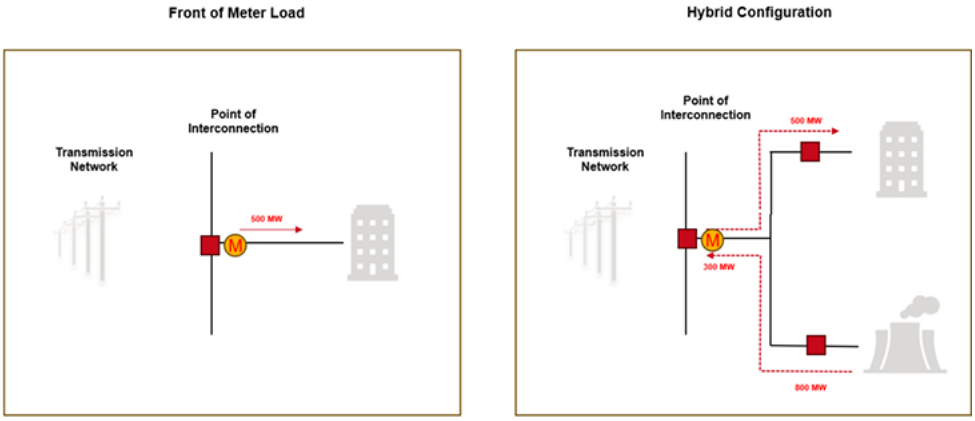

Figure 6: FOM versus BTM load illustrations[22]

In the illustration in Figure 6, the hybrid BTM load is fed by its neighboring co-located generation without using the transmission or distribution grid (though there are other hybrid configurations that may use the transmission or distribution grid). The hybrid BTM load in Figure 6 includes protections that prevent grid-side energy from flowing to the load. In this configuration, the load will be disconnected when the co-located generator is out of service (unless the load has its own backup generation), as shown in Figure 7. [23]

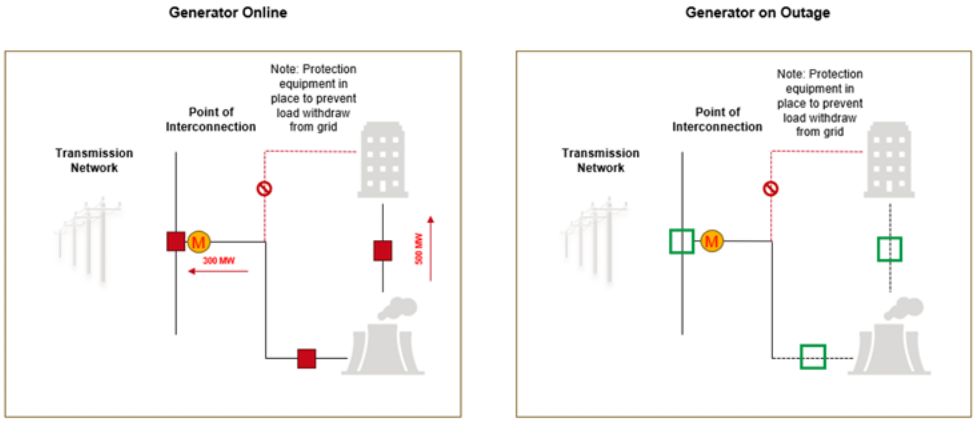

Figure 7: BTM Online vs. On Outage

[22] The metering configuration in the BTM configuration example is for illustration purposes only; specific metering design for BTM configurations will depend on the metering practices of the interconnecting utility.
[23] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper, at p. 20

Large Load Consumption Patterns and Requirements

Another risk area to consider relates to the real-time consumption behavior and requirements of large loads. As noted in the LLTF whitepaper, "many large loads, such as cryptocurrency mining and AI facilities, can cycle their consumption on and off in less than a minute and can ramp from zero to hundreds of MW of power demand over very short time frames… As a comparison, data centers that support cloud computing and digital services typically have high load factors and non-conforming behavior, so their consumption is relatively static."[24] What this means is that some data center loads do not conform to traditional load forecasting models (weather, time of day, etc.).[25] These loads have a steady demand and require dedicated capacity. Depending on the nature of the load, this may reduce load flexibility, discussed later in this testimony.

Some large loads request firm utility service during the interconnection process, meaning the utility must provide infrastructure to always serve the load's peak demand. The LLTF whitepaper notes that "mandatory load curtailments by the ISO or utility during stressful grid conditions…might allow for [Transmission Planners] to assume a lower peak demand for the load and potentially reduce the transmission buildout exclusively needed to support the load. Utility controllability of loads is usually not accounted for at the transmission planning stage."[26] Therefore, even when load flexibility is possible, the infrastructure and transmission buildout often must be robust enough to support the peak load.

Large loads can also strain supply chains. General supply chain risks are discussed in the most recent RF *Regional Risk Assessment*,[27] and the rapid growth of data centers can add complexity to these risks. For instance, when a utility seeks to install infrastructure to support a new data center, it is often competing with other utilities doing the same. At the same time, data center developers are often sourcing from the same limited pool of suppliers for critical equipment like backup diesel generators, battery systems, and switchgear. [28]

Data Center Load Forecasting

Accurate load forecasting is one of the most critical challenges in planning and operating the Bulk Power System. Forecasting, specifically forecasting projected load growth, plays a key role in transmission planning. Both the magnitude and location of the load growth matter as critical infrastructure (not just the transmission lines and substations, but also critical interdependencies)

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[24] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper, at p. 21

[25] EPRI's DC Flex Initiative suggests that some data centers have variable loads that depend on HVAC and usage by end-users. This further illustrates the need for accurate models and studies to determine the nature and characteristic of the load(s) being interconnected onto the system.

[26] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper, at p. 21

[27] RF Regional Risk Assessment 2023-2024, at p. 7.

[28] See Tackling operational challenges in modern data centers - DCD

are planned and designed years in advance. Load forecasting impacts the markets and the signals sent for new generation (and to keep existing generation). Load forecasting is also critical in operations as Balancing Authorities secure the resources needed to reliably deliver power during their day-ahead analysis, with reserves and resources to mitigate a range of potential contingencies. Errors or misassumptions in load forecasting can lead to over-securing resources (often at a cost to consumers) or worse, under-securing resources, which can lead to emergency operations and unanticipated challenges for the system operators. Accurate models, data, and load forecasting are at the heart of reliable operations.

Forecasting data center growth remains a significant challenge, for multiple reasons. RF has heard from multiple entities that developers often require utilities to sign Non-Disclosure Agreements (NDAs), limiting the ability to share information with neighboring utilities. This practice can obscure the visibility of new large loads coming onto the system and can lead to potential double-counting when the same developer explores multiple sites in a region. This may be partially mitigated by the recent Department of Energy "Speed to Power Initiative" which issued a Request for Information to collect data on project readiness, load growth expectations, and infrastructure constraints.[29]

Additionally, data centers operate differently from traditional industrial loads, particularly data centers that train large language models in AI data centers as shown in Figure 8.[30] Even after being in-service for an extended period of time, real-time forecasting of data centers can remain a challenge due to their unpredictable nature and can lead to dispatch errors, shutting down units, or committing otherwise unneeded units (thereby driving market uplift).

[29] https://www.energy.gov/articles/energy-department-launches-speed-power-initiative-accelerating-large-scale-grid
[30] Characteristics and Risks of Emerging Large Loads: Large Loads Task Force White Paper, at p. 37

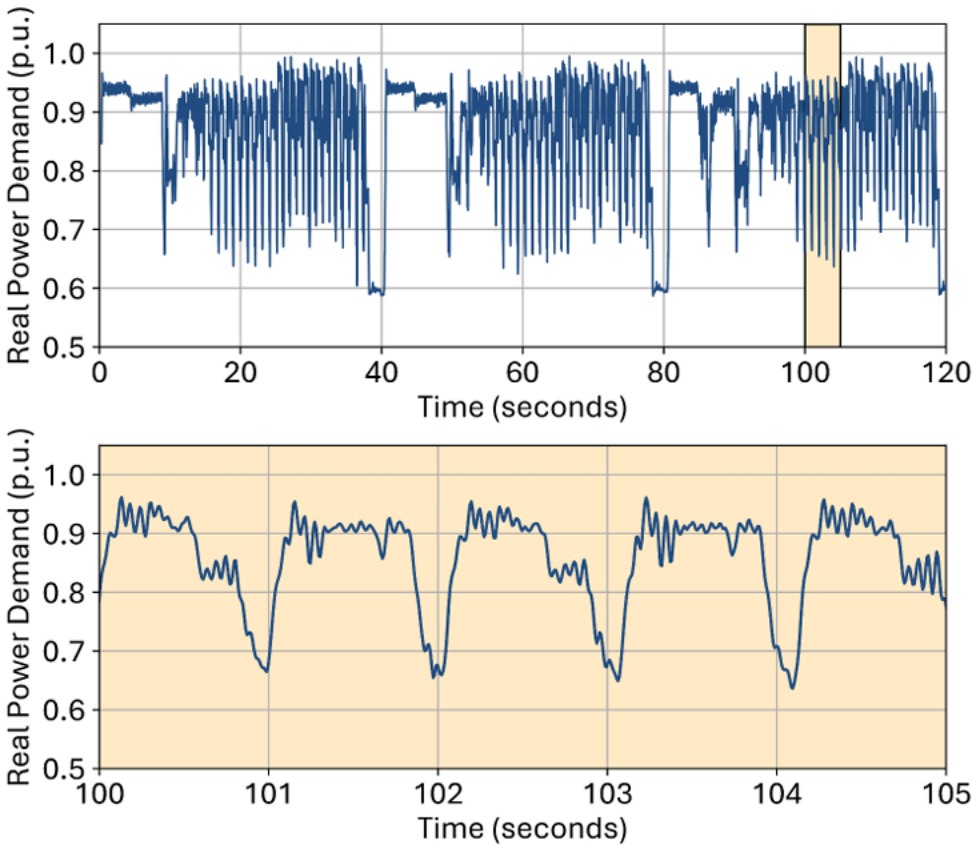

Figure 8: Example of AI Data Center Load Profile During Training Over Two Minutes (Top) and in a Five-Second Period (Bottom)

As noted in the LLTF whitepaper, many large loads do not submit real-time or day-ahead operational consumption profiles or plans. This further exacerbates the forecasting challenges regarding unpredictable consumption patterns, depending on the large load. As mentioned above, depending on the nature of the data center, it may be a more predictable static load, while the AI data center load profile may be less predictable and not necessarily follow past behaviors.

As discussed above in the data center reliability section, ride-through is an important consideration related to load forecasting. The planners and operators need to understand the energy consumption of the data centers, but also need to know how they will respond and react during system faults. There is a parallel to what we have learned over the past decade with Inverter-Based Resources (IBRs) and their ability to ride-through system faults. Data centers often have high power quality requirements which make them sensitive to voltage and frequency disturbances as mentioned above. Due to the large size and concentrated nature of these large loads, reliability can be enhanced by performance requirements mandating that the data centers have ride-through requirements not to trip (or switch to backup power supplies) during system disturbances. A sudden loss of hundreds of megawatts of load can impact voltage or frequency on the system, possibly resulting in instability, uncontrolled separation, and cascading depending

on the topology of the system. Planners and operators either need reassurance that the large loads can ride through disturbances, or they need modeling information to study and plan for system faults that may impact these large loads.

Data Center Load Flexibility

The LLTF whitepaper contains a section exploring the concept of flexible loads. One strategy being explored widely is that resource adequacy challenges associated with the pace of change (primarily the long lead times required to build generation and transmission infrastructure to support load growth) can be met through load flexibility.[31] This concept invokes the idea of using the load as a balancing resource when generation, or transmission deliverability, cannot provide the power in the time frames that data centers are looking for. Load flexibility is often invoked as an opportunity to help reduce customer costs, deliver speed to data centers looking to get online quickly, and meet state environmental targets regarding reducing emissions. Load flexibility can refer to load management Demand Response (often referred to as peak shaving during times of high load or other emergency conditions) or economic Demand Response (*e.g.,* time-of-use rates or otherwise curtailing power during expensive time periods). Load flexibility can provide operators with flexibility to maintain reliability during times of high demand and/or other emergency conditions.

As discussed above, knowing the type and configuration of the large load is critical when discussing load flexibility. For many data centers, up-time is a priority and load factors are between 70-90%, indicating that data center flexibility will often be dependent on a data center's ability to flip to backup generation sources.[32] The 2024 data center event referenced above detailed an event where approximately 1,500 MW of data center load switched to backup power, covering approximately 25-30 substations and 60 data centers.[33] This is what I would call 'accidental load flexibility' as the operators were not expecting, and did not intend to, disconnect 1,500 MW of load from the grid that day.

While backup generation may provide load flexibility which may enable faster interconnections to the grid, the reliability impacts must still be studied and considered. Earlier in the testimony, the different configurations were discussed, specifically behind-the-meter configurations. While bringing your own generation (BYOG) is an acronym that has received a lot of attention due to the resource adequacy challenges across the region, there are two important technical considerations when considering this arrangement.

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[31] T. Norris, T. Profeta, D. Patino-Echeverri, and A. Cowie-Haskell, "Rethinking Load Growth: Assessing the Potential for Integration of Large Flexible Loads in US Power Systems," Nicholas Institute of Energy, Environment, & Sustainability, 2025. Accessed: May 30, 2025. [Online]. Available: https://nicholasinstitute.duke.edu/sites/default/files/publications/rethinking-load-growth.pdf

[32] Load factor approximations can vary depending on the assumptions used by the publication, but an often cited number is 86% from the Energy and Environmental Economics (E3) whitepaper.

[33] An Assessment of Large Load Interconnection Risks in the Western Interconnection

1. **Impact of losing the load or the generator**
   There are times when the generation or the load is unavailable (tripped, unavailable for maintenance, etc.) and often it is one of the two scenarios, but not both at the same time. For example, there will inevitably be times when the generation is unavailable and the load may be supported 100% by the transmission network; or conversely there may be times where the load is unavailable (e.g., trips off due to a voltage or frequency sensitivity) and the full output of the generator(s) is delivered to the grid.

   While this may not be as impactful for smaller distributed energy resources, the size and magnitude of these large loads and their associated generation may cause thermal, voltage, or stability impacts to the grid at-large. While there may be relaying or other protection systems that isolate both the load and generation together, each circumstance and location must be modeled and studied. Operators need visibility of how these configurations may react, and what operational flexibility is available at each location.

2. **Backup Generation**
   The generation brought by the large load may be backup generation (*i.e.,* used for load flexibility, and/or emergency backup power) or it may run continuously to offset power demanded from the grid. Regardless of how often it is needed, or the type or magnitude of the generation behind the meter, it is important to note that it is still generation and not much different from generators connected to the grid.

   More specifically, whether the generation is behind-the-meter or not, it is still subject to the same risks as traditional front-of-the-meter generation (such as supply chain issues, vulnerabilities, and emission limits). Data centers that want to bring their own generation are competing for materials from the same supply chain, which impacts supply and demand for turbines across the region. If they are using natural gas, they are competing for the same fuel supply chain. Even if the generator is not subject to NERC reliability standards (based on configuration, voltage, and magnitude), these generators still require the same maintenance (e.g., winterization, relay testing) to remain reliable. They are also subject to the same risks related to weather, security, natural disasters, and human factors such as staffing, testing, and maintenance.

These technical considerations are not meant to discourage load flexibility and other creative options to manage the pace of change when generation and/or transmission infrastructure is not available. Rather, these technical considerations are shared to emphasize the importance of reliability when considering these configurations.

Energy Supplied to Data Centers

A diverse, flexible resource mix that can withstand a myriad of risks and challenges results in the most reliable electric grid. This is because relying on a single fuel source or supply chain reduces reliability. We have seen this play out during winter storm events that have challenged the natural gas fleet, and during energy droughts that impact weather-dependent intermittent resources.

When determining the energy grid of the future and where the power is coming from, it may be helpful to consider the resources needed in terms of their reliability impact. The state may want to understand the minimum thresholds needed to preserve reliability, working with their RTO. For example, questions may include:

- What level of system reserves should be maintained?
- What percentage of the fleet should remain dispatchable?
- How much inertia is needed to withstand faults and disturbances, including certain levels of fast-frequency response?
- What are the maximum and minimum levels of dependency on a certain fuel source, supply chain, or transport?
- How much short-circuit current is needed to ensure relaying responds accordingly?
- How will load flexibility fit into these plans, and what percentage of the generation is needed in front-of-the-meter to maintain grid reliability and stability?
- What is the minimum level of Blackstart resources needed, and how quickly would you expect restoration based on the number and location of these units?
- How much power do you feel comfortable importing, and what prudent additions may be needed to ensure deliverability to remote locations?

These questions and answers can vary by region depending on existing infrastructure and existing resources.

RF remains neutral toward resources and solutions, provided reliability is upheld. However, there are certain pairings and additions that may be considered based upon energy preferences to help balance reliability, cost, and environmental aspirations. For example, if considering renewable energy (wind and solar), pairing it with energy storage and/or synchronous condensers can help mitigate challenges with intermittency and inverter-based resources. If considering natural gas, critical infrastructure interdependencies regarding pipelines and storage should be studied and reviewed. If considering nuclear energy, balancing dispatchable resources will be needed to maintain voltage and frequency levels. As stated above, these resources all work well in tandem to mitigate against reliability risks mentioned in RF's *Regional Risk Assessment*.[34]

[34] RF Regional Risk Assessment 2023-2024

Examples from the RF Region

Several states within the RF footprint are actively pursuing incentives to attract data center development while also taking actions to help address associated energy and cost challenges. For example, Indiana utility regulators approved interconnection rules earlier this year for large loads that mirror key components of Pennsylvania's proposed *Data Center Act*. Under the Indiana tariff agreement,[35] large load customers with a contract capacity of at least 70 MW are required to fund the grid upgrades necessary to serve their demand, thereby preventing costs from being shifted to existing ratepayers.[36]

In Ohio, the Public Utilities Commission (PUC) directed AEP Ohio to revise its data center tariffs.[37] The final order stipulates that incoming data centers must pay for at least 85% of their expected monthly energy demand, regardless of actual consumption. These measures were reportedly designed to safeguard ratepayers from absorbing infrastructure costs for large-scale projects that may ultimately be abandoned. This has resulted in the interconnection request demand falling from approximately 30 GW to 13 GW.[38]

RF continues to monitor similar regulatory proposals across its member states. In New Jersey, a proposed bill would require utilities to file a tariff with the Board of Public Utilities for serving data centers, with the dual aim of protecting ratepayers from cost increases and promoting energy efficiency.[39] RF has participated in these discussions across our member states in our capacity as an independent reliability authority, providing technical expertise without advocating for or against specific policy outcomes. Pennsylvania policymakers can evaluate the experiences and legislative frameworks adopted in other states as a helpful benchmark.

ERO Enterprise Efforts

As discussed throughout this testimony, the NERC Large Load Task Force continues to study the interconnection of large loads, including data centers on the grid. They recently published the *Characteristics and Risks of Emerging Large Loads* white paper. A second white paper entitled *Assessment of gaps in existing practices, requirements, and Reliability Standards for Emerging Large Loads* will be published later this year. Next year a Reliability Guideline will be published identifying risk mitigations, including improvements to existing planning and operational processes.

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[35] 2025 Indiana Utility Regulatory Commission Order No. 46097

[36] Additionally, the Indiana Utility Regulatory Commission (IURC) mandates that any planned reduction exceeding 20% of a customer's contracted peak load must be submitted for the IURC's review.

[37] 2025 Public Utility Commission of Ohio Order No. 24-508

[38] AEP Ohio slashes data center pipeline by more than half.

[39] New Jersey A5462

In September, a level 2 NERC Alert[40] was issued to industry including recommendations regarding large loads. These recommendations include:

- Establishing clear facility design and performance criteria in interconnection requirements for large loads to mitigate the reliability risk posed by expected behavior during normal operations and in response to system disturbances
- Establishing a comprehensive interconnection and system-wide study process using steady state, dynamic, and short-circuit models to assess reliability impacts of large loads
- Enhancing load commissioning activities to establish a comprehensive commissioning process that ensures operational readiness
- Establishing operating protocols and the necessary communication infrastructure to support reliable ongoing operations after large load facilities enter into commercial operation
- Identifying and implementing a process to include large loads into long-term transmission planning horizon demand forecasts as well as near-term transmission planning horizon demand forecasts

The NERC Alert also includes a request for information that is due by January 28, 2026.

To successfully address the complex reliability challenges emerging as the grid is transformed, NERC, the Regional Entities, and state and federal policymakers will need continued collaboration, coordination, and thoughtful action. As states craft policies for the future grid, we are pleased to serve as a resource to help you remain well informed regarding key reliability topics.

[40] Level 2 NERC Alert

Before the
House of Representatives of Pennsylvania
House Energy Committee Public Hearing on HB 1834
October 22, 2025

Testimony of the
Energy Association of Pennsylvania

Andrew S. Tubbs, President & CEO

Good morning, Chairman Fiedler and members of the House Energy Committee. I am Andy Tubbs, President & CEO of the Energy Association of Pennsylvania ("EAP" or "Association"), a trade association comprised of regulated electric and natural gas distribution utilities operating in Pennsylvania. EAP advocates for its members before the General Assembly and state agencies, including the Pennsylvania Public Utility Commission ("PUC"), the Department of Human Services ("DHS"), and the Department of Community & Economic Development ("DCED"), assists its members by facilitating sharing of information and best practices, and provides educational opportunities for employees of its members and others through various conferences. I'm here today on behalf of our electric distribution company ("EDC") members to testify on House Bill 1834, the Data Center Act.

Pennsylvania's EDCs appreciate the General Assembly's proactive approach to addressing the challenges and opportunities presented by the rapid growth of commercial data centers in our commonwealth. Data centers and their load represent a significant opportunity for Pennsylvania, including job growth, economic development, and bolstering national security. We share the legislature's commitment to ensuring that this growth occurs in a manner that protects existing ratepayers, maintains grid reliability, and promotes responsible infrastructure development and reasonable costs for customers.

Overall Assessment

HB 1834 represents an important first step in establishing a regulatory framework for large commercial data centers. EAP appreciates that the bill recognizes several critical principles:

- The need for financial security and contributions in aid of construction;
- The importance of load ramping schedules and adequate planning;

- Protection of existing ratepayers from shouldering costs attributable to new, large-load customers; and
- The value of curtailment provisions during emergency conditions.

These elements demonstrate a thoughtful approach to the unique challenges posed by data center development. We believe that with certain amendments, this legislation can serve as a roadmap to address concerns relating to the impact of commercial data centers on system reliability and ratepayer affordability while promoting the economic development associated with data centers.

Key Considerations and Recommended Modifications

While EAP supports the intent of HB 1834 to promote responsible and reliable data center growth, as drafted, certain provisions may unintentionally create jurisdictional, operational, and cost recovery challenges. In providing the following refinements, EAP intends to preserve the bill's objectives while aligning with established regulatory frameworks and ensuring that implementation is workable for both the PUC and the EDCs that will be responsible for carrying it out.

<u>Jurisdictional boundaries: Transmission vs. Distribution</u>

At the outset, it is important to recognize that electric transmission service, unlike electric distribution service, is governed by federal law under the Federal Power Act. Except for siting, the PUC has limited jurisdiction over transmission facilities or the recovery of costs related to those facilities. Certain provisions in HB 1834, including Section 4's prohibition on cost recovery and Section 7's requirement for PUC contract review, could inadvertently create conflicts with the Federal Energy Regulatory Commission's ("FERC") jurisdiction over transmission. Neither the PUC nor EDCs have direct access to the data needed to assess how a specific contract might affect PJM's regional grid or reliability; that information must come from PJM, which operates the transmission system. EAP recommends clarifying that the PUC's oversight under HB 1834 applies to distribution-level facilities and costs, while transmission system impacts are to be coordinated with PJM under existing federal oversight.

<u>Threshold Definition (25 MW)</u>

The bill's 25 MW threshold in Section 2 also merits careful consideration. PJM currently utilizes a 50 MW threshold in its planning processes to identify projects that have the potential to meaningfully affect the transmission grid. A lower threshold, such as 25MW, could subject smaller facilities to unnecessary regulatory requirements without delivering corresponding system benefits. EAP suggests that HB 1834 be amended to align the

threshold with PJM's 50 MW standard or, alternatively, creating a flexible, graduated framework that allows for tailored requirements based on facility size and specific system impacts. This would ensure that the legislation focuses on projects large enough to drive significant costs or reliability concerns while avoiding unnecessary regulatory burdens on smaller facilities.

Regardless, it is critical that any threshold allow for flexibility and consider the specifics of the proposed commercial data center project. We respectfully suggest that the Committee consider:

- Examining whether a 50 MW threshold would more appropriately capture facilities that create substantial infrastructure costs while avoiding unnecessary regulatory burdens on smaller facilities.
- Consulting with planning experts and PJM to understand the load levels that trigger material system upgrades.
- Creating graduated requirements based on facility size that allow for flexibility and EDC input, recognizing that a 200 MW facility presents different challenges than a 50 MW facility and that, in certain instances, a smaller sized facility might drive significant impacts.

Cost Recovery Prohibition - Section 4

Section 4's prohibition on recovering any data center-related costs from ratepayers raises significant practical and policy concerns. EAP fully agrees that existing ratepayers should not subsidize new, large-load customers.

Cost allocation in utility operations is complex. Some costs are clearly attributable to specific customers (direct interconnection facilities, customer-specific transformers), while other system investments may provide broader system benefits – the costs of which are appropriately shared across the system (substation upgrades, transmission enhancements, capacity investments). Current regulatory accounting standards and methodologies recognize this reality through sophisticated cost allocation studies.

Strictly separating all costs "that would not have been incurred but for" a data center's demand may be impossible in practice. For example, regional transmission upgrades may be triggered by multiple load additions. Distribution system investments often serve multiple purposes and customers, and the EDC's planning costs, system studies, and administrative expenses support the entire system.

As written, the bill creates risks for electric distribution utilities. Under the current legislative language, EDCs would bear:

- full counterparty credit risk with no ability to recover bad debt,
- all infrastructure investment risk with no cost recovery mechanism, and
- maintain responsibility to serve without traditional regulatory protections.

This fundamentally conflicts with the regulatory compact as well as a utility's obligation to serve, raises financial prudency concerns, and shifts risk to other utility ratepayers, creating unintended consequences.

EAP recommends clarifying that customer-specific costs should be directly assigned to data centers while shared system costs should be allocated with established cost-of-service principles. The legislation should also explicitly recognize the need to recover legitimate planning, study, and administrative costs incurred by utilities when responding to large-load interconnect requests. These refinements would uphold the bill's intent to protect exiting customers while maintain operational feasibility for EDCs.

Many of the above items will likely be addressed in the PUC's forthcoming large load tariff / interconnection rules docket and may not necessarily require further clarification via legislation.[1]

Tracking and Verification Requirements - Section 3(b)(7)

Section 3(b)(7) requires utilities to track all costs and "verify that revenues collected exceed costs incurred." While EAP supports transparency, this language departs from traditional ratemaking practice, which determines cost recovery and revenue sufficiency through base rate proceedings using established cost allocation methodologies. Requiring utilities to "prove" profitability for a specific-customer class outside of normal rate cases could introduce uncertainty and conflict with long-standing regulatory principles. Further, it is unclear what regulatory consequences would follow if costs temporarily exceeded revenues (which could occur during initial infrastructure buildout).

EAP recommends clarifying that cost tracking and verification should occur within regular PUC base rate proceedings, ensuring appropriate oversight without creating new administrative burdens or regulatory inconsistencies.

[1] For example, EDCs must have a formal load shedding plan approved by the PUC to be used during system emergencies. The regulations, found in Title 52, Chapter 57, establish the conditions that constitute an emergency, require specific notification procedures, and mandate the order of priority for service interruptions. Additional legislative action may not be necessary and may be duplicative or create conflict with established practices and requirements.

Renewable Energy Requirements - Section 6

Section 6 requires that utilities ensure 25 percent of electricity supplied to data centers comes from renewable sources. This provision faces significant implementation challenges under Pennsylvania's deregulated market structure. EDCs do not control the generation supply provided to customers.[2] Most large commercial customers, including data centers, purchase electricity from competitive markets, not from EDCs. Requiring EDCs to ensure that 25 percent of electricity supplied to data centers come from renewable sources effectively imposes an obligation they cannot fulfill. Furthermore, the proposed definition of "renewable energy" does not align with Pennsylvania's Alternative Energy Portfolio Standards ("AEPS") Act, creating legal and administrative conflicts.

If the goal is to ensure renewable energy use by data centers, consider making this a direct obligation of the data center (like the LIHEAP contributions in Section 5)[3] rather than an EDC obligation.

Contract Filing and Review - Section 7

Section 7(a) requires utilities to file data center contracts with the PUC for review of grid impacts, reliability effects, ratepayer impacts, and compliance with the Act. While EAP supports transparency, the PUC may not have the authority or information necessary to evaluate regional transmission system impacts. The legislation does not address how much time the PUC would have to complete such reviews, what standards would apply, or how confidential commercial information would be protected. Finally, the "impact on ratepayers" review (Section 7(a)(3)(iii)) appears inconsistent with Section 4's prohibition on cost recovery—if no costs can be recovered from ratepayers, the impact should theoretically be zero.

The Committee should consider clarifying the PUC's authority and the consequences if a contract fails to meet the review standards. EAP believes amendments to HB 1834 could require PJM to assess transmission system impacts and provide the PUC with any necessary authority to make the request and to obtain the information in a timely fashion so as not to delay development of commercial data centers.

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[2] The Pennsylvania Electricity Generation Customer Choice and Competition Act was passed in 1996, restructuring the state's wholesale and retail electricity markets. This act, inter alia, separated electricity generation from distribution and allowed consumers to choose their electric supplier.

[3] Even with this suggestion, EAP has concerns that the LIHEAP requirement, while well intentioned, could be discriminatory. This would appear to create an obligation on one subset of customers and not similarly situated customers, i.e., any other customer who is not classified as a "data center" but has load over a certain threshold would not have to contribute to LIHEAP directly. Such additional obligation could deter location of data centers in Pennsylvania, negatively affecting economic development.

Supporting Regulatory Development

We appreciate that the bill provides for both temporary and permanent PUC rulemaking. The 90-day timeline for temporary regulations is aggressive given the complexity of the issues, but we are committed to working constructively with the Commission to develop workable regulations. We recommend that the final regulations include:

- Clear definitions and thresholds;
- Transparent cost allocation methodologies;
- Coordination with PJM processes; and
- Adequate implementation timelines for utilities.

Conclusion

Taken together, these modifications would help HB 1834 achieve its dual goals: encouraging data center development in Pennsylvania while maintaining reliability, affordability, and consistency within existing regulatory authority. The Energy Association of Pennsylvania and its member utilities remain committed to working collaboratively with the Committee, the PUC, PJM, and other stakeholders to refine the legislation so that it promotes economic growth while safeguarding the reliability and fairness that Pennsylvania customers depend upon.

Finally, while HB 1834 provides an important framework for managing the impacts of large data center load at the distribution level, it is equally important to recognize the broader resource adequacy challenges we face. The rapid addition of substantial new load from data centers and other emerging industries must be accompanied by commensurate investment in new generation resources. Without sufficient new supply, the entire PJM region faces increased risk of capacity shortfalls, higher capacity prices, and reduced reliability for all customers. EAP believes that a balanced approach, which combines PJM-level market reforms with carefully designed state mechanisms where necessary, will best support the continued reliability and affordability of Pennsylvania's electric system as new, energy-intensive industries locate and expand here.

Thank you for your consideration of these comments. I am happy to answer any questions.

Monitoring Analytics

PA House Energy Committee
Public Hearing on HB1834
Testimony of Joseph E. Bowring

The Independent Market Monitor for PJM

October 22, 2025

Thank you for the opportunity to provide testimony today.

My name is Joseph E. Bowring. I am the Independent Market Monitor for PJM Interconnection. I am the President of Monitoring Analytics, LLC. Monitoring Analytics serves as the Independent Market Monitor for PJM, also known as the Market Monitoring Unit (Market Monitor or MMU). Since March 8, 1999, I have been responsible for all the market monitoring activities of PJM, first as the head of the internal PJM Market Monitoring Unit and, since August 1, 2008, as President of Monitoring Analytics. The market monitoring activities of PJM are defined in the PJM Market Monitoring Plan, Attachment M and Attachment M-Appendix to the PJM Open Access Transmission Tariff (OATT).

The purpose of my testimony is to address House Bill No. 1834, which would authorize the Pennsylvania Public Utility Commission (PUC) to establish a regulatory framework for data centers operating in Pennsylvania.

As the Independent Market Monitor for PJM, I address issues related to the PJM wholesale power markets and not retail ratemaking. House Bill 1834 would have a direct impact on the PJM wholesale power markets and my testimony will address that potential impact. The costs of the PJM wholesale power markets are a component of retail customers' bills for electricity.

The current tight/short conditions in the PJM capacity market are almost entirely the result of large data center load additions, both actual historical and forecast.[1] [2] The current supply of capacity in PJM is not adequate to meet the demand from large data center loads and will not be adequate in the foreseeable future. There is a market solution to the issues created by the addition of unprecedented amounts of large data center loads that does not require a massive wealth transfer. That solution is to require large data center loads to bring their own new generation. It is essential to have a pragmatic market solution that allows data centers to come to market as quickly as feasible and that is consistent with and sustains efficient and competitive PJM markets rather than to create the conditions for a return to cost of service regulation.

The MMU published a report on the latest PJM capacity market base residual auction on October 1, 2025. The basic conclusion of the analysis is that data center load growth is the primary reason for recent and expected capacity market conditions, including total

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1 *See*, "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2025 2026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025).

2 See "Analysis of the 2026/2027 RPM Base Residual Auction - Part A," ("Part A") (October 1, 2025) <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2026202 7_RPM_Base_Residual_Auction_Part_A_20251001.pdf> .

forecast load growth, the tight supply and demand balance, and high prices. But for data center growth, both actual and forecast, the PJM capacity market would not have seen the same tight supply demand conditions, the same high prices observed in the 2025/2026 BRA and the 2026/2027 BRA, and the currently expected tight supply conditions and high prices for subsequent capacity auctions. The base residual auction, or BRA, is the primary PJM capacity market auction. There is a BRA for each delivery year, which run from June 1 through May 31 of the following year. The latest BRA was for the 2026/2027 delivery year.

Holding aside all the other issues associated with the 2026/2027 BRA, existing and forecast data center load by itself resulted in an increase in the 2026/2027 BRA revenues. Based on actual auction clearing prices and quantities and uplift MW, total RPM market revenues for the 2026/2027 RPM Base Residual Auction were $16,124,370,889. Inclusion of 11,993 MW of existing and forecast data center load in the peak load forecast for 2026 resulted in a $7,271,197,971 or an 82.1 percent increase in capacity market revenues for the 2026/2027 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction with a peak load forecast that did not include load from existing and planned data centers.

The combined total increase in capacity market revenues for the 2025/2026 BRA and the 2026/2027 BRA was $16,603,301,829. This total impact will continue to grow until the issues associated with the additions of large data center loads are addressed.[3] The impact will increase significantly in the 2028/2029 BRA currently scheduled for June 2026, when the current maximum price is no longer in effect.

It is misleading to assert that the capacity market results are simply just a reflection of supply and demand. The current conditions are not the result of organic load growth. The current conditions in the capacity market are almost entirely the result of large load additions from data centers, both actual historical and forecast. The growth in data center load and the expected future growth in data center load are unique and unprecedented and uncertain and require a different approach than simply asserting that it is just supply and demand. The extreme uncertainty in the load forecasts based on uncertainty about the addition of large data center loads is also unique and unprecedented and raises questions about the meaning of clearing a capacity auction based on those forecasts.

I support the goal of HB1834 to authorize the Pennsylvania Public Utility Commission (PUC) to establish a regulatory framework for data centers operating in Pennsylvania. The inclusion of requirements to help ensure that planned data centers will actually be

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[3] Inclusion of existing and forecast data center load (embedded and above embedded) increased the 2025/2026 BRA revenues by $9,332,103,858 (Scenario 88). *See*, "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2025_2026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025).

constructed and not impose costs on customers is consistent with the broader market recommendations of the MMU. The specific requirements for financial security, contributions in aid of construction, minimum contract terms, load ramping schedules, early termination fees, cost tracking, provisions for curtailment, and end of contract provisions all contribute to increased certainty and to limit some of the impacts on other customers and the broader PJM markets. Increased transparency and certainty about expected data center loads will help PJM markets function more efficiently. The states in PJM and the state public utility commissions specifically have an important role to play with respect to data center loads and the impact of data center loads on the PJM wholesale power markets.

The market solution is to require new large data center loads to bring their own new generation with locational and temporal characteristics matched to their load profile. The generation must be able to serve the actual hourly load of the data centers without transmission constraints. The generation must be deliverable to the system and deliverable to the new load. The generation must match the energy requirements of the data centers for all hours of the year. The added capacity would equal the load plus the required reserve margin. In the absence of that requirement, some or all of the costs of serving the new large data center loads would be imposed on other customers.

Under the MMU's recommendation, PJM would establish an expedited interconnection process for the new generation and for the new load. Both would be added to the system at the same time in order to minimize the impacts on other customers. The large new data center loads and their new generation would be studied and interconnected as quickly as possible. This requires cooperation and coordination among PJM, transmission owners, electric distribution companies (EDCs) and state regulatory authorities.

My comments about HB1834 are based on my role as market monitor for PJM and impacts on PJM markets.

HB1834 defines a commercial data center as having a peak demand of 25 megawatts or greater. Based on what I have learned about data centers as part of our analyses for the PJM markets, data centers can be significantly smaller than 25 MW.

HB1834 includes a requirement that: "A public utility that enters into a contract for electric service with a commercial data center on or after the effective date of this section shall ensure that not less than 25% of the electricity supplied under the contract is generated from renewable energy sources."

The MMU recommends that the new generation brought by large new data centers must match the energy requirements of the data centers for all hours of the year. In 2024, 7.7 percent of total generation in PJM was from renewable resources including hydro, wind and solar. If a data center relied on the wholesale power market for energy in 2024, it would have been supplied by renewable sources for approximately 7.7 percent of its load. In the first six months of 2025, 9.4 percent of total generation in PJM was from renewable

resources including hydro, wind and solar. The output of renewable resources is unlikely to match the energy demands from data centers.

There are provisions of HB1834 specifically about the interaction between data centers and the PJM wholesale power markets. Specifically, HB1834 directs the Pennsylvania Public Utility Commission to review each data center contract to determine: the impact on the PJM grid; the effect on the reliability of the grid; and the impact on ratepayers. From my perspective as the market monitor for PJM, these provisions recognize the fact that decisions by the commission with regard to data centers have an impact on the PJM wholesale power markets and that the commission can identify and address those impacts.

The Pennsylvania Public Utility Commission by itself cannot fully address the impacts of the addition of large new data center loads on the PJM wholesale capacity and energy markets. It is my view that the provisions of HB1384 would provide the Pennsylvania Public Utility Commission with the specific authority to make an important contribution to understanding and limiting the impacts of large new data center loads on other customers in Pennsylvania and in PJM and on the efficient operation of the PJM markets.

Before the PA House Energy Committee on HB No. 1834

Testimony of Darryl Lawrence on behalf of the Pennsylvania Office of Consumer Advocate

October 22, 2025

I. Introduction

Good afternoon Madam Chair Fiedler, Mr. Republican Chair Causer, and Committee Members. I am Darryl Lawrence, Consumer Advocate, of the Office of Consumer Advocate (OCA). I thank the Chair and the Committee members for holding these hearings on commercial data centers and providing the OCA the opportunity to engage in these important policy discussions.

The introduction of large-scale data centers in Pennsylvania presents opportunities and challenges. If introduced and implemented in a thoughtful and considered manner, the economic benefits for Pennsylvania could be substantial. Conversely, without sufficient safeguards for ratepayers, data centers could create substantial upward pressure on electric rates in this Commonwealth. Such an outcome would be untenable, as Pennsylvania ratepayers are already seeing increased electric rates due to many factors, including a substantial reduction in the available generating capacity as compared to the forecasted load increases. Together, and working with all other stakeholders, I believe these challenges can be met. With that, the OCA offers the following on HB1834.

The OCA supports House Bill No. 1834 (HB 1834), and I raise some critical issues for this Committee's further consideration, as further detailed in the OCA's proposed revisions to HB 1834 attached to my testimony as Appendix A. The OCA's focus today is mainly to protect the interests of residential consumers as well as existing commercial and industrial customers in receiving reliable, reasonable, and affordable electric utility service.[1]

II. Summary of OCA's Position

The importance of large data centers on the economy, the reliability of the electric system, and the affordability of electricity rates cannot be overstated.[2] Reliable, reasonable, and affordable

[1] As background, the Consumer Advocate has the statutory authority and discretion to represent the interests of Pennsylvania utility consumers before the Public Utility Commission (PUC), federal regulatory agencies, like FERC, NERC, and RTOs, and state and federal courts. However, where there are issues that affect classes of utility consumers differently, the OCA follows the long-standing tradition of representing the interests of residential customers. This is because large non-residential customers, like commercial data centers, are sophisticated, well-funded, and often elect to have their interests represented in the manner of their choosing.

[2] In Pennsylvania, $110 billion of investment in artificial intelligence and data centers have been announced, consisting of $20 billion announced by Governor Shapiro and an additional $90 billion announced during the inaugural Pennsylvania Energy and Innovation Summit in July. See, https://www.reedsmith.com/en/perspectives/2025/08/the-data-center-surge-in-pennsylvania-legislative-initiatives (last visited October 20, 2025).

electricity utility service is fundamental to public health and safety and foundational to economic growth and development in the Commonwealth.[3] However, Pennsylvania utility consumers are facing the risk of having to pay more for less reliable electric utility service in the near future due to projected shortfalls in electric supply.

To provide context for my testimony, there are three key assumptions I wish to bring forward, as further supported by Appendix B attached to my testimony:

1. First, there are predictions of explosive growth in demand in the PJM region caused by data centers and artificial intelligence (AI). Specifically, PJM predicts that by 2030, 30 out of 32 GW of forecasted new load in the region is attributable to data centers and AI. If forecasted data center loads are realized, the volume of demand that PPL's utility system serves is expected to triple in size over the next ten years.[4,5]

2. Second, data center demand is outstripping existing and forecasted supply. Without intervening solutions at the regional and state levels, one predictable outcome – and an outcome that PJM has expressed concern over – is that PJM will be forced to call mandatory curtailments, meaning blackouts, for Pennsylvanians and other consumers within region.[6]

3. Third, Pennsylvania utility consumers' electric bills could increase as a result of this supply inadequacy problem. All components of a consumer's electric bill – generation, capacity, transmission, and distribution – could be affected.

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[3] The construction and operation of data centers in Pennsylvania can support economic growth by increasing employment and providing additional tax revenue to localities and the State. Economic growth, however, also depends on reliable, reasonable, and affordable electricity for all ratepayers to support consumer spending and existing businesses. Such service is also fundamental to public safety, health, and fairness. The OCA supports legislation such as HB No. 1834 and appropriate regulation by the Pennsylvania Public Utility Commission, to balance the economic development of data centers with the provision of reliable and affordable electricity for Pennsylvanians.

[4] PPL, one of the State's major electric utilities, has stated that in its service territory alone, its data center load could grow from 800 megawatts in 2026 to over 14,000 megawatts in 2034. See, https://www.utilitydive.com/news/ppl-electric-data-center-pennsylvania-pjm/756548/

[5] In 2024 PPL's peak load was approximately 7,300 megawatts. See, https://www.pplelectric.com/-/media/PPLElectric/At-Your-Service/Docs/General-Supplier-Reference-Information/2025/2024-PJM--PPL-Zone-Peak-Load-Dates-for-20242025-PLC-Calculations.ashx

[6] The PJM Interconnection LLC (PJM), the largest Regional Transmission Organization (RTO), operates the multi-state electric grid that Pennsylvania is part of, and has forecasted that sufficient generation may likely not be available to meet the predicted increases in electricity demand, primarily driven by the establishment of new data centers. Due to this concern, PJM has initiated multiple efforts to bring electricity supply and demand back into balance over time. Even if these efforts are successful, due to the significant forecasted load growth in data centers, PJM is still concerned that it may have to instruct electric utilities to implement manual electric load shedding in emergency conditions, sometimes also referred to as rolling blackouts, in a controlled and hopefully limited manner to maintain the overall reliability of the grid.

At the PJM/federal level, stakeholders are working to address this supply inadequacy problem. However, without appropriate intervention, consumers within PJM, including Pennsylvania utility consumers, could experience blackouts due to a lack of additional generation resources being brought online in time to meet the new data center demand. A further potential exacerbation of this risk is the potential for data centers to show a different willingness to pay and to bilaterally contract for existing generation resources to power their needs, removing such existing resources from powering the needs of existing residences and businesses.

To avoid a reliability crisis and a rearranging of deck chairs, the Commonwealth can and should legislate to address the meaning of a utility's obligation to serve[7], recognizing that large loads are retail consumers and acknowledging both the broad state police powers of the Commonwealth over retail service as well as the limitation of states' powers under the Federal Power Act.

HB 1834, while as drafted is good, can go even further to protect Pennsylvania residents and businesses. It should be the primary goal of this legislation that Pennsylvania residents and businesses will not experience blackouts because of PJM-directed mandatory curtailments due to this accelerated, explosive growth in data center demand. The OCA recommends two critical backstops be added to HB 1834 to: (1) ensure the continued provision of reliable electric utility service for existing consumers; and (2) marry state authority with existing PJM operations and administrative constructs as well as with any potential changes adopted at the PJM level to address the resource adequacy problem.

It should also be goals of this legislation to mitigate price increases and environmental impacts for the benefit of Pennsylvanians. The OCA proposes recommendations to help accomplish these goals as well.

HB 1834 and other efforts are necessary to ensure that the state is exercising its authority to achieve these goals. The OCA is willing to stay engaged in these discussions to achieve these goals as well as to stay engaged in the solutions being explored at the PJM level.

I will now turn to my specific discussion within the existing framework of HB 1834.

[7] Retail consumers in Pennsylvania benefit from the Commonwealth's restructuring and its utilities being a part of the PJM regional energy, capacity, and ancillary markets and PJM's regional transmission planning. We understand that this Committee is being asked to consider allowing utilities to re-enter the generation business for the sake of reliable service. However, such steps are drastic and could produce unintended consequences. The OCA's testimony today is focused on targeted legislation to protect existing electricity consumer's access to reliable, reasonable, and affordable electricity service.

III. Support for Existing Provisions of HB 1834

The OCA is broadly supportive of HB 1834 and believes it reflects many of the proposals that the OCA addressed in its comments submitted in the PUC's large load model tariff proceeding at Docket No. M-2025-3054271.

The OCA supports the size threshold of 25 MW or greater and the other language in this definition. The OCA recommends additional language to the definition to prevent the splitting of large load customers into smaller units that do not trigger the definition. The definition should aggregate multiple facilities of an entity that individually may be below the size threshold and multiple interconnection and metering points to avoid circumventing the size threshold.[8]

The OCA supports HB 1834's recognition of the importance of having PUC regulations to protect electricity consumers from paying to recover potential stranded costs and supports the key provisions in Sections 3(a), (b) and Section 4. These provisions require:

- security deposits,
- contributions in aid of construction for distribution system upgrades and direct assignments for transmission infrastructure,
- minimum contract terms,
- load ramping schedules,
- exit and early termination fees,
- measures to prevent circumvention of the data center size,
- utility tracking of all costs,
- end of contract notification, and
- requiring contracts between utilities and data centers to be filed with the Commission.

These requirements are necessary to mitigate potential price increases. While the PUC has opened a docket to address these issues in utility tariffs, we believe this legislation is required because it mandates the PUC to act by regulation. The OCA strongly encourages that regulations be promulgated on this topic for the purpose of regulatory certainty. We also offer some structural and substantive revisions to strengthen these important consumer protection provisions of this bill.

[8] Data center networking technologies allow multiple data centers to act in concert with one another (virtually). NVIDIA, and AI company, has a new technology, named Spectrum-X, that enables such a high bandwidth set of network connections between data centers that it is as if data centers that are spatially separated can act as if they are part of the same data center complex (mobile data centers).

The OCA also supports HB 1834's Section 5, which augments the LIHEAP[9] Enhancement Fund, including a summer cooling component, with funding support from data centers. While the OCA supports the existing Section 5, the OCA could also support increasing the contributions to the LIHEAP Enhancement Fund. To the extent data center demand will cause energy costs to rise, all consumers are going to experience higher electricity prices, and low-income customers will be disproportionately impacted by a higher energy burden (i.e., a household's gross income spent on energy costs).

IV. Critical Issues that HB 1834 Should Address through Revisions to the Bill

While the OCA broadly supports HB 1834, the OCA wishes to raise three priority topics that HB 1834 should address. They are (1) protecting reliable electric service for existing Pennsylvania residents and businesses; (2) mitigating price increases for utility consumers; and (3) protecting the Commonwealth's natural resources.[10]

A. Continuation of Reliable Electric Service to Existing Consumers

Two talking points are shaping the narrative in these important policy discussions that I will address. The first is that Pennsylvania is a net exporter of generation supply. This talking point, while true, creates the impression that Pennsylvania can handle the data center demand and even avoid the severe consequences of a regional supply shortage, consequences meaning rolling blackouts. The truth is, being a net exporter will not help Pennsylvania consumers when mandatory curtailments are called by PJM. In emergency conditions, meaning where on a regional basis there is insufficient generation supply to meet the region's electricity demand, PJM's obligation and primary concern is to address the regional needs of the grid. That means, based on its current operating procedures, PJM will allocate load shedding amounts to Pennsylvania electric utilities, even if those utilities' zones are net exporting zones. In other words, PJM will not simply redirect the local generation surplus to meet the local needs of Pennsylvania electricity consumers within that zone.[11]

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[9] Low Income Home Energy Assistance Program, https://www.pa.gov/services/dhs/apply-for-the-low-income-home-energy-assistance-program-liheap (last visited October 17, 2025).

[10] The OCA must advocate for a state policy for commercial data centers that conserves and maintains Pennsylvania's public natural resources for utility consumers. As a state agency, the OCA carries trustee obligations under the Pennsylvania Constitution, Article 1, Section 27, to consider the effects of its advocacy on Pennsylvania's public natural resources.

[11] This is because what matters within PJM is how a particular zone is performing during a real-time emergency relative to how that zone cleared in the capacity market. In a regionally managed grid, selling electricity across state lines is utilized to ensure resource adequacy in tight/emergency conditions for neighboring states and the region. When bids have been accepted in the capacity market for a generation resource within a zone, that generation resource is committed to being transmitted to the supply deficient zone. Accordingly, in emergency conditions, PJM will allocate load shedding amounts to the exporting zone. PJM notes that "a zone may have more generation than load and still be short." See, https://www.pjm.com/-/media/DotCom/committees-groups/cifp-lla/2025/20250902/20250902-item-03---large-load-additions-pre-cifp-education---pjm-presentation.pdf (last accessed October 9, 2025).

The second talking point is that utilities have an "obligation to serve" and that many of the risks and concerns that Pennsylvania is facing must be solved by PJM or at the federal level. While it is true that utilities have an obligation to serve under the Public Utility Code, that obligation is neither absolute nor at any cost. While it is also true that Pennsylvania is a restructured state and that the Federal Power Act (FPA) provides a bright line division between state and federal jurisdiction, the states nevertheless have broad authority under the FPA to protect retail customers to avoid emergency conditions and during emergency conditions. Indeed, data centers connect to a utility's distribution system[12] as new retail customers and are subject to state jurisdiction in doing so. The distribution utility's "obligation to serve" applies not only to new electricity retail customers but to existing ones as well. For existing retail customers, the utility is statutorily mandated to provide facilities and service that are adequate, reasonable, reasonably continuous, and without unreasonable interruptions or delay.[13]

Again, a reliable and affordable electricity sector is necessary for the State's economic growth and to protect the public's safety and health. Adding large loads to the Pennsylvania electricity system that would lead to power curtailments and unaffordable prices is counterproductive to this end.

The OCA proposes revisions to HB 1834 to address this issue in the form of two essential backstops: (1) regulate the conditions of new data center interconnections to utility distribution systems, and (2) set clear electricity curtailment priorities to protect existing consumers. These backstops would marry state authority with existing PJM operations and administrative constructs as well as with any potential changes adopted at the PJM level to address the resource adequacy problem caused by the projected, significant load increase due to data centers.

1. Recommended Backstop #1: Regulate the Conditions of New Data Center Interconnections to Utility Distribution Systems

The OCA recommends that HB No. 1834, Section 3(b) be modified to provide the PUC with the explicit authority to define conditions under which a data center as new load is permitted to interconnect to the electric distribution system. This would put the electric distribution companies (or "EDCs") in a role akin to a "traffic cop" to enforce the speed or pace at which this new retail load can be interconnected to utility systems to ensure the protection of the public utility's continued provision of reliable electric service to existing customers.

More specifically, for new interconnections of data centers and for incremental additions of load associated with an interconnected data center, if there is a supply shortage as determined

[12] This is true even if the load size of the data center can enable a connection to the transmission system at 69 kV or higher, as distribution system facilities, like substations/breakers and radial tie lines, are necessary to "step down" the power from the transmission system to the retail data center.

[13] 66 Pa. C.S. § 1501.

by PJM consistent with widely understood resource adequacy criterion, conditions shall be imposed by PUC regulation and the EDC tariff as follows:

(i) To require a commercial data center to take electric distribution service on an interruptible basis under an interruptible rate established in a public utility's tariff (permitting EDC curtailment as pre-emergency action) unless and until the RTO determines that a Regional Supply Shortage does not exist, or where a Regional Supply Shortage was forecasted by the RTO that the RTO determines it ceases to exist, at which point the commercial data center may be permitted to take firm electric distribution service under a firm rate established in a public utility's tariff;

(ii) To permit a commercial data center to take firm electric distribution service on the condition that the commercial data center has procured additional generation that is (A) constructed and operable prior to or upon initial delivery of power to the data center, (B) co-located or located electrically near the commercial data center site; (C) meets or exceeds the fully anticipated load of the commercial data center plus its associated RTO reserve margin; and (D) provides this capacity on an ongoing basis to the RTO market in which the EDC is a member in tandem with data center operations;

(iii) To permit a commercial data center to take firm electric distribution service on the condition that, to meet or exceed the fully anticipated load of the commercial data center plus its associated RTO reserve margin, the commercial data center certifies its direct participation in an RTO voluntary curtailment program in which its load will be curtailed as a pre-emergency condition step and/or procurement of additional demand response resources in an RTO voluntary curtailment program in which the procured load will be curtailed as a pre-emergency condition;

(iv) any combination of (i)-(iii) above.[14]

[14] Under Section 207 of the Federal Power Act, 16 U.S.C. Section 824f, FERC regulates the adequacy and sufficiency of public utilities subject to its jurisdiction, leaving regulation of the adequacy and siting of generation resources to the state. As a result, the Federal Power Act does not preempt Pennsylvania's regulation of generation resources and, under Section 2804 of the Public Utility Code, it is the PUC's obligation to ensure that electric service remains reliable in Pennsylvania. However, neither Pennsylvania nor the PUC can "tether" a state initiative to a generator's wholesale market participation. *Hughes v. Talen Energy Mktg., LLC*, 578 U.S. 150, 166 (2016). In this context, "tethering" refers to the initiation of a state program within the confines of the wholesale market structured by PJM which invalidates FERC's authority by setting an interstate wholesale rate. As a result, with respect to generation, so long as Pennsylvania regulation of generation does not set a wholesale rate – even if it incentivizes wholesale market participation through non-rate-related programs – then it is likely not preempted by the Federal Power Act for the purposes of field preemption. It is unlikely that incentivizing data centers to "bring their own generation" by adding new co-located load to the wholesale market touches federal regulation because the regulated party, the data center, is not or does not have to be a wholesale market participant as a generator; rather, they must ensure that sufficient generation is added to the grid with which the data center is co-located.

Data centers are sophisticated end users that are exploring their own behind-the-meter and front-of-meter power supply.[15] Data centers want to receive firm service. However, unless and until the region is not in a reliability crisis caused by the data center demand, the state has the authority and should use that authority to define the utility's "obligation to serve" relative to the reliability obligations the utility owes existing customers under statute.

2. Recommended Backstop #2: Utility Curtailment Priorities During Emergency Conditions

Data centers receiving power while neighborhoods and businesses are blacked out should not be an acceptable outcome. Data centers are sophisticated, well-funded, and can therefore secure their own behind-the-meter power supply to operate during emergency conditions. The OCA applauds this bill for recognizing this by requiring the PUC to promulgate regulations addressing curtailment of some or all of commercial data center's load during emergency conditions. However, this bill must go even further to protect existing consumers from blackouts caused by data center demand exceeding available supply.

If PJM calls an emergency manual load shedding event pursuant to PJM's Manual 13, after PJM allocates manual load shedding amounts to the EDCs, the EDCs must comply with that mandate; however, *how* the EDCs comply for non-critical retail load falls under state jurisdiction.

Further, if Pennsylvania's regulation creates an obstacle, or conflict, to the achievement of federal objectives, then it is preempted under conflict preemption. While, on its face, requiring data centers seeking firm service to offer wholesale market products, including voluntary curtailment and demand response, seems to "tether" receiving firm service to wholesale market participation, that is not the case. Rather, this is merely an incentive to participate, not a requirement, and is an incentive in the direction supported by the Federal Power Act by ensuring that service remains reliable and Section 1253 of the Energy Policy Act of 2005 which encourages the development of demand response programs. States may prohibit participation in demand response programs because "[w]holesale demand response as implemented [by FERC] is a program of cooperative federalism, in which the States retain the last word." *FERC v. Elec. Power Supply Ass'n*, 577 U.S. 260, 287-88 (2016); FERC Order 745, 76 FR 16658, ¶ 114.

Despite the element of wholesale market participation included in the pre-conditions to firm service, that element is in service of – and not an obstacle to – federal legislative objectives regarding electric reliability and incenting demand response. In the recent *Dayton Power & Light* case, the Sixth Circuit upheld an Ohio statute requiring intrastate transmission utilities to join an RTO as not preempted – expressly or impliedly – by federal law despite the fact that FERC regulates RTOs and interstate transmission and the state statute indirectly affects FERC's jurisdiction because the state statute furthered the federal objective of RTO membership. *Dayton Power & Light Co. v. FERC*, 126 F.4th 1107, 1129-31 (6th Cir. 2025). Offering firm service to data center retail customers on the condition that the customer engage in certain behaviors is an incentive consistent with federal objectives, even if there is an incidental effect on the markets for generation, demand response, or voluntary curtailment products.

[15] Behind-the-meter (BTM) means large loads receive their energy directly from co-located generation without the use of transmission grid or the LSE/local utility distribution system, like back-up diesel generator supply. Front-of-meter (FOM) means the large loads are directly integrated into the distribution system and visible to the load serving entity (LSE) utility and/or RTO in the operational environment. *See* NERC White Paper, pp. 19-20.*See* NERC's Large Loads Task Force White Paper, "Characteristics and Risks of Emerging Large Loads" (July 2025), pp. 19-20, available at https://www.nerc.com/comm/RSTCReviewItems/3_Doc_White%20Paper%20Characteristics%20and%20Risks%20of%20Emerging%20Large%20Loads.pdf (last visited October 3, 2025) (NERC White Paper).

States *have the say* over which non-critical retail load gets curtailed first and/or the use of rotating curtailments.[16]

Currently the hierarchy of load shedding priorities is solely between critical and non-critical load, where critical load is protected over non-critical load. However, a new hierarchy tier must be established by state legislation to protect residences and businesses over data centers after critical load is protected. If large loads are outstripping available generation supply and causing emergency load shedding conditions, it is fair that non-critical data centers get curtailed and remain curtailed *before and to the extent of preventing* curtailments of non-critical residential, commercial, and industrial customers.

Legislation should require the PUC to promulgate regulations so that EDCs can isolate and curtail data centers without affecting service to designated critical retail loads and existing residential, commercial, and industrial customers. After curtailments of data centers, if additional curtailments are necessary, rotating curtailments among industrial, commercial, and residential customers during emergency conditions would be fair.

To the extent a certain amount of commercial data center load provides support to critical energy infrastructure or serves other national security needs, that specific load should be identified, designated as critical retail load, and separated for the purposes of curtailments from the remaining commercial data centers. At this juncture, we should explore the capability of a data center operator to identify critical and non-critical demand for this planning.

B. Mitigation of Price Increases for Utility Consumers

As stated above, consumer electric bills could increase due to data center demand. The OCA's experts estimate that, absent mitigation, all Pennsylvania customers could pay $3.8 to $4.8 billion more for electricity in the next one to three years, increasing annual residential bills by $215 to $350 per year.[17] Attached as Appendix C to my testimony is a description of the OCA's development of these cost increase estimates.

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[16] The EDCs are required by the PUC's existing regulation to have plans for controlling load shedding priorities in emergency situations. 52 Pa. Code § 57.72. However, given that this data center demand problem in the PJM region was not foreseen up until a couple years ago and further given that even NERC is expected to put out a reliability gap analysis white paper in the fourth quarter of 2025, the PUC's and EDC's load shedding priorities and plans over non-critical retail load were developed prior to this new supply and demand problem caused by data centers.

[17] Large loads increase capacity and energy prices in the electricity wholesale markets and increase transmission and distribution costs as utilities must build more infrastructure. Forecasting actual electricity price increases due to large loads is challenging because the actual size and timing of new large loads and the size and timing of new generation that can be built to serve these large loads is highly uncertain. The wholesale market's price for capacity has dramatically increased due to large loads in the last two years and Pennsylvanian electricity consumers pay 20% of that cost increase. New large loads are also causing wholesale energy prices to increase as more load is added to the system than new generation. The third category of cost increases is transmission and distribution. Further cost

A talking point around increased bills is that states have the authority to allocate transmission charges to retail consumers. This talking point addresses the likely risk that transmission system upgrades may comprise a significant portion of the costs for providing service to data centers. However, once transmission costs are deemed as integrated to the transmission provider's transmission system as network upgrades, they are recoverable through FERC formula rates and the states' jurisdiction in allocating transmission costs is very limited and the PUC likely has no jurisdiction to allocate transmission costs to commercial data centers.[18]

The OCA offers three additional price mitigation measures for this Committee's consideration in addition to the important protections already contained in this bill.

First, for transmission facilities intended to serve a commercial data center, this legislation should require public utilities to file with the PUC a construction service agreement or like agreement for high voltage (69 kV and above)[19], end use service that will evidence proper treatment of direct assignment costs to the commercial data center as the retail customer[20] and

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increases are likely as more large loads are connected to the grid. The OCA's estimate is based upon reported increases in capacity costs by PJM, statistical analyses of the PJM energy supply costs, and public reports on transmission cost increases. The OCA may revise its estimates as new information becomes available.

[18] Transmission rates are set at four steps: (1) the first step is to determine if the new construction consists of network transmission upgrades that benefit all customers or the system as a whole to be paid for in transmission network rates, or if the new construction relates to direct connection facilities to be directly assigned to the large load; (2) the second step is the use of FERC formula rates to determine transmission owners' revenue requirement inclusive of investments in network transmission upgrades benefiting all customers or the system; (3) the third step is cost allocation to determine each load serving entity's (LSE's) contribution to the Network Service Peak Load (NSPL) based on a variety on inputs to determine the zonal transmission rate (or Network Integration Transmission Service (NITS) rate) that the LSE must pay to PJM; and (4) the fourth step is the LSE's allocation of NITS to retail customers through retail transmission charges. The state only has jurisdiction over the fourth step, while FERC has jurisdiction over the first three steps. However, by the time we get to the fourth step, in Pennsylvania, the PUC only has jurisdiction over the default service supplier's (i.e., the electric public utility's) transmission service charges to default service customers (mostly residential and small commercial customers). The PUC has no jurisdiction to regulate the allocation of transmission charges between the private electric supply contract between an electric generation supplier (EGS) and a retail consumer. *See Petition of PPL Electric Utilities Corporation for Approval of Its Default Service Plan For the Period June 1, 2021 Through May 31, 2025*, Docket No. P-2020-3019356 (Opinion and Order entered December 17, 2020); *see also National Railroad Passenger Corporation v. PPL Electric Utilities Corporation and PJM Interconnection, LLC*, FERC Docket No. EL18-78-000, 171 FERC ¶ 61,237 (2020) (subject to reh'g.) (*2020 Amtrak Order*); *see also National Railroad Passenger Corporation v. PPL Electric Utilities Corporation and PJM Interconnection, L.L.C.*, 173 FERC ¶ 61,043 (October 25, 2020) (*2020 Amtrak Order on Rehearing*). Given that commercial data centers likely will not receive default service from the electric utility, the PUC cannot allocate transmission costs to commercial data centers.

[19] Additionally, the PUC has authority to approve public utility applications to site and construct high voltage transmission lines greater than 100 kV 66 Pa.C.S. §§ 1501, 501; 52 Pa. Code §§ 57.71-57.77.

[20] *See e.g*. FERC Docket No. ER25-192, *Dayton Power & Light*, Order Accepting Construction Service Agreement, 189 FERC ¶ 61,220 at P. 2, 10 (Dec. 20, 2024) (citing *Mansfield Mun. Elec. Dep't v. New England Power Co*., 97 FERC ¶ 61,134 (2001), *reh'g denied*, 98 FERC ¶ 61,115 (2002); *Ne. Tex. Elec. Coop., Inc*., 108 FERC ¶ 61,084, at P 48 (2004), *reh'g denied*, 111 FERC ¶ 61,189 (2005)) (accepting the public utility's assertion that the transmission facilities do not satisfy any of the five criteria under FERC's Mansfield test to be considered as integrated into the

enable the PUC's review that the public utility is entering into commercial agreements that contain commercial terms and conditions contemplated by this legislation as consumer protections. FirstEnergy identified a similar approach in its comments filed in the PUC large loads docket;[21] there is recent precedent for FERC accepting an Ohio public utility's representation that the construction service agreement was for high voltage service to a retail customer. FERC accepted the agreement for filing and made certain rulings only to the extent of the FERC-jurisdictional service, rates and practices that were described in the agreement.[22] The OCA's revisions in Sections 3(b) and 7 address this issue.

Next, price increases could be mitigated through legislative incentives for data centers to bilaterally contract for new generation units that are new or additional to the grid, simultaneously operable with the data center, and co-located with the data center campus or electrically near the campus (i.e., be "local" to the campus). This could minimize the need for costly supplemental transmission projects or transmission network upgrades that are part of the regional plan. The OCA's proposed revisions in Section 3(b) address the development of generation to be co-located at commercial data center campuses.

Finally, the OCA supports the notion that universal service program costs[23] can and should be recovered from commercial data centers, especially given that the unanticipated, significant large increase in load due to data centers will likely cause energy/capacity price increases. Data centers contributing to the recovery of these costs will potentially mitigate price increases for residential customers. We propose edits in Section 4 to achieve this end.

C. Protection of the Commonwealth's Public Natural Resources

The OCA is concerned with the consequences to Pennsylvania's natural resources, including air quality, if emergency conditions in PJM were to regularly occur and if data centers were to run diesel generators during emergency conditions.[24]

Regarding solutions, while the OCA will not comment on air permitting requirements as the OCA does not practice before the Pennsylvania Department of Environment Protection, we will note that encouraging the siting of data center campuses and new generation units in the Marcellus Shale region (through tax incentives or other measures) could aid in this regard as well

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transmission provider's transmission system now or in the future and thus are properly treated as direct assignment rather than rolled-in for FERC formula ratemaking purposes).

[21] Available at https://www.puc.pa.gov/pcdocs/1882403.pdf (last visited October 14, 2025), pp. 23-25.

[22] *See* n. 20.

[23] Public utilities must develop and implement Universal Service and Energy Conservation programs consistent with the requirements for those programs in 66 Pa. C.S. §§ 2804 (8) and (9) and 2203 (6)-(10).

[24] *See* n. 10, *supra*. For example, Amazon Data Services recently applied for, and received, Air Pollution Control Act State-only permits for 76 diesel generators at a data center campus in Bucks County: https://www.ahs.dep.pa.gov/eFACTSWeb/searchResults_singleAuth.aspx?AuthID=1526061 (last visited October 20, 2025). Seventy-two of these generators have a generating capacity of approximately 2.5 MW for approximately 180 MW of onsite backup generation. 55 Pa. B. 4078 (June 14, 2025).

as in price mitigation. Natural gas is an abundant resource in the Commonwealth and is significantly better than other fossil fuels for the air, producing fewer greenhouse gases. Natural gas baseload generation can be developed and fueled by natural gas supplies available in Pennsylvania's Marcellus Shale. Additionally, shortening the distance for the natural gas to be transported from source to consumption site (generation site) improves efficiency by reducing the energy needed for compression and decreasing the amount of lost and unaccounted for gas along the way.

D. Other Revisions

Finally, the OCA's mark-up of HB 1834 addresses other issues that are not covered in my testimony due to time; however, the OCA has provided supporting commentary to explain the reasons for its proposed revisions.

V. Answers to Panel Questions

Q: In the absence of action by the general assembly or the PUC, given expected data center growth, how much higher are electricity bills likely to rise for typical ratepayers in the Commonwealth? Can you give us an estimate?

A: See Appendix C in the OCA's written testimony.

The PA Governor's energy advisor, Jacob Finkel, at the PJM CIFP Large Load meeting made clear that Governor Shapiro does not want other retail customers paying for data centers and cited an NRDC electricity cost increase figure of $163 billion over the next 8 years through 2023.[25]

Note that high electricity bills and rolling blackouts are a recipe for an economic slowdown. When evaluating the economic impact of data centers, affordability and reliability must also be considered.

According to one academic study, a 10% increase in energy prices dampened economic growth by about 0.15%.[26]

Lawrence Berkeley National Laboratory reviewed the economic costs of power outages and found, not surprisingly, "Power system outages result in significant economic costs."[27]

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[25] Available at https://www.nrdc.org/bio/tom-rutigliano/building-data-centers-without-breaking-pjm (last visited October 15, 2025).

[26] Huntington, Hillard, and Brantley Liddle. "How energy prices shape OECD economic growth: Panel evidence from multiple decades." Energy Economics 111 (2022): 106082, available at https://mpra.ub.unimuenchen.de/113040/1/MPRA_paper_113040.pdf (last visited October 15, 2025).

[27] LBNL, Shedding light on the economic costs of long-duration power outages: A review of resilience assessment methods and strategies, May 2023, available at https://eta-publications.lbl.gov/sites/default/files/erss_manuscript_preprint_0.pdf (last visited October 15, 2025).

Q: How effective would HB1834 be at protecting ratepayers from increased costs due to datacenter growth?

A: HB1834 including the revisions proposed by the OCA would be effective in mitigating the cost increases due to data center growth by providing new data centers with strong incentives to provide sufficient generation and reserve margins and demand response to offset their impact on wholesale electricity prices and to locate data centers that minimize the need for new transmission.

Q: What kind of costs are typically passed onto customers due to data center construction? Do the EDCs currently do anything to protect their customers from large-load users like data centers?

A: Data centers are supposed to pay for their direct interconnection costs to the distribution system. EDCs are required to assign and recover those costs from the data centers. As more data centers are interconnected, the transmission system will need to be expanded to serve them. Having data centers in PA located near natural gas fields helps reduce the additional transmission that needs to get built. A large load tariff and the provisions in HB 1834 buttress protections for ratepayers that ensure data centers pay for their interconnection costs and minimize the costs other ratepayers have to pay.

Q: How many electricity shutdowns due to nonpayment were there in 2024 or 2025 in PA? Is that number increasing over time? Flat? Decreasing? If electricity bills were to increase substantially (20%, 40%, 60%, etc.) how many more people in PA would be forced to go without electricity?

A: "In the meantime, Elizabeth Marx, of the Pennsylvania Utility Law Project, says that rising energy prices have led to more Pennsylvania utility customers facing shutoffs. In 2024, according to testimony she provided the legislature, 352,533 Pennsylvania households experienced involuntary gas or electric shutoffs, a 15% increase over 2023, according to the Pennsylvania Utility Law Project."[28]

Q: HB1834 would create a LIHEAP enhancement fund to help protect low-income ratepayers. How effective will this be for protecting customers at risk of shutdowns or who need help paying their utility bills? What other methods or strategies should the General Assembly consider to protect ratepayers from rising electricity costs?

A: Clear statutory requirements regarding customer disconnections, notifications, third-party notification (e.g., family member at another household), protections related to

[28] Available at https://penncapital-star.com/government-politics/senate-moves-to-reinstate-utility-cutoff-protections-for-pennsylvanians-but-disputes-remain/#:~:text=In%202024%2C%20according%20to%20testimony%20she%20provided,that%20need%20to%20be%20made%2C"%20Marx%20said (last visited October 15, 2025).

healthcare requirements (e.g., health equipment requiring electricity), and sufficient funds to help low-income residents pay their utility bills.

VI. Conclusion

Thank you to the Committee for the opportunity to testify. Time is of the essence, especially with respect to electric service reliability; hence, we recommend the act taking effect sooner, if that is possible. The OCA looks forward to continuing to work with the Committee, the Legislature, the PUC, the utilities, PJM, and stakeholders on this critical topic. I am available to answer the Committee's questions.

Appendix A

OCA's Proposed Revisions to HB 1834

(Attachment to follow)

Date: October 20, 2025
Key: **OCA Additions/Modifications** and **OCA Comments**

PRINTER'S NO. 2257

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1834 Session of 2025

INTRODUCED BY MATZIE, INGLIS, DEASY, NEILSON, MULLINS, HADDOCK, DONAHUE, PROBST, HILL-EVANS, GIRAL, SANCHEZ, CURRY, D. WILLIAMS, DAVIDSON AND HOWARD, SEPTEMBER 2, 2025

REFERRED TO COMMITTEE ON ENERGY, SEPTEMBER 4, 2025

AN ACT

Providing for regulation of commercial data centers by the Pennsylvania Public Utility Commission, for recovery of costs, for contributions to the Low-Income Home Energy Assistance Program, for renewable energy requirements and for filing and enforcement; establishing the Data Center LIHEAP Enhancement Fund; and imposing duties on the Pennsylvania Public Utility Commission and the Department of Human Services.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Short title.

This act shall be known and may be cited as the Data Center Act.

Section [1A]. Findings and declaration of policy.

(a) Findings. – The General Assembly finds and declares as follows:

(1) PJM's 2025 long-term load forecast shows significant peak load growth of 32 GW from 2024 to 2030, of which, approximately 30 GW is projected to be from commercial data centers.

(2) In PJM's latest Reliability Pricing Model auction for Delivery Year 2026/2027, PJM committed nearly 100% of the supply that was offered to meet the projected needs of customers and updated load forecasts project even tighter conditions due to projected integration of large loads attributable to commercial data centers.

(3) PJM predicts that commercial data center load will outstrip forecasted supply through 2030.

(4) Absent regional and state intervention, Pennsylvania residents and businesses are at risk of paying higher prices for less reliable electricity utility services due to the supply shortage.

(b) Declaration of policy. – It is the policy of the Commonwealth that to the extent PJM experiences supply shortages due to large loads attributable to commercial data centers, that:

(1) the continuation of reliable electric utility service to existing consumers shall remain a priority and obligation of Electric Distribution Companies and the Public Utility Commission; and

(2) the mitigation of electricity price increases for all public utility consumers shall be considered through the enactment of reasonable measures.

Section 2. Definitions.

The following words and phrases when used in this act shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"Commercial data center." A facility, campus of facilities or array of interconnected facilities in this Commonwealth that

meets all of the following criteria:

(1) Is used by a business entity or other enterprise to operate, manage or maintain a computer, group of computers or other organized assembly of hardware and software for the primary purpose of processing, storing, retrieving or transmitting data.

(2) Has a peak demand of 25 megawatts or greater.

"Commission." The Pennsylvania Public Utility Commission.

(3) Is interconnected to a public utility at a single point of interconnection or multiple interconnection points or is interconnected to multiple public utilities within Pennsylvania as multiple interconnection points.

OCA Comment:

- **The OCA supports this definition and the size threshold of 25 MW or greater.**
- **The OCA recommends additional language to the definition to support the "array of interconnected facilities" language to prevent the splitting of large load customers into smaller units that do not trigger the definition. The definition should aggregate multiple facilities of an entity that individually may be below the size threshold and multiple interconnection and metering points to avoid circumventing the size threshold.**

"Critical load." The retail load identified by the public utility involving essential health and public safety facilities such as hospitals, police, fire facilities, 911 facilities, wastewater treatment facilities; Facilities providing electric service to facilities associated with Bulk Electric System

including off-site power to generating stations, substation light and power; Critical gas infrastructure used to supply gas pipeline pumping plants, processing and production facilities; and Telecommunication facilities.

OCA Comments:

- **The OCA recommends a definition for critical load if it will help further bring clarity to the existing provisions below in Section 3(b)(8) as well as to the OCA's recommended new Section 3(c) below, which we recommend adding in order to buttress the existing provision of Section 3(b)(8).**

"Electric Distribution Company" or "EDC." As defined in 66 Pa.C.S. § 2803 (relating to definitions).

"Fund." The Data Center LIHEAP Enhancement Fund established under section 5(a).

"Interruptible rate" shall mean a rate that is published in an EDC's tariff and approved by the Commission as just and reasonable that authorizes the EDC to curtail service to customers taking service under the rate in pre-emergency conditions during a Regional Supply Shortage in order to meet the EDC's obligation, as reasonably determined in the EDC's discretion, to provide firm electricity service to customers served under other tariff rate schedules.

"High voltage." Sixty-nine thousand (69,000) volts or higher.

"Low-Income Home Energy Assistance Program" or "LIHEAP." A federally funded program that provides financial assistance in the form of cash and crisis grants to low-income households for home energy bills and is administered by the Department of Human

Services.

"PJM." PJM Interconnection, L.L.C or its successor, a Regional Transmission Organization.

"Public utility." As defined in 66 Pa.C.S. § 102 (relating to definitions).

"Ratepayer." A retail customer of a public utility that purchases electric service for consumption.

"Regional Transmission Organization" or "RTO." An entity approved by the Federal Energy Regulatory Commission (FERC) to control and operate electric transmission facilities in interstate commerce and ensure non-discriminatory access to those facilities.

"Regional Supply Shortage." Supply reserves are less than the target supply reserves as determined by the RTO, consistent with the resource adequacy criterion of a loss of load expectation of 1 day in 10 years, or 0.1 days per year for the applicable region.

"Renewable energy." Solar, wind energy, biomass or hydroelectric power.

"Universal Service and Energy Conservation." As defined in 66 Pa. C.S. § 2803 (relating to definitions) (for electric) and 66 Pa. C.S. § 2202 (relating to definitions) (for natural gas).

Section 3. Duties of commission.

(a) Temporary regulations.--

(1) In order to facilitate the prompt implementation of this act, the commission shall promulgate temporary regulations no later than 90 days after the effective date of this subsection.

(2) Temporary regulations under this subsection shall

expire not later than two years after publication.

(3) The commission may promulgate temporary regulations that are not subject to:

(i) Section 612 of the act of April 9, 1929 (P.L.177, No.175), known as The Administrative Code of 1929.

(ii) Sections 201, 202, 203, 204 and 205 of the act of July 31, 1968 (P.L.769, No.240), referred to as the Commonwealth Documents Law.

(iii) Sections 204(b) and 301(10) of the act of October 15, 1980 (P.L.950, No.164), known as the Commonwealth Attorneys Act.

(iv) The act of June 25, 1982 (P.L.633, No.181), known as the Regulatory Review Act.

(4) The commission's authority to promulgate temporary regulations under this subsection shall expire two years after the effective date of this subsection. After the expiration of this authority, the commission shall promulgate final regulations in accordance with State law and subsection (b).

(5) The commission shall establish a process to give the Office of Consumer Advocate, the Office of Small Business Advocate, and the Commission's Bureau of Investigation & Enforcement access to all information that is available to the Commission during the process of promulgation of temporary regulations subject to appropriate confidentiality protective agreements and orders as to confidential information and confidential security information.

OCA Comment:

- **Given that the OCA has the statutory authority and duty to represent the interests of residential consumers in matters like these, we ask that this bill consider facilitating the OCA's access to necessary information to fully follow and understand the regulations and ensure utility compliance therewith.**

(b) Regulation requirements.--Regulations promulgated under subsection (a) shall include, at a minimum, provisions relating to all of the following:

(1) Commercial terms and conditions between commercial data centers and public utilities for high voltage, end use service, addressing the following:

~~(1)~~ **(i)** Deposits or financial security required from commercial data centers.

~~(2)~~ **(ii)** Calculations of contributions in aid of construction for ~~transmission and~~ distribution infrastructure~~.~~ **or direct assignment of costs for transmission infrastructure.**

~~(3)~~ **(iii)** Minimum contract terms between commercial data centers and public utilities **in the form of minimum load requirements during a defined length of time to ensure that in the event the commercial data center ceases operations prior to meeting the minimum contract terms the commercial data center must take a minimum level of service to generate expected revenues that will protect other customers**.

~~(4)~~ **(iv)** Load ramping schedules to ensure infrastructure adequacy.

~~(5)~~ **(v)** Exit or early termination fees.

~~(6)~~ **(vi)** Measures to prevent circumvention of the

commercial data center threshold through multiple facilities, interconnection points or metering points.

~~(7)~~ **(vii)** Utility tracking of all costs to serve commercial data centers and verification that revenues collected exceed costs incurred.

~~(9)~~ **(viii)** An end-of-contract process providing sufficient notice of a commercial data center's renewal or closure.

~~(8)~~ **(2)** Curtailment of some or all of a commercial data center's load during emergency conditions~~.~~**, in accordance with the requirements of subsection (c) below.**

(3) Conditions under which new commercial data center load is permitted to interconnect to the electric distribution system as new retail load while ensuring the Electric Distribution Company's continued provision of electric public utility service to existing customers that is adequate, reasonable, reasonably continuous, and without unreasonable interruptions or delay. For new interconnections of commercial data centers and for incremental additions of load associated with an interconnected commercial data center, if there exists or there is likely to exist a Regional Supply Shortage, as forecasted or determined by the RTO in which the Electric Distribution Company is a member, conditions shall be imposed as follows:

(i) To require a commercial data center to take electric distribution service on an interruptible basis under an interruptible rate established in a public utility's tariff unless and until the RTO determines that a Regional Supply Shortage does not exist, or where a Regional Supply Shortage

was forecasted by the RTO that the RTO determines it ceases to exist, at which point the commercial data center may be permitted to take firm electric distribution service under a firm rate established in a public utility's tariff;

(ii) To permit a commercial data center to take firm electric distribution service on the condition that the commercial data center has procured additional generation that is (A) constructed and operable prior to or upon initial delivery of power to the data center, (B) co-located or located electrically near the commercial data center site, (C) meets or exceeds the fully anticipated load of the commercial data center plus its associated RTO reserve margin, and (D) provides this capacity on an ongoing basis to the RTO market in which the EDC is a member in tandem with data center operations;

(iii) To permit a commercial data center to take firm electric distribution service on the condition that, to meet or exceed the fully anticipated load of the commercial data center plus its associated RTO reserve margin, the commercial data center certifies its direct participation in an RTO voluntary curtailment program in which its load will be curtailed as a pre-emergency condition step and/or procurement of additional demand response resources in an RTO voluntary curtailment program in which the procured load will be curtailed as a pre-emergency condition;

(iv) any combination of (i)-(iii) above.

OCA Comments to Section 3(b):

- As a general matter, the OCA supports the above provisions and notes that they are generally consistent with the OCA's

comments submitted in the PUC's large load model tariff proceeding at M-2025-3054271.

- We propose a few structural changes to align with the different functions of the provisions. We propose to add a new (b)(1) that governs the commercial terms and conditions and that specifies the filings the public utility must make with the PUC and obtain the PUC's approval of. Under the OCA's revisions, the original (b)(1)-(b)(7) becomes (b)(1)(i) through (vii) and the original (b)(9) becomes (viii).

- The original (b)(8) becomes (b)(2) under the OCA's revisions. Separating this provision from the (b)(1) provisions makes structural sense given that this provision addresses mandatory curtailments during emergency conditions rather than commercial terms and conditions. The OCA fully supports this provision addressing curtailment of commercial data centers as necessary and serving the public interest. Existing customers being blacked out while commercial data centers continue to receive power is not acceptable if commercial data center load is the cause of the reliability shortcoming. However, we believe more is needed to strengthen this provision and we recommend adding a new Section 3(c) to buttress the existing language. Additional OCA comments appear under the new Section 3(c) below.

- For new subsection (b)(3), the OCA recommends adding this new language which provides greater clarity over the utility's "obligation to serve" new customers while

maintaining reliable service to existing customers.

(c) Oversight of Emergency Load Shedding Procedures.--Consistent with the Commission's existing authority in Sections 501 and 1501 of the Public Utility Code, the Commission shall have the authority to review, direct modifications, and approve the emergency retail load shedding procedures and plans of electric public utilities that are used to comply with an RTO-determined manual load shedding in emergency conditions resulting from a Regional Supply Shortage. Regulations promulgated under subsections (a) and (b)(2) above shall include, at a minimum, provisions relating to all of the following during emergency conditions:

(1) Ensuring compliance by the Electric Distribution Company with the load shedding allocations assigned by the RTO in which the Electric Distribution Company is a member.

(2) Designating critical load within the Electric Distribution Company's service area and requiring curtailment of non-critical load prior to curtailment of critical load.

(3) Requiring curtailment of non-critical load attributable to commercial data centers prior to and to the extent of preventing the curtailment of non-critical load attributable to residential, commercial, and industrial customers.

(4) After curtailments of non-critical load attributable to commercial data centers are performed, if additional curtailments are necessary, the Electric Distribution Company shall perform rotating curtailments among residential, commercial, and industrial customers.

(5) Ensuring that the Electric Distribution Company can isolate and curtail commercial data centers without affecting service to other customers.

OCA Comment:

- **As stated above, the OCA fully supports the provision of Section 3(b)(2) and offers the above provisions of new Section 3(c) to strengthen the provision.**

- **If PJM calls an emergency manual load shedding event pursuant to PJM's Manual 13, after PJM allocates manual load shedding amounts to the EDCs, the EDCs must comply with that mandate; however, *how* the EDCs comply for non-critical load falls under state jurisdiction. States *have the say* over which non-critical load gets curtailed first and/or the use of rotating curtailments.**

- **If large loads are outstripping available generation supply and causing emergency load shedding conditions, it is fair that commercial data centers get curtailed first *before* residential, commercial, and industrial customers.**

- **After curtailments of data centers are first, if additional curtailments are necessary, rotating curtailments among industrial, commercial, and residential customers during emergency conditions.**

- **To the extent a certain amount of commercial data center load provides support to critical energy infrastructure or serves other national security needs, that specific load should be identified, designated as critical load, and separated for the purposes of curtailments from the**

remaining commercial data centers.

Section 4. Recovery of costs.

(a) A public utility may not recover from ratepayers, whether through base rates, riders, surcharges or any other ratemaking mechanism, costs that:

(1) are directly attributable to the provision of electric service to a commercial data center; and

(2) would not have been incurred but for the electricity demand of the commercial data center.

(b) Any public utility that serves or is reasonably expected to serve commercial data center load shall be required to submit a full cost of service study when seeking a rate increase under Section 1308 of the Public Utility Code to support the public utility's proposed allocation of shared or indirect costs that benefit multiple customer classes including commercial data centers.

(c) A public utility may recover from commercial data centers costs incurred by the public utility in connection with the development and implementation of Universal Service and Energy Conservation programs consistent with the requirements for those programs in 66 Pa. C.S. §§ 2804 (8) and (9) and 2203 (6)-(10) through a tariff rate approved to recover such costs from ratepayers.

OCA Comment:

- **The OCA supports this Section 4, as it ensures that costs directly attributable to commercial data centers will be directly assigned to and recovered from those customers. In**

ratemaking, direct assignment is a method used for assigning costs to be recovered from customers (cost allocation is the other method). Direct assignment is used for costs that are clearly and specifically incurred for the benefit of a single customer class or service due to an obvious cause-and-effect relationship. This Section 4 reaffirms that ratemaking method. A second method for assigning a utility's cost is through cost allocation. This is used for shared or indirect costs that benefit multiple customer classes and cannot be directly traced to just one. A cost-of-service study is the way a utility would support its proposed cost allocation method.

- However, the Commission's existing regulations at 52 Pa. Code § 53.53 only require a public utility to furnish a cost-of-service study to meet its burden of proof if the public utility is requesting a general rate increase above $1 million per year. The PUC is proposing in its recent FPFTY rulemaking to raise that threshold to rate cases seeking increases in excess of $5 million annually. This could mean that a smaller electric utility that files for example a $3-4 million annual increase could end up serving data centers and potentially avoid producing a cost-of-service study in a rate case. This is not a good outcome for consumers because it puts the OCA at a severe disadvantage in not having necessary information about a utility's costs to be able to take cogent litigation positions in rate cases that serve the interests of consumers.

- **Finally, the OCA supports the notion that Universal Service program costs can and should be recovered from commercial data centers, especially given that the unanticipated, significant large increase in load due to data centers will likely cause energy/capacity price increases. Data centers contributing to the recovery of these costs will potentially mitigate price increases for residential customers. We propose edits in this Section 4 to achieve this end.**

Section 5. Contributions to Low-Income Home Energy Assistance Program.

(a) Fund.--The Data Center LIHEAP Enhancement Fund is established as a restricted fund in the State Treasury. The Department of Human Services, in collaboration with the State Treasurer, shall administer the fund. The Department of Human Services shall use the money appropriated from the fund under subsection (d) to implement a supplemental program to enhance the Low-Income Home Energy Assistance Program. The supplemental program shall include a summer cooling component.

(b) Sources.--The fund shall consist of all of the following:

(1) Payments made under subsection (c).

(2) Interest accrued on the money in the fund.

(3) Money from any other source authorized by Federal or State law.

(c) Annual payments.--No later than June 30 of each year, each commercial data center shall make a payment to the fund in accordance with the following schedule based on peak demand:

(1) At least 25 megawatts but less than 75 megawatts: $250,000.

(2) At least 75 megawatts but less than 100 megawatts: $400,000.

(3) 100 megawatts or more: $500,000.

(d) Appropriation.--Money in the fund is appropriated on a continuing basis to the Department of Human Services for the purposes of this section.

(e) Regulations.--The Department of Human Services, in collaboration with the State Treasurer, shall promulgate regulations necessary to implement this section.

OCA Comment:

- **The OCA supports Section 5, especially the language of including LIHEAP cooling assistance.**
- **In section 5(c), the OCA recommends clarifying/defining the period over which peak demand is measured.**
- **While the OCA supports the existing Section 5, the OCA could also support increasing the contributions to the LIHEAP Enhancement Fund.**

Section 6. Renewable energy requirements.

A public utility that enters into a contract for electric service with a commercial data center on or after the effective date of this section shall ensure that not less than 25% of the electricity supplied under the contract is generated from renewable energy sources.

Section 7. Filing and enforcement.

(a) Filing requirement.--

(1) A public utility shall file with the commission a

copy of each contract executed with a commercial data center on or after the effective date of this section. **Types of contracts shall include but not be limited to the following:**

(i) Any contract for service between a public utility and commercial data center for high voltage, end use service entered into pursuant to a commission-approved rate schedule for distribution service.

(ii) Any construction service agreement, engineering service agreement, or like agreement between a public utility and commercial data center relating to the public utility's high voltage transmission and/or distribution infrastructure.

(iii) Any construction service agreement, engineering service agreement, or like agreement between a public utility and commercial data center relating to the public utility's transmission infrastructure that is the subject of the public utility's application for commission approval and authorization to locate and construct a transmission line or any portion thereof with a design voltage greater than 100,000 volts.

(2) A public utility shall provide a copy of a contract filed under this section to the Office of Consumer Advocate, Office of Small Business Advocate, and Bureau of Investigation and Enforcement subject to appropriate confidentiality protective agreements or orders.

OCA Comment:

- **In 7(a)(1), similar to comment above, given that the OCA has the statutory authority and duty to represent the interests of residential consumers in matters like these,**

we ask that this bill consider facilitating the OCA's access to necessary information to fully follow the regulations and ensure utility compliance.

~~(2)~~ **(3)** The public utility shall include with the filing sufficient documentation to permit the commission to conduct the review under paragraph (3).

~~(3)~~ **(4)** The commission shall review each contract under paragraph (1) to determine all of the following:

~~**(i) The impact on the grid system of the PJM Interconnection, L.L.C., regional transmission organization or its successor.**~~

~~**(ii) The effect on the reliability of that grid system.**~~

(i) The impact on the continued provision of electric service that is adequate, safe, and reliable to the citizens and businesses of this Commonwealth.

~~(iii)~~ **(ii)** The impact on ratepayers **and electric bill affordability for residential and commercial customers. The impact on low-income customers should be determined as a subset of residential customers**.

~~(iv)~~ **(iii)** Compliance with the requirements under sections **3,** 4**,** and 6.

OCA Comment:

- **In 7(a)(3)(i)-(ii), the OCA recommends consolidation of these two provisions and adoption of the suggested modifications to the language to avoid unintentionally violating the Federal Power Act's bright line of jurisdiction between federal and state regulation. The**

added language mirrors the existing language found in the last sentence of Section 2805(a) of the Public Utility Code. 66 Pa.C.S. § 2805(a).

- **In 7(a)(3) – impact on ratepayers – the OCA recommends clarity in the language as to the meaning of "impact on ratepayers" as including the impact on electric bill affordability for residential customers, including low-income customers, and commercial customers.**

(b) Enforcement.--A violation of this act shall be subject to enforcement by the commission under 66 Pa.C.S. Ch. 33 (relating to violations and penalties).

Section 8. Annual Reporting.

(a) The commission shall submit a written report to the General Assembly each year and make a public version of the report available on its website.

(b) The report shall describe:

(1) The commission's efforts to implement this Act during the prior year.

(2) The commission's determinations under Section 7(a)(3) above as to commercial data centers' impact on the continued provision of adequate, safe and reliable electric service to citizens and businesses of the Commonwealth, impact on ratepayers and electric bill affordability, and compliance with the requirements under sections 3, 4, and 6.

(3) Recommendations for legislative or regulatory changes to further improve the commission's oversight responsibilities in this act.

OCA Comment:

- **The OCA recommends an annual reporting section for accountability and transparency purposes.**

Section ~~**8**~~ **9**. Effective date.

This act shall take effect in ~~**90**~~**60** days.

OCA Comment:

- **Time is of the essence, especially with respect to electric service reliability; hence, we recommend the act taking effect sooner, if that is possible.**

Appendix B

Resource Adequacy Concerns

The PJM region is facing a shortage of generation to meet increasing electricity demand driven primarily by proposed new data centers. The 2026/2027 BRA cleared with 134, 311 MW UCAP (unforced capacity) with only 139 MW UCAP over PJM's projected reliability requirement.[1]

A recent report by the Independent Market Monitor for PJM states: "The basic conclusion of this analysis is that data center load growth is the primary reason for recent supply and demand balance, and high prices. But for data center growth, both actual and forecast, the PJM Capacity Market would not have seen the same tight supply demand conditions, the same high prices observed in the 2025/2026 BRA [Base Residual Auction] and the 2026/2027 BRA, and the currently expected tight supply conditions and high prices for subsequent capacity auctions."[2]

According to PJM, "[t]he rapid rate of projected large load additions over the next several years raises resource adequacy risk for a transitional period in our view and we believe this requires additional actions."[3] "We need to take a serious look at where things are headed in the coming years from the standpoint of our supply and demand balance," according to Stu Bresler, PJM's Executive Vice President – Market Services and Strategy.[4]

On July 28, 2025, the US Secretary of Energy declared an emergency within PJM "due to a shortage of electric energy, as a shortage of facilities for the generation of electric energy, and other causes…" to allow for the operation of a power plant in Maryland beyond its environmental permit limits.[5]

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[1] EPSA, 026/2027 PJM BRA Results Underscore Urgent Need for Investment in Reliable Power, August 4, 2025, available at https://epsa.org/2026-2027-pjm-bra-results-underscore-urgent-need-for-investment-in-reliable-power/#:~:text=Read%20more%20on%20the%20RRI,in%20the%202025/2026%20BRA, (last accessed October 8, 2025).

[2] Independent Market Monitor for PJM, Analysis of the 2026/2027 RPM Base Residual Auction Part A, October 1, 2025, available at https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20262027_RPM_Base_Residual_Auction_Part_A_20251001.pdf, (last accessed October 8, 2025).

[3] Large Load Additions PJM Conceptual Proposal and Request for Member Feedback, August 19, 2025, available at https://www.pjm.com/-/media/DotCom/committees-groups/cifp-lla/2025/20250818/20250818-item-03---pjm-conceptual-proposal-and-request-for-member-feedback---presentation.pdf (last accessed October 8, 2025).

[4] PJM Kicks Off Initiative To Balance Reliability With Large Load Growth, September 17, 2025, available at https://insidelines.pjm.com/pjm-kicks-off-initiative-to-balance-reliability-with-large-load-growth/, (last accessed October 8, 2025.)

[5] US Department of Energy, Order No. 202-25-6, July 28, 2025, available at https://www.energy.gov/sites/default/files/2025-07/PJM%27s%20202%28c%29%20Order%20No.%20202-25-6.pdf, (last accessed October 8, 2025).

Supply chain shortages are disrupting the installation of new generation facilities worldwide. Original equipment manufacturers (OEMs) have a five- to seven-year wait time for new gas-fired turbine orders and three to four years for those entities that have already placed orders. Costs have also increased tremendously for engineering, procurement, construction, equipment, and materials.[6] Customers are waiting an average of three years for high-voltage electric transformers, which are needed to serve additional load and interconnect generation.[7] According to Goldman Sachs, the US power sector is seeing a rising risk of a labor crunch and will need to fill about 510,000 new jobs to meet additional power demands.[8]

[6] S&P Global, US gas-fired turbine wait times as much as seven years; costs up sharply, May 20, 2025, available at https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/052025-us-gas-fired-turbine-wait-times-as-much-as-seven-years-costs-up-sharply, (last accessed October 8, 2025).
[7] Utility Dive, Transformer, breaker backlogs persist, despite reshoring progress, May 29, 2025, available at https://www.utilitydive.com/news/reshore-electrical-equipment-backlogs-transformer-breaker-nema/749265/, (last accessed October 8, 2025).
[8] Goldman Sachs, The Power Industry May Need More Than 750,000 New Workers by 2030, July 23, 2025, available at https://www.goldmansachs.com/insights/articles/power-industry-may-need-more-workers-by-2030, (last accessed October 8, 2025).

Appendix C

Pennsylvania Retail Electricity Price Increase due to Large Loads

1. Discussion and Research Question

Motivation: Large loads such as data centers are already increasing electricity prices in Pennsylvania and will likely continue to do so for the foreseeable future. Large loads increase capacity and energy prices in the electricity wholesale markets. They also increase transmission and distribution costs as utilities must build more infrastructure to sever these customers, and some of these costs are paid by all electricity customers.

Forecasting actual electricity price increases due to large loads is challenging for several reasons. Since the actual size and timing of new large loads is highly uncertain, an analysis of price increases ought to involve multiple scenarios. PJM has provided several scenarios of large load additions, ranging from several thousands to tens of thousands of megawatts (MW). Similarly, the size and timing of new generation that can be built to serve these large loads is also highly uncertain.

In the last two years, the wholesale market's price for capacity – the amount of generation that the region needs to avoid rolling blackouts – has dramatically increased. Pennsylvania demand is 20% of the region's electricity and therefore its electricity consumers pay 20% of that capacity cost increase. In addition, there certainly will also be upward pressure on the day-ahead and real-time energy markets due to the addition of large loads – wholesale energy prices will increase as more load is added to the system and is powered by a generation fleet that is catching up to this new demand. Transmission and distribution cost increases will occur as well as additional facilities will be needed to maintain reliability due to load growth.

The following analysis is a short-term assessment of Pennsylvania retail electricity price increase due to large loads. Further cost increases are likely as more large loads are connected to the grid. The amount of these increases depends on their actual size and timing.

Research Question: How will recent data center growth impact retail electricity prices in Pennsylvania?

Focusing on the electric delivery year of 2026/2027, this analysis attempts to quantify capacity market, energy market, and transmission cost increases due to recent data center growth (roughly 10 GW of new base demand) as simply as possible.

2. Description of the Analysis

a. Capacity Market

The following analysis approximates the proportion of increased capacity market costs allocated to residential customers in PA and assumes the increased capacity market costs is driven by data center load growth. The steps of this analysis include:

- The Base Residual Auction (BRA) Reliability Pricing Model (RPM) Market Revenues for the 2026/2027 delivery year are $16.1 billion – $13.9 billion increase from 2024/2025 delivery year).
- PA EDC Peak Demand is 30,323 MW – 20% of PJM Peak Demand.
- Applying this proportion, 20% of $13.9 billion increase is $2.7 billion – Total Capacity Cost Increase for All PA Customers from 2024/2025.
- PA Total Residential Electricity Demand is 51,403 GWh – 36% of PA Total Electricity Demand.
- Again, applying this proportion, 36% of $2.7 billion increase is $1.0 billion – Capacity Cost Increase for Residential Customers from 2024/2025.[1]

$1.0 billion increase in capacity market costs to PA residential customers equates to an annual increase of $184 per resident bill ($15 per month).

b. Energy Market

The following statistical analysis first approximates an increase in energy market clearing prices from theoretical upward pressure on the day-ahead and real-time energy markets due to the addition of large loads. Based upon statistically derived energy supply curves for the summer, winter, and fall/spring from PJM data, a range of wholesale energy price increases can be estimated based on a range of the net addition of large load. Then, multiplying this price increase by annual demand will approximate the annual impact on energy market costs. The steps of this analysis include:

- Collect hourly demand and LMP data from June 1, 2024, to May 31, 2025.[2]
- Approximate seasonal trendlines with this data (virtually a supply curve).[3]
- Use this trendline to estimate LMP at each hourly demand level and the LMP at each hourly demand level plus possible load growth sensitivities (for example, + 10,000 MW as a conservative value compared to the 11,993 MW analyzed by the PJM Independent Market Monitor).
- Take the average of the price difference across all hours in the above step.
- From the above analysis, PA Total Residential Electricity Demand is 51,403 GWh.

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[1] Resources include Electric Power Outlook for Pennsylvania, 2024-2029, p. 28; EIA, Electric Power Monthly, July 2025; and Monitoring Analytics, Analysis of the 2026/2027RPM Base Residual Auction Part A.

[2] Data at https://dataminer2.pjm.com/feed/da_hrl_lmps

[3] See graph at the end of the Appendix.

- Multiply the average price difference by PA Total Residential Electricity Demand.

$679 million increase in energy market costs for PA residential electricity demand equates to an annual increase of $124 per resident bill ($10 per month).

Table 1 shows multiple scenarios of potential energy market increases with different levels of data center proliferation.

Table 1: Energy Market Impact – Annual Impact of Data Centers

	EM Resident Cost	Per Resident Cost
PA Total Residential Electricity Demand GWh	51,403	9.41
Additional Load from New Data Centers Scenarios		
+ 5000 MW	$ 339,618,196	$ 62
+ 10,000 MW	**$ 679,236,392**	**$ 124**
+ 15,000 MW	$ 1,018,854,588	$ 187
+ 20,000 MW	$ 1,358,472,784	$ 249

c. Transmission

The analysis of increased transmission costs uses a report from the Union of Concerned Scientists.[4] PJM maintains a database of transmission projects (including supplemental projects that might resolve reliability concerns related to this load growth); however, the dataset does not include a level of detail so that attributable costs could be assigned to this load growth. The 2024 Union of Concern Scientists report indicated that PA Transmission Costs due to Data Centers were $491.4 million.

Applying a 15% carrying charge[5] to this amount, transmission costs increase by $73.8MM annually in PA – which equates to an annual increase of $5 per resident bill.

3. Conclusion

Per the **Table 2** below (and analysis described above), PA electricity costs will increase by an estimated $4.8 billion in 2026/2027, increasing annual residential electricity bills by approximately $313 per year, conservatively.

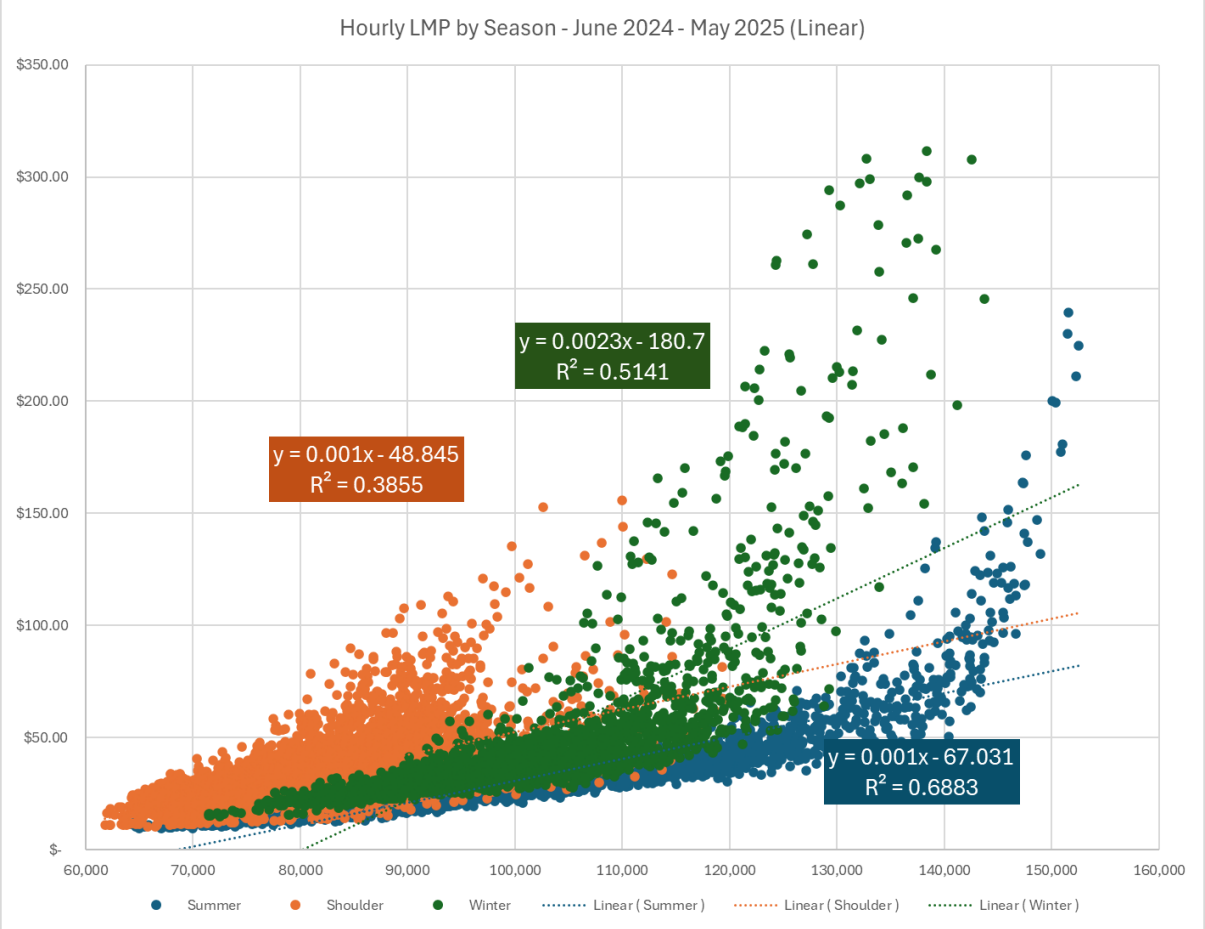
Table 2: Total Impact- Annual Impact of Data Centers in 2026/2027 (+ 10,000 MW Net Data Centers)

[4] See https://www.ucs.org/sites/default/files/2025-09/PJM%20Data%20Center%20Issue%20Brief%20-%20Sep%202025.pdf. An estimate of additional distribution costs was not publicly available.

[5] Carrying charge converts a one-time cost, such as for a transmission facility, into annual payments for depreciation and cost of capital.

	Total PA Cost	Total Resident Cost	Per Resident Cost
PJM BRA Capacity Costs	$ 2,792,958,648	$ 1,006,466,093	$ 184
PJM Wholesale Energy Market - Linear Analysis	$ 1,884,891,273	$ 679,236,392	$ 124
Transmission	$ 73,770,000	26,583,638.72	$ 5
	$ 4,751,619,922	$ 1,712,286,123	$ 313

The size and timing of price increases not only on the amount of new large loads and new generation but also on what actions, if any, PJM, Pennsylvania, and other states take. The OCA may revise its estimates of electricity price increases as new information becomes available.



Note: The scatterplot above shows hourly demand and LMP data from June 1, 2024, to May 31, 2025. The data is categorized by season and trendlines were approximated by season. In a uniform clearing-price auction, which is optimized to be the least cost, economic dispatch, these trendlines are virtually seasonal supply curves. With these regression equations, we can estimate LMPs at different demand levels.

BEFORE THE PENNSYLVANIA HOUSE OF REPRESENTATIVES
HOUSE ENERGY COMMITTEE

TESTIMONY OF PATRICK M. CICERO

REGARDING HOUSE BILL 1834

OCTOBER 22, 2025

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INTRODUCTION

Good afternoon, Chair Fiedler, Chair Causer, and Members of the House Energy Committee. Thank you for the invitation and opportunity to provide testimony on HB 1834, PN 2257 which if enacted would be known as the Data Center Act and is meant to ensure that the build out of data centers in Pennsylvania considers the impact that data center construction and demand places on the rates of existing utility customers. I appreciate the opportunity to weigh in on these critical issues.

My name is Patrick Cicero, and I serve as Of Counsel for the Pennsylvania Utility Law Project (PULP). PULP is a statewide legal aid office and project of Regional Housing Legal Services. We are a member of the Pennsylvania Legal Aid Network, and we provide legal representation, policy advocacy, education, and support to low income clients in furtherance of our mission to ensure that Pennsylvanians experiencing poverty can connect to and maintain safe and affordable utility services to their homes. I am providing this testimony on behalf of PULP's low income clients.

The problem: Exponential electricity load growth causing exponential price increases.

We have not always been focused on what we have come to call hyperscale load growth. For extended periods of time, utilities across the country were expecting slow and steady electricity load growth over the next several decades. This is not the case anymore. Hyperscale data center load has exploded onto the energy scene as technology firms seek unprecedented amounts of power to support artificial intelligence and other energy intensive operations. Unfortunately, the costs associated with hyperscale users are already burdening Pennsylvania ratepayers through the build-out of new transmission and increased capacity prices to serve the unprecedented level of projected load growth.

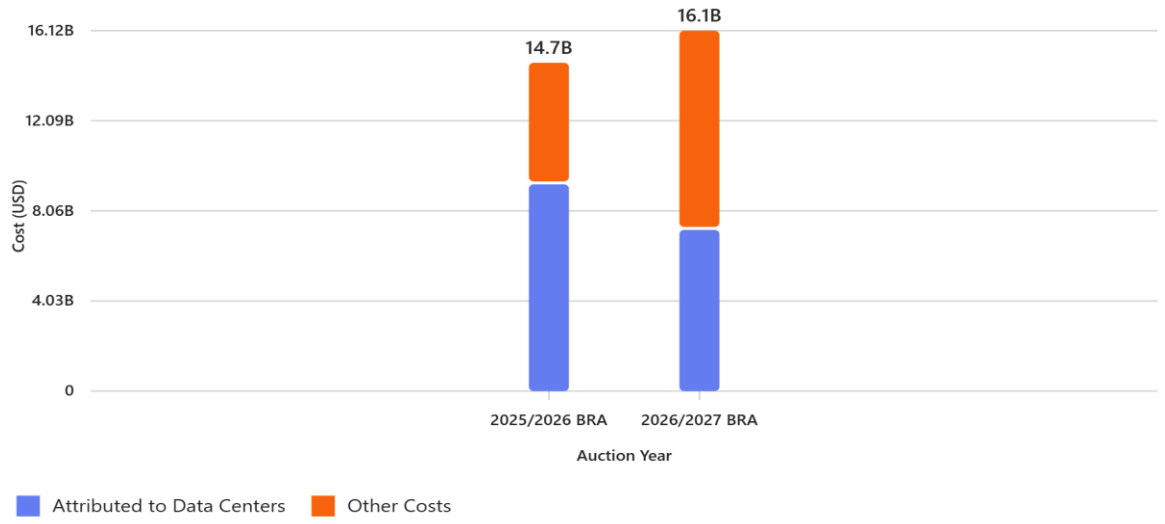
There is broad consensus that the primary factor driving the recent high PJM capacity market prices is directly tied to new data centers and the projected growth in electricity generation needed to serve this unprecedented level of projected power usage. The PJM Market Monitor conducted an analysis of the last two capacity auctions – for the 2025/2026 delivery year

and for the 2026/2027 delivery year. The total of these two auctions resulted in more than $30.8 billion in capacity payments to existing generators of which more than $16.6 million or 54% were the direct result of actual and projected data center load[1] This is represented visually in the table and chart below which show the same information in two different formats.

Table 1. Impact of Data Centers on Capacity Prices in last two PJM Base Residual Auctions

Impact of Data Centers on Capacity Prices			
	2025/2026 Base Residual Auction	2026/2027 Base Residual Auction	**Total**
Total	$14,687,047,358	$16,124,370,889	$30,811,418,247
Attributable to Data Centers	**$9,332,103,858**	**$7,271,197,971**	**$16,603,301,829**
Data Center % of Total	**64%**	**45%**	**54%**

Chart 1. Impact of Data Centers on Capacity Prices in last two PJM Base Residual Auctions



[1] See "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," (June 3, 2025) - https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20252026 and "Analysis of the 2026/2027 RPM Base Residual Auction - Part A," ("Part A") (October 1, 2025) - https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20262027_RPM_Base_Residual_Auction_Part_A_20251001.pdf.

Pennsylvania's Low Income Households are Already Facing High Bills

As we debate the best policies to manage unprecedented expansion of our grid, the General Assembly must keep at front of mind that there are hundreds of thousands of low income Pennsylvania families already facing acute energy insecurity – regularly foregoing food, medicine, and other basic needs to keep the lights on and their heating and cooling systems running.[2]

Last year, more than 350,000 households experienced an involuntary termination of electricity or gas services to their home, and over 24,000 families entered winter without access to a safe heating source – driving a cascade of consequences for families and communities across the state.[3] This year is shaping up to be no better. Already, from January -August 2025, there have been 282,604 utility terminations with electric utility terminations up nearly 30%.[4]

The General Assembly must ensure that the introduction of hyperscale load in Pennsylvania does not further exacerbate energy insecurity. This requires the establishment of strong, consumer-centered guidance to the Public Utility Commission and utilities for the creation of fair, transparent, detailed, and enforceable tariffs that prevent cost shifting and ensure hyperscale energy users pay *all* the costs to serve their unprecedented energy load.

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[2] US EIA, Residential Energy Consumptions Survey, Table HC11.1 Household energy insecurity (2020), https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%2011.1.pdf; Nat'l Energy Assistance Dir. Assoc. (NEADA), Center for Energy Poverty & Climate, Energy Hardship Report (April 2024), https://neada.org/wp-content/uploads/2024/04/neadahardshipreportAPR24.pdf; see also Columbia Univ. Ctr. on Global Energy Policy, Energy Insecurity in the United States, https://www.energypolicy.columbia.edu/publications/energy-insecurity-in-the-united-states/#:~:text=Energy%20insecurity%20(EI)is%20defined,Physical.

[3] Pa. PUC, Electric, Gas & Water Cold Weather Survey Results, https://www.puc.pa.gov/filing-resources/reports/electric-gas-water-cold-weather-survey-results/; Pa. PUC, Terminations and Reconnections: Year-to-Date December 2023 vs. Year-to-Date December 2024 (note that this data is no longer available on the PUC's website).

[4] Pa. PUC, Terminations and Reconnections: Year-to-Date August 2024 vs. Year-to-Date August 2025. As of October 19, 2025, available at: https://www.puc.pa.gov/media/3625/terminations-reconnectionsytd-aug24vs25.pdf.

At the beginning of June, these high capacity prices drove a spike in default service prices across the state – with residential customers facing average rate increases between 5.1 to 40.1%.

Table 2: June 1, 2025, Increase in Price to Compare

	Dec 2024-May 2025	June 2025 – Nov 2025	Percentage Increase	Increase 500 kWh	Increase 2000 kWh
PECO	**$0.0924**	**$0.1040**	**12.6%**	$5.81	$23.22
PPL	**$0.1077**	**$0.1249**	**16.0%**	$8.60	$34.38
DLC	**$0.1085**	**$0.1243**	**14.6%**	$7.90	$31.60
MetEd	**$0.1101**	**$0.1191**	**8.1%**	$4.47	$17.90
Penelec	**$0.1047**	**$0.1100**	**5.1%**	$2.65	$10.60
Penn Power	**$0.1117**	**$0.1186**	**6.2%**	$3.45	$13.80
West Penn	**$0.0948**	**$0.1032**	**8.8%**	$4.19	$16.74
Smaller EDCs					
	Dec 2024-May 2025	**June 2025 – Nov 2025**	**Percentage Increase**	**Increase 500 kWh**	**Increase 2000 kWh**
Citizens	**$0.0870**	**$0.1142**	**31.3%**	$13.61	$54.42
Pike[5]	**$0.1058**	**$0.1019**	**-3.6%**	$(1.91)	$(7.66)
UGI Elec.	**$0.1064**	**$0.1147**	**7.8%**	$4.17	$16.68
Wellsboro	**$0.0914**	**$0.1281**	**40.1%**	$18.33	$73.30

I urge the General Assembly to ensure that the health and safety of Pennsylvania families take priority over the needs of new commercial data center users in Pennsylvania.

Indeed, in the choice between grandma and Google, we need to choose the needs of grandma.

My comments on HB 1834 closely mirror the comments our office submitted on behalf of our clients to the Public Utility Commission's large load tariff.[6] Our comments then and now

[5] Pike County Light and Power is not physically interconnected with PJM but instead is interconnected by NYISO.

[6] *En Banc* Hearing Concerning Interconnection and Tariffs for Large Load Customers; Docket No. M-2025-3054271, Comments of CAUSE-PA and TURN at https://www.puc.pa.gov/pcdocs/1882373.pdf.

focus on the unique needs of low income Pennsylvanians, and our recommendations for how the Commission should approach regulation of hyperscale load growth to prevent cost-shifting and ensure all Pennsylvanians are able to access and maintain safe and affordable energy to power their homes.

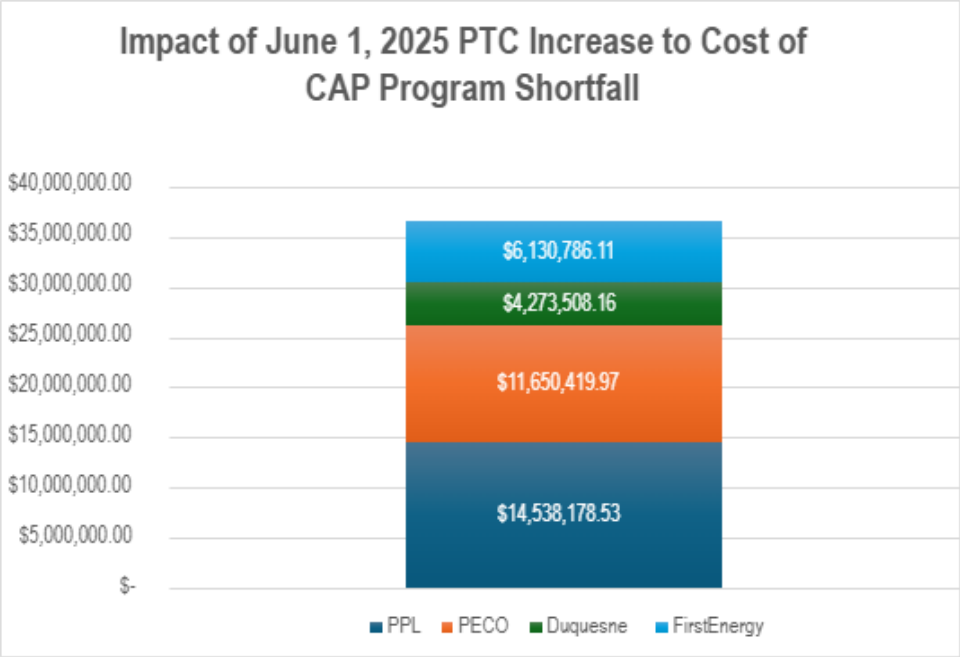
On behalf of the low income clients that it represents, the Pennsylvania Utility Law Project supports HB 1834, but urges a few critical changes to the bill to ensure that it works as intended.

1. **The bill should be amended to require that all large load additions pay a volume-based systems benefits charge to support the expanded need for rate assistance through utility-run universal service programs.**

As noted, hyperscale data centers and other large load users are already driving higher costs for Pennsylvania consumers. It is widely recognized that the substantial increase in capacity prices, *as well as transmission line build-out* to serve hyperscale load in Pennsylvania and neighboring states, is driving higher consumer costs.

On both the generation and distribution side, the costs associated with the introduction of hyperscale users on our grid will exacerbate already high rates of energy insecurity, increasing the need for assistance through utility-run and ratepayer supported universal service programs.

Indeed, PULP calculated the impact of the June 1 default service price increase and its effect on the low income customer assistance programs offered by the major electric distribution utilities. Based on a conservative estimate, at the average usage per customer per the Public Utility Commission, the change in rates as of June 1, 2025, will increase the cost of supporting the CAP program by more than $36.5 million annually.



Currently, with limited exception, universal service costs – including those that support CAPs – are only allocated to the residential class.[7] This is despite the fact that in its 2019 Final Order amending its formal Customer Assistance Program (CAP) Policy Statement, the Commission concluded that "[It] will no longer routinely exempt non-residential classes from universal service obligations."[8] The Commission also correctly noted that "there is no statutory or appellate prohibition that limits the recovery of CAP costs, whether specifically calculated or as part of total universal service costs, to funding from the residential class."[9]

Thus, while the Commission has explicitly recognized that the residential class is not "causing" energy poverty, it has not taken action to change its longstanding policy of assigning the costs of universal service programs solely to the residential customer class. As such, we urge the General Assembly to require contributions from large load

[7] As a municipal authority, Philadelphia Gas Works has a longstanding policy – which predates PUC regulation – to recover universal service costs from all customer classes; however, only a small percentage of universal service costs are recovered from the non-residential customer classes.
[8] 2019 Amendments to Policy Statement on Customer Assistance Program, 52 Pa. Code 69.261-69.267, Docket No. M-2019-3012599, at 91 (order adopted Sept. 19, 2019, order entered Nov. 4, 2019).
[9] Id. at 91.

additions/commercial data centers and require them to take responsibility for their direct and substantial impact on rates through imposition of a nonbypassable systems benefits charge, used to offset increasing universal service program costs. This can be done by adding the following to Section 2 – Definitions:

"Universal Service and Energy Conservation." As defined in 66 Pa. C.S. § 2803 (relating to definitions) (for electric) and 66 Pa. C.S. § 2202 (relating to definitions) (for natural gas).

And by adding to the requirements in Section 3(b) and new subsection (10) that would read:

(10) Provisions that require all customer classes, including commercial data centers, to contribute to the public utility's Universal Service and Energy Conservation program consistent with the requirements for those programs in 66 Pa. C.S. §§ 2804 (8) and (9) and 2203 (6)-(10).

This language will create the regulatory flexibility for the Commission to set the appropriate rate for collection from all customers – including commercial data centers – but does not single out one type of load.

Notably, this change is in addition to the provisions of the bill that require commercial data centers to contribute to the newly created Data Center Low Income Home Energy Assistance Fund as outlined in Section 5 of the bill. We support the creation of this fund but urge the General Assembly to require significantly larger annual contributions by commercial data centers. In a typical year, the Low Income Home Energy Assistance Program (LIHEAP) is funded at about $219 million all of which comes from the federal government. This year there is significant uncertainty about whether the LIHEAP program will open on November 1, 2025, because of the federal government shutdown and because of the lack of a state budget. Even if the program is funded at the federal level, the money must be allocated and remitted to the states and, as is well known, there is significant uncertainty about whether there are sufficient staff at the federal level to make this occur. Furthermore, without a state budget, the funds cannot be allocated to the Department of Human Services to begin issuing grants. Thus, we urge the General Assembly to increase the requirements for annual LIHEAP contributions from data centers to at least $1,000,000 per

year for all data centers with annual peak load of 25MW with an additional $1,000,000 for every 25MW of additional annual peak load. These contributions should be required annually, and adjusted periodically by the Public Utility Commission, for the life of the load.

2. The bill should require all large loads to be served via a tariff - not special contract.

Many of the existing large load interconnections that have materialized or are planned have been made pursuant to contracts between the electric utility and the commercial data center. This should not be permitted because these agreements are often not transparent, clear, or fair for other ratepayers. The legislation should not allow the use of special contract rates for large load customers and instead should require all large load customers – irrespective of load type – to adhere to tariffed distribution rates. This will help promote fair and transparent rates for all large load users that can be appropriately assigned and allocated in a rate case.

Ratemaking – and the process of assigning and allocating costs and developing rates designed to recover those costs – is more art than science. There are a multitude of costs that are not easily assignable to one class or another and are instead allocated across classes utilizing methodologies, which can be extraordinarily complex, to identify associated costs and allocate those costs across classes. The use of special contracts for individual users – shielded behind layers of confidentiality – can serve to conflate the metrics and methodologies used to calculate and allocate costs in a rate cases, making it exceedingly difficult and cost prohibitive to appropriately unwind.[10] As experts from Harvard University's Environmental and Energy Law Program explain, "When utilities use one metric in a rate case and another metric in a special contract proceeding, they could be causing spillover effects that harm ratepayers."[11]

[10] Eliza Martin & Ari Peskoe, Harvard Law School Envtl & Energy Law Program, Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech's Power, at 11-12 (Mar. 2025).
[11] Id.

Clear and transparent tariffed rates are critical to avoid the potential for unfair and anticompetitive rates that could shift unrecovered or under-recovered costs to other ratepayers. Residential consumers cannot contract for special, confidential distribution rates with their utility on an individual basis, and neither should large hyperscale load customers. The rules of the road should be clear to all – eliminating opportunities for utilities to offer large incentives to load building data centers that will ultimately shift costs to burden other consumers.

3. **Adopt a rebuttable presumption that, absent actual and quantifiable evidence to the contrary, distribution system upgrades to support data center growth are solely for the benefit of the large user.**

In his March 27, 2025, motion initiating its large load proceeding, PUC Chairman Stephen M. DeFrank noted that the Commission "needs to ensure fair cost allocation for projects that do go forward, ensuring that costs attributable solely to one customer are not distributed to the rest of the rate base." We agree but believe that more is required. While system upgrades necessary to support large load customers may drive ancillary benefits to other customer classes, the introduction of large load customers should not result in costs to other ratepayers to support an accelerated system upgrade before the upgrade is needed.

We submit that the legislation should adopt a rebuttable presumption that distribution system upgrades needed to support data center growth are solely for the benefit of the large user. Absent actual, quantifiable evidence to the contrary showing that the upgrades were *necessary* for a purpose other than the introduction of a large load customer, a utility should not be permitted to assign costs to other rate classes based on generalized, ancillary, or theoretical benefits to other customer classes.

4. **Prohibit utilities from including contributions in aid of construction (CIAC) toward necessary systems upgrades in rate base.**

PULP supports the provisions of the bill that require specific regulations about the role of data center contributions in aid of construction (CIAC) play in building needed system upgrades. The conventional position is that these contributions do not get added to rate

base because they were paid for by a specific customer or set of customers. We support this approach, and it is critical that the Commission be required to adhere to the long-standing practice that utilities cannot rate base for purposes of earning a return utility plant funded by CIAC.

5. **We strongly support the recommendations of the Office of Consumer Advocate that emphasize the continuation of reliable electric service to existing customers.**

Load forecasts are surging, yet there is increasing uncertainty about the accuracy of those forecasts. In the short term, the General Assembly should ensure that the legislation has a requirement that any request for large load additions to be included in the load forecasts used in wholesale markets and planning processes demonstrate at the very least commercial viability within the period in question and that there be a strong financial commitment by the data center. This reduces the incentives for data centers to forum shop and, thus, be included in multiple load forecasts.

However, we fear that this may be insufficient and strongly support the recommendations made by the Office of Consumer Advocate (OCA) that would amend HB 1834 to provide the PUC with the explicit authority to define conditions under which a data center is permitted to interconnect to the electric distribution system. The OCA lays out in detail in its comments to this bill a tiered approach that would ensure that new data center load could only be interconnected if there is sufficient supply to serve it without undermining reliability and affordability for existing customers. These are critical additions to the bill that we fully support.

6. **Require utilities to closely track and report on all costs associated with serving each large load customer and to explicitly prohibit the assignment of any portion of these costs to other customer classes.**

As noted above, cost allocation is not an exact science, and it can be exceedingly difficult to determine with precision the level of costs to assign to each customer class. We support the provisions within HB1834 that prohibit the utility from recovering costs from non-

commercial data center load customers that are directly attributable to the provision of services to commercial data centers.

Utilities should be required to separately track and report on all costs associated with serving each large load customer. This would bring enhanced transparency and would help facilitate the proper allocation of costs in the context of a rate proceeding.

CONCLUSION

Thank you for the opportunity to provide testimony on HB1834. With the amendments to the bill suggested here – particularly those related to contributions to the utilities universal service and energy conservation programs, and a newly developed state LIHEAP fund, as well as those outlined elsewhere in my testimony, we support this bill and urge its passage.

I look forward to answering any questions you may have about our positions on this bill.

PENNSYLVANIA AUDUBON COUNCIL
2805 Old Post Road, Suite 120, Harrisburg, PA 17110
paaudubon council@gmail.com

October 20, 2025

Stephon Petro, Executive Director
PA House Energy Committee

Re: HB 1834

Dear Mr. Petro,

The Pennsylvania Audubon Council offers the following comments on HB 1834, which provides for regulation of commercial data centers by the Pennsylvania Public Utility Commission. Could you please distribute these comments to those attending the Oct. 22 meeting of the House Renewable Energy Committee?

We are concerned, as are other PA residents, about the impact of these centers on our environment. Data centers use large amounts of water for cooling systems, leading to high consumption and potential impacts on local water supplies. Data centers consume massive amounts of electricity, which can contribute to higher emissions if generated from harmful fossil fuels like fracked gas. The conversion of large areas of forest or other natural ground cover to building and pavement risks dramatically altering wildlife habitat, stormwater runoff, and ecosystems. All of these problems not only negatively affect people, they also harm birds.

Regulators should require transparency and corporate accountability. Currently, the language in HB 1834 only requires the PUC to review contracts for data centers to determine the impact on the grid system of the PJM interconnection transmission organization, the effect on the reliability of that grid system, and the impact on the taxpayers. There are no requirements such as building data centers in places with plenty of water. There are no requirements to limit noise and light pollution, or to prevent logging of woodlands to allow for data center construction.

One positive feature is the language in the bill which stipulates that: "A public utility that enters into a contract for electric service with a commercial data center...shall ensure that not less than 25% of the electricity supplied under the contract is generated from renewable energy sources." We would suggest increasing that amount to 50%.

Thank you for consideration of these comments.

Sincerely,

Susan Murawski

Susan Murawski, Vice-President,
Pennsylvania Audubon Council

CC: Rep. Elizabeth Fiedler
Pennsylvania Audubon Council Board of Directors

CENTER FOR COALFIELD JUSTICE

P.O. Box 4023 • 31 East Chestnut Street • Washington, PA 15301 •
724.229.3550 • www.centerforcoalfieldjustice.org •
info@centerforcoalfieldjustice.org

October 22, 2025

House Energy Committee Members
Sent via email.

RE: HB 1834 - Data Centers and Consumers

Thank you for the opportunity to provide input on HB 1834 - Data Centers and Consumers. The Center for Coalfield Justice ("CCJ") respectfully submits the following comments **in opposition to** this bill.

CCJ is a Pennsylvania-incorporated not-for-profit organization with federal Internal Revenue Service § 501(c)(3)-status recognition located in Washington, PA. Our mission is to "improve policy and regulations for the oversight of fossil fuel extraction and use; to educate, empower and organize coalfield citizens; and to protect public and environmental health." CCJ has over three thousand members and supporters and is governed by a volunteer Board of Directors.

Since the announcement of billions of dollars in investment in Pennsylvania to develop hyperscale data centers, CCJ has been working with community members in our service area and in coalition across the state to hear the concerns of those who will live near the proposed hyperscale data centers.

Uniformly, community members do not want data centers in their backyards. They are worried about air pollution, noise pollution, and the theft of water resources synonymous with data center development. They are also concerned about the rising utility costs and risks to our electricity grid that data centers pose, with a lack of benefit to the community, which this bill attempts to correct. However, while this bill is a good start, it has significant unintended consequences.

First, **tying data center development to the Low Income Energy Assistance Program will create reliance on data centers to fund a critical program**, similar to Marcellus Shale impact fees and local community funding. While impact fees have helped local communities upgrade their infrastructure, we have become reliant on them to provide basic government services, making local leaders reluctant to limit fracking even if it harms their community members. Additionally, it opens the door for legislators to weaponize funding to communities that decide to enact more protective measures for the community in which they serve.[1] To avoid this outcome with data centers, they must not be the most significant funding source for the LIHEAP program. This will encourage lawmakers to incentivize more data centers in the state so that we can meet LIHEAP's funding needs.

Additionally, since data centers can never shut down, **requiring data centers to be cut off from the grid during emergencies**, e.g., too much load demand, **will lead to massive amounts of air pollution across the state as hundreds of diesel generators are turned on to power the infrastructure.** Turning on these generators will

[1] *See* SB 102 where Sen. Bartolotta has proposed withdrawing impact fees from municipalities that "unreasonably limits or prohibits" gas development within its boarders.

lead to serious health and safety risks for nearby community members. If our grid is not ready to accept the extra load growth, even in times of emergency, data centers should not be permitted to be built.

Thank you for your consideration. If you have any questions, please contact me anytime.

Respectfully,

Nina Victoria, J.D.
Community Advocate
nina@centerforcoalfieldjustice.org

KEEA

KEYSTONE ENERGY EFFICIENCY ALLIANCE

October 22, 2025

The Honorable Chair Elizabeth Fiedler
The Honorable Chair Martin Causer
House Energy Committee

RE: House Bill 1834 - Data Center Act

Thank you Chair Fiedler, Chair Causer, and all other members of the House Energy Committee for allowing the Keystone Energy Efficiency Alliance (KEEA) to submit written testimony regarding HB1834.

KEEA is Pennsylvania's trade association for the energy efficiency industry. Our industry is composed of a range of professions - from contractors and manufacturers to engineers, architects, and software developers - and a local workforce that is the lifeblood of our industry in communities across the Commonwealth. We represent more than 70 member firms that manufacture, design, and implement energy efficiency improvements in buildings across Pennsylvania on behalf of regulated utilities, the state, and ratepayers. That includes single-family homes, mult-family homes and rental spaces, commercial buildings and industrial facilities.

We are encouraged by Representative Matzie's forward thinking approach to the regulation of Data Centers as the likely impending wave of development in Pennsylvania is just on the horizon. Data center development poses a serious threat to the integrity of our strained electricity grid, national security, and the protection of ratepayers as projected load growth has already started to increase monthly utility bills. It has already been predicted that data centers will be responsible for anywhere from 6.7-12% of electricity consumption in the next three years, with projections showing they could use as much as 580 TWh, representing more energy than California, New York, and Illinois used collectively in 2023.[1] These predictions have already increased monthly utility bills for consumers, where the most recent PJM capacity auction reached a $329.17/MW-day price cap across the region, representing a 22% increase from last year, which saw an 800% increase over the year prior to that.[2]

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[1] Shehabi, A., Newkirk, A., & Smith, S. (2024). *2024 United States Data Center energy usage Report*. Lawrence Berkely National Laboratory. https://doi.org/10.71468/P1WC7Q
[2] Howland, E. (2025, July 23). PJM capacity prices set another record with 22% jump. *Utility Dive*. https://www.utilitydive.com/news/pjm-interconnection-capacity-auction-prices/753798/

KEEA

KEYSTONE ENERGY EFFICIENCY ALLIANCE

Bill Analysis and Recommendations

The process for establishing regulations for data centers will be complex, and we commend Representative Matzie for granting the Public Utility Commission the authority for establishing these regulations and setting strict deadlines for enactment. As with any proceeding of this magnitude, we would encourage the Public Utility Commission to allow for appropriate stakeholder engagement and feedback during this process.

We appreciate the bill's intent to provide ratepayer utility relief by establishing the Data Center LIHEAP Enhancement Fund. LIHEAP has decades of demonstrated impact and bipartisan support as it provides financial assistance for low-income households to offset the costs of unaffordable home energy bills, and KEEA has been and will continue to be an advocate for this program. We are cautious, however, as to the impact the LIHEAP Enhancement Fund will have as currently written into the bill and if this is the most beneficial approach. We offer the following thoughts and recommendations:

1) As currently written, the annual payment schedule based on peak demand for payments into the fund is questionably low. According to a letter submitted in April of this year by the PA PUC to the Pennsylvania Congressional Delegation, in 2024, LIHEAP provided over $71 million in aid to 346,000 Pennsylvanians.[3] Estimates vary on how many data centers are currently operating in Pennsylvania, ranging anywhere from 56[4] to 97[5]. Even assuming each data center exceeded the maximum fee schedule of 100 MW or more, the highest estimated injection into the fund would be around $48.5 million (97 Data Centers @ 100Mw x $500,000). Considering that even this most extreme scenario of calculations still results in a deficit for LIHEAP of $22.5 million, we encourage the committee to consider increasing the annual payment structure to close the funding gap.

2) We encourage the committee and bill sponsor to consider whether the financial support data centers can provide might be better directed to efforts that deliver lasting improvement and benefit. A financial assistance program like LIHEAP is a critical tool for supporting struggling ratepayers, yet, ultimately, is more of a "bandaid" solution.

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[3] DeFrank, S., Barrow, K., & Zerfuss, K. (2025). *PA PUC Letter to Congressional Delegation*. Pennsylvania Public Utility Commission. https://www.puc.pa.gov/media/3432/puc_liheap_letter_to_congressional_delegation_041425.pdf

[4] *Pennsylvania Data Centers - providers map in Pennsylvania, United States*. (n.d.). https://www.datacenters.com/locations/united-states/pennsylvania

[5] *Pennsylvania Data Centers*. (n.d.). Data Center Map. https://www.datacentermap.com/usa/pennsylvania/

Might a program that provides long-term solutions to the root cause of increased low-income utility bills be the most responsible use of this funding?

The Pennsylvania Home Preservation Program (formerly the Whole Home Repair Program) addresses a wide variety of contributing factors that lead to increased utility bills. Most notably, home repair programming remediates structural, health & safety, and habitability concerns within homes that defer otherwise eligible residents from state, federal, and utility home weatherization and energy efficiency programs. Using revenues from the data center peak demand fee schedule to provide recurring funding for the Pennsylvania Home Preservation program, whose predecessor has already awarded over $71.5 million into 2,808 projects across the state, would ensure that the close to 19,000 eligible waitlisted applicants would receive funding and those deferred from weatherization programming would then become eligible again.[6] Those residents would then be able to access programming that in the long-term reduces energy consumption and utility bills such as the Weatherization Assistance Program and Act 129 Utility Energy Efficiency & Conservation programming.

Additional Considerations for Collaborative Community Support

Data center developers and energy companies are working collaboratively to support low-income communities where data centers are being developed, and Pennsylvania decision makers should consider ways to incentivize these collaborations. In North and South Carolina, Sol Systems, a national solar energy company, and Google have teamed up to deploy new solar energy projects that support local communities in rural areas. Together, Sol Systems and Google are making targeted investments in low-income and under-resourced communities that will "focus on reducing energy burden by enabling critical home pre-weatherization and safety upgrades to low- and moderate-income households."[7] Launched in 2023, and recommitted in 2025, the funding from the partnership flows to local utility companies, allowing them to stand up programs to provide lasting, meaningful remediation to homes to reduce energy consumption and energy bills.

Since the collaboration began, Santee Electric Cooperative and Aiken Electric Cooperative, through their Help My House Program, have financed more than $11 million in energy efficiency

[6] Most recent data from the Department of Community and Economic Development
[7] Sol Systems. (2023, April 29). *Sol Systems and Google announce partnership to invest in solar energy projects and community organizations - SOL Systems*. https://www.solsystems.com/news/sol-systems-google-partnership/

projects for over 1,000 South Carolina households, saving families upwards of 35% on their energy bills.[8]

This type of collaborative community support across the nation is becoming the norm and should be encouraged as build out broadens in Pennsylvania. Several other states have benefited from large scale data center developers investing capital into programming that directly benefits ratepayers in communities most impacted by data center development. Google has continually invested in local communities to boost local energy affordability and resilience in multiple states, with programming including:

- **Georgia** - A $500,000 investment into Georgia Power to expand energy efficiency programs for vulnerable residents
- **Ohio** - A $1 million investment into the Grid Innovation Fund to incentivize efficiency and grid reliability solutions
- **South Carolina** - A $1 million investment to the South Carolina Office of Resilience for Hurricane Helene recovery to support home rebuilding and weatherization
- **Texas** - A $1 million investment to the Texan Energy Poverty Research Institute to support two energy resiliency hubs with solar and battery storage at affordable housing sites
- **Nebraska** - A $300,000 investment to Lincoln Electric to support efficiency and weatherization upgrades for affordable housing
- **Arkansas** - A $25 million investment to support energy affordability in West Memphis[9]

Long-term problems require long-term solutions. As advocates work tirelessly to identify recurring funding for successful home repair programming already established in Pennsylvania, seeking investments from those responsible for the largest impact on our energy prices will be a far more responsible use of funds. If the intention is to protect ratepayers from increased utility costs, we would encourage further conversation around the allocation of these funds for root-cause solutions.

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[8] Environmental and Energy Study Institute (EESI). (n.d.). *Energy efficiency retrofits for rural households in South Carolina: SoL Systems and Google | Article | EESI*. https://www.eesi.org/articles/view/energy-efficiency-retrofits-for-rural-households-in-south-carolina-sol-systems-and-google

[9] Zuckerman, E. & Google. (n.d.). *From South Carolina to scale: U.S. Energy Impact Program* [Slide show; PowerPoint Presentation]. ACEEE Energy Efficiency as a Resource Conference, Denver, United States of America.

KEEA
KEYSTONE ENERGY EFFICIENCY ALLIANCE

Thank you again Chair Fiedler, Chair Causer, and all other members of the House Energy Committee. If you have any questions or would like to discuss these options further, KEEA would welcome the opportunity.

Respectfully submitted,

Brad Barkdoll
Director of Government & Regulatory Affairs
Keystone Energy Efficiency Alliance

Written Testimony of Physicians for Social Responsibility Pennsylvania

Date: October 22, 2025
Submitted by: Matt Shorraw, for PSR PA
RE: House Bill 1834 – The Data Center Act, Before the PA House Energy Committee

Chair Fiedler, Minority Chair, and Honorable Members of the Committee:

Thank you for the opportunity to submit written testimony on behalf of Physicians for Social Responsibility Pennsylvania (PSR PA) in support of House Bill 1834 – The Data Center Act.
PSR PA is a physician-led organization committed to protecting public health from the threats of pollution, climate change, and environmental injustice. We commend the sponsors of HB 1834 for advancing legislation that recognizes the growing intersection between energy policy, environmental health, and social equity.

Protecting Public Health and Ratepayers

As Pennsylvania experiences increased interest from large-scale data center developers, this bill provides critical oversight to ensure that these high-energy users do not impose undue costs or risks on local communities. Data centers—while vital to digital infrastructure—consume massive amounts of electricity and often require costly grid upgrades. Without appropriate safeguards, these costs can be passed on to residential and small business ratepayers, many of whom already struggle with energy insecurity.

By preventing utilities from shifting data center-related costs onto regular customers, HB 1834 ensures that the public does not subsidize private, high-profit operations. This is not only fair economic policy but also a matter of health equity—since low-income households are disproportionately impacted by rising utility bills and energy-related stress.

Supporting Energy Justice and LIHEAP Expansion

PSR PA strongly supports the bill's creation of the Data Center LIHEAP Enhancement Fund, which would require annual contributions from commercial data centers to bolster Pennsylvania's Low-Income Home Energy Assistance Program (LIHEAP). This is a powerful step toward energy justice.

Energy insecurity is a public health issue—families who cannot afford heating or cooling are at greater risk of hypothermia, heat stress, asthma, and cardiovascular illness. The addition of a summer cooling assistance program acknowledges that extreme heat is now one of the most deadly weather-related hazards in the United States, and its effects are worsening due to climate change. Through this fund, HB 1834 ensures that as Pennsylvania attracts energy-intensive industries, vulnerable residents are not left behind—but directly benefit from those industries' presence.

Advancing Clean Energy and Climate Goals

Physicians and public health experts across the state are increasingly concerned about the health effects of fossil fuel combustion, which include respiratory illness, cardiovascular disease, cancer, and premature death.

The bill's requirement that at least 25% of electricity supplied to data centers be generated from renewable sources is a meaningful step toward reducing harmful air pollution and greenhouse gas emissions. While PSR PA would support an even stronger renewable threshold over time, the inclusion of this requirement signals Pennsylvania's commitment to a healthier, more sustainable energy future.

Public Accountability and Oversight

Finally, HB 1834 provides for essential PUC oversight of all utility contracts with data centers, ensuring that grid reliability, ratepayer impacts, and renewable compliance are evaluated transparently. Such accountability is critical to maintaining public trust as Pennsylvania navigates the challenges of rapid digital and industrial growth.

Considerations for Improvement

While PSR PA supports this legislation, we recognize there are opportunities to strengthen it further.

- The 25% renewable energy threshold may be viewed as too modest to meaningfully drive decarbonization in a sector that demands vast and growing amounts of electricity. A higher standard or phase-in approach could better align with Pennsylvania's climate and public health goals.

- Additionally, the flat LIHEAP fee structure—ranging from $250,000 to $500,000 annually—may not fully reflect differences in actual power consumption among large data centers. A more proportional, usage-based contribution formula could enhance fairness and generate additional support for low-income households.

By addressing these considerations, the bill could further advance its stated goals of equity, environmental responsibility, and public benefit.

In Conclusion

In summary, PSR PA supports House Bill 1834 because it:

- Protects public health and low-income ratepayers,
- Advances energy and climate justice through direct LIHEAP investment,
- Promotes renewable energy adoption, and
- Ensures that economic development does not come at the expense of environmental integrity or community wellbeing.

As Pennsylvania continues to shape its energy future, it is vital that decision-making remains informed not only by statewide priorities, but also by the lived experiences of local governments and the communities most directly affected. Strengthening these local voices ensures that energy development is equitable, transparent, and responsive to real public needs.

We thank the committee for its leadership and urge the timely passage of the Data Center Act to ensure that Pennsylvania's energy future is just, responsible, and health-centered.

Respectfully Submitted,

Matt Shorraw
Policy and Program Coordinator, PSR PA

October 22, 2025

Elizabeth Fielder, Chair
Martin T. Causer, Republican Chair
Pennsylvania House of Representatives Energy Committee
Harrisburg, PA 17120

RE: House Bill 1834 – Data Center Act

To Chair Fiedler, Chair Causer, and members of the Committee:

I write to submit the following testimony on behalf of PennFuture, a statewide environmental advocacy organization. It is PennFuture's mission to fight for an equitable, job-creating state economy by advancing clean air, pure water, and climate change solutions.

Over the course of the last few months, we've seen public declarations of billions of dollars in investment in Pennsylvania for the development of artificial intelligence (AI) and data centers. This industry has an insatiable hunger for energy and a demand for new grid infrastructure. While tech companies and developers aim to profit, everyday folks are struggling to pay their electricity bills, watching them spike since June.

The combination of data center proliferation, rising energy prices, and insufficient grid infrastructure is creating a "perfect storm" of economic and environmental concerns. While billion-dollar tech companies tout sustainability goals, Pennsylvania has yet to see a single project that prioritizes cheap, clean, fast-to-deploy energy. Consequently, the momentum of data center development places strain on the grid and on people's wallets.

House Bill 1834 ("HB 1834")—the Data Center Act—proposes to mitigate the economic burden everyday Pennsylvanians face and clarify what lies within the public interest as we move forward. PennFuture appreciates Representative Matzie's interest in this legislation and is grateful to the committee for taking these overlapping concerns seriously and providing them with their due attention.

Public Interest

Legitimate questions are being asked every day related to whose interests are ultimately being served by the rapid development of data centers and AI. Communities across Pennsylvania are already voicing serious concerns about individual projects. HB 1834 provides an opportunity to alleviate those concerns. This legislation also provides a real opportunity to clearly define and prioritize the public interest in regulations related to data centers and large load users.

Public interest is cited throughout laws and regulations governing the Pennsylvania Public Utility Commission but is never clearly defined. Amending HB 1834 to ensure that the Commission considers real concerns surrounding affordability, grid reliability, and environmental impacts, would help ensure that the public interest is balanced more equally against the private motivations of private companies.

Fees & Payments

We support placing a fee on data centers that can be used to mitigate rising electricity costs for Pennsylvanians—especially low-income households. Everyday consumers should not be forced to subsidize the electricity and infrastructure demands of this industry. That being said, payments to LIHEAP are a band aid. While laudable, this program assists low-income households by paying bills but does nothing to reduce energy use. Fees could be better invested in other programs, like the Whole Home Repairs and Home Preservation programs, which assist households in reducing their overall energy usage and bills for the long term. As they say, the cheapest electron is the one not used. Energy efficiency is the first line of defense in reducing energy costs for households.

Based upon legislation proposed in other states, like Minnesota, it is possible to increase the fees higher than what is currently stated in the bill. Given the context of the promise of billions of dollars in investment coming into the state, it is also only fair that the people of Pennsylvania benefit from that wealth. That is why PennFuture suggests that the committee raise the proposed fees to more properly reflect the potential impacts that data center proliferation can have on communities across Pennsylvania and provide municipalities with resources to ultimately increase affordability and grid reliability.

Linking Energy, Economic and Environmental Policy

Data center electricity demand could result in the modernization and expansion of the grid. If done thoughtfully, there is potential for everyday Pennsylvanians to experience some benefits from these improvements, including affordability, protection of public health and the environment, and grid reliability.

PennFuture recognizes that economic development policy and environmental policy are inextricably linked—the health and well-being of our communities and environment are vital to the strength of our local and state economies. That's why it is vital that legislation recognizes

affordability; community and environmental health; and modernization and reliability as being in the public's best interest. By strengthening these pieces, legislation addressing data center energy consumption can better support and grow local economies.

Of course, real world implementation of this sentiment requires the development of renewable energy plus storage, as well as distributed generation. Market forces have consistently signaled that the cheapest energy to deploy is also the cleanest – solar. When paired with battery storage, it is possible to supply clean energy around the clock, no matter the weather. A primary talking point of the fossil fuel industry is that we need 24/7 power generation. In reality, we need 24/7 capacity, which renewables plus storage can deliver in an affordable manner. In order to increase affordability, protect our health and environment, and modernize the grid, we must deploy 21st century technologies.

Consumer Protection from Costs

Pennsylvanians are experiencing an affordability crisis. A recent report from the US Energy and Information Administration revealed that the average Pennsylvanian's electricity bill in July was $212. That means that just one utility is costing households as much as 3.27% of the monthly median income. This puts many everyday folks in an economically tenuous situation, and if done thoughtfully, policy can protect Pennsylvanians from additional costs posed by data centers. The language of HB 1834 establishes a floor for what we should expect of the PUC in terms of consumer protections. Exit or early termination fees protect everyday people from paying for stranded assets, should a data center company choose to bail on its investments. We suggest strengthening the end-of-contract process to better define what "sufficient notice" means so that the PUC has the tools it needs to hold these companies accountable.

Similarly, we agree that it is vital that utilities are not able to recover the costs of data centers through increasing costs to the average ratepayer, however, the existing language should be adjusted to account for costs attributed to planned commercial data centers that may not ever be built. This will help ensure that residents and businesses are not left holding the bag for expensive upgrades to the electric grid that would likely have otherwise proved unnecessary without planned commercial data center. A recent report from the Union of Concerned Scientists highlights the critical need to adjust the historic practice of spreading various costs to all customers in the face of data center proliferation driven by large load users that can certainly afford to pay for the costs associated with these projects.

Conclusion

Data centers are coming. Pennsylvania can leverage this influx of investment to modernize the grid, diversify the state's energy portfolio, and ease the affordability crisis for everyday people with policy that ensures that data center companies are held financially responsible for the infrastructure they need. Shifting the bill for transmission and distribution to Pennsylvanians who are just trying to keep their lights on is untenable.

We need strong policy that pushes Pennsylvania towards a diverse, resilient, and sustainable energy grid that serves the public interest.

HB 1834 represents a first, important step to establish the strong policy required to ensure that Pennsylvanians are adequately protected from surging costs and other negative impacts associated with data center proliferation.

Respectfully submitted,

Donna Kohut
Policy Manager for Sustainable Economics
PennFuture