OHIO HOUSE ENERGY AND NATURAL RESOURCE COMMITTEE

Statement of F. Stuart Bresler, III on Behalf of PJM Interconnection

April 9, 2019

I. Introduction

Chairman Vitale, Vice Chairman Kick, Ranking Member Denson and respected members of the Energy and Natural Resources Committee, good morning. My name is Stu Bresler, and I am the Senior Vice President of Operations and Markets for PJM. Thank you for the invitation to appear before you this morning.

I'm here today for purely educational purposes - to provide you with data and facts associated with the status of the electric grid and pricing - both in Ohio and across the PJM footprint. We are neither proponents, nor opponents of bills that are introduced in this Committee. Again, our goal is to simply educate and provide you with unbiased data and facts to assist you in your policymaking.

Ohio is an important state to PJM, and we believe that Ohio has objectively benefitted from its commitment to our competitive markets in more than a few ways. Let me give you a few highlights:

Lower Costs. First, our markets have reduced wholesale electricity costs for each of your constituents, and for consumers across the State of Ohio. Ohioans, over the last five years, have seen more than $1 billion dollars in savings through our competitive markets. We know how important electricity prices are to a state's economy, especially an economy like Ohio's which has a strong industrial and manufacturing base.

New Investment. Second, through its commitment to competitive markets, Ohio has seen an influx of new generating plants being developed in the State. Since 2017, over ~3,200MWs of new generating capacity has come online in Ohio. An additional 7,800 MWs of new generating capacity is currently in some stage of development. To note, private investors, not Ohio consumers, bear the financial risk of this power plant development.

Reliability/Resource Adequacy. Third, through its commitment to competitive markets, Ohio continues to see reliable power delivery. Although 3,000 MW of older generating units have been deactivated or retired since 2016, that generation has been replaced with more reliable and lower cost generating units. This is another indication that PJM's competitive markets are working effectively. The PJM marketplace also has very robust reserve margins for power, meaning that we are not at risk of brownouts or blackouts due to a lack of generating capacity.

These are just a few highlights for this body, and with the remainder of my testimony today, I will provide an overview of PJM and tell you about our mission to ensure reliable wholesale electricity delivery at the lowest reasonable cost to consumers.

II. The Role of PJM

PJM is an independent organization established to coordinate the movement of electricity in all or parts of 13 states and the District of Columbia, including all of Ohio. We maintain the reliability of the high voltage transmission system for Ohio and the entire region we serve. We conduct the operation of the high voltage grid 24 hours a day, every day of the year,

continuously matching generation and load, and doing so while ensuring that "power flows" on transmission facilities remain within their established limits. Our mission is to keep the lights on at the lowest reasonable cost to the consumer. As we like to say, if the lights are not on, little else matters – to the consumers, to you the policymakers, or to us. We accomplish this mission through long-range transmission planning and by leveraging the power of competitive markets for energy and resource adequacy. Competitive markets help to ensure that the power generation needs of Ohio and the PJM region are met by the most efficient and cost-effective resources available.

I will now refer to the Attachment which supports my comments today.

As shown on page 2 of the attachment, PJM is responsible for the reliable operation of the power grid for all or parts of 13 states and the District of Columbia. Our member utility companies serve 65 million people.

As illustrated on page 3 of the attachment, PJM executes three core functions to ensure safe and reliable regional grid operations – *keeping the lights on* – for those we serve. PJM does so through: (1) Coordinated long-term, regional transmission expansion **planning**; this is analogous to urban planning; (2) **Operation** in real-time of the high voltage transmission system, which we like to compare to air traffic control; and, (3) Administration of competitive, transparent, non-discriminatory wholesale electricity **markets** to maintain operational reliability at the lowest, reasonable cost; this function is akin to the operations of the stock market.

On page 4 of the attachment you can see the independence of PJM's governance structure. PJM employs a two-tiered governance structure to ensure that it operates neutrally and independently in managing the electricity grid and markets. This two- tiered governance model is comprised of an independent Board of Managers and a Members Committee. The independent PJM Board ensures that PJM operates the grid safely and reliably and operates fair energy markets.

The Members Committee, balanced structurally to prevent undue influence by any one stakeholder or group of stakeholders, provides deliberative advice to the PJM Board through a robust, transparent stakeholder process by proposing and voting on changes and new rules regarding PJM's operations, wholesale markets, or transmission planning functions.

PJM works closely with the Public Utilities Commission of Ohio and other state regulatory commissions to identify and respond to local matters. The Organization of PJM States Inc., made up of the state commissions in PJM's region, was formed in 2005 to act as a liaison group to PJM and its members. Similarly, the Consumer Advocates of PJM States was established in 2013 to represent residential consumer concerns.

PJM's operations provide a value of nearly $3 billion in cost savings to its members each year, as shown on slide 5. The value PJM provides to its members is created through the three core functional services I mentioned earlier - planning, operations, and markets - being implemented on a broad and coordinated basis. Implementing these services across the 14-

jurisdiction PJM region allows PJM members access to more diverse supply options, and enables economies of scale.

Page 6 of the attachment briefly describes the various wholesale markets PJM operates. At its core is reliable operation of the power grid. The PJM markets exist to reinforce grid reliability by providing physical asset owners with the financial incentive to act in a manner that supports reliable operations.

III. System Reliability in Ohio and PJM

As I indicated earlier, the supply and transmission of electricity in both Ohio and the PJM region are reliable today and will continue to be reliable into the future. Reliable wholesale electricity service depends upon prudent transmission engineering and planning, effective power grid and market operations, adequate supply resources with sufficient reserves, among other things. While all of these components are important, resource adequacy – *having enough steel in the ground and other resources to meet peak demand* – is where I will focus my comments on reliability today.

To ensure resource adequacy, PJM holds an annual auction to procure capacity from various types of power supply resources for a one-year term three years into the future. For example, in May 2018, PJM held an auction to procure capacity commitments for the period extending from June 1, 2021 through May 31, 2022. The target amount of capacity PJM

procures ensures that a sufficient quantity of resources is in place to meet future demand *plus* a reserve margin to further protect grid reliability against unforeseen events. Capacity resources that clear the auction receive a daily payment during the delivery period in exchange for being available to serve load when needed.

Page 7 of the attachment shows that PJM has procured robust reserve margins to meet future demand through May 31, 2022 – the furthest date for which PJM has committed future capacity. Over the last several auctions, PJM obtained enough capacity to meet estimated future demand *plus* a reserve margin of well in excess of the minimum 15.7 percent required above estimated future demand. The reserve margin underscores the robustness of PJM's resource adequacy and demonstrates that those resources are physically and financially committed to be available when called upon by PJM. With PJM's ample reserve margin, Ohioans can be assured that they will receive reliable service; this means that Ohioans should not see brownouts or blackouts due to resource adequacy.

The robust reliability of PJM's systems and markets is further demonstrated amply right here in Ohio. On March 28, 2018, FirstEnergy Solutions notified PJM of its intent to deactivate certain nuclear units in Ohio and Pennsylvania. PJM conducted the 30 day analysis of the deactivation notice according to our tariff. As shown on page 8 of the attachment, PJM's analysis found that FirstEnergy Solutions' deactivation of those generating units is not expected to adversely impact the reliability of the PJM Transmission system due to three remedial

measures that PJM would take: one, PJM would accelerate the completion of existing baseline upgrades in its Regional Transmission Expansion Plan (RTEP); two, PJM would complete new RTEP Upgrades; and three, PJM would implement system redispatch measures. The overall cost of these upgrades to Ohio consumers is approximately $24 million.[1]

IV. Fuel Diversity in Ohio and PJM

The fuel mix portfolio is more diverse now in both PJM and Ohio than it has been historically. Natural gas, coal, and nuclear power generation comprise a more balanced share of the overall portfolio for both installed capacity and energy production.

The transition in capacity resources from coal to natural gas began with PJM's 2010 capacity auction, as shown on page 9 of the attachment. This transition represented the significant investment in new natural gas generation due to the development of the Marcellus and Utica Shale across Ohio and beyond. PJM's 2010 capacity auction was also the first auction that reflected the increased cost of compliance placed on coal-fired generation to comply with federal environmental standards. The shale gas technology has allowed developers to build new, highly efficient facilities relatively close to both fuel supply and population centers. Coal power plants,

[1] PJM Interconnection, LLC, Open Access Transmission Tariff, §VI., Schedule 12 - Appendix A - Required Transmission Enhancements , Pennsylvania Electric Company; p. 7, projects (b3017.1 - 3017.3); effective Jan. 31, 2019; PJM Transmission Cost Information Center, https://www.pjm.com/planning/rtep-upgrades-status/cost-allocation-view.aspx (as of Apr. 4, 2019)

with an average age of 52 years, and especially those less than 200MW, were displaced by the confluence of increased compliance costs and lower cost natural gas alternatives.

As illustrated on pages 10 and 11 of the attachment, this development has resulted in a more diverse and balanced fuel portfolio in both PJM and Ohio. On page 11, you will see that in 2018, nearly 24 percent of the electricity consumed in Ohio was imported from outside the state. This has been the case for some years now in Ohio, but it's important to note that the importing of power is not due to Ohio's inability to meet its demand from its locally owned generating units; instead, it means that lower cost generation from outside of Ohio was able to serve Ohio's consumers. This ultimately ensured that Ohio's consumers received reliable service at the lowest reasonable cost regardless of where the generation was located.

As page 12 of the attachment displays, Ohio's commitment to markets will see 7,800 MW of new, highly efficient natural gas technologies alone brought online. This advances Ohio's economy in places like Trumbull and Lucas counties; Carroll and Butler; Guernsey and Harrison.

V. The Evolution of PJM's Markets

With this evolution to a higher reliance on natural gas, PJM released a study in 2017 that analyzed the potential impacts of this fuel mix evolution. The study considered reliability attributes required to operate the system and looked at increasing future levels of natural gas generation across PJM to see if it might pose a reliability risk to system operations. The study

results found no upper bound that would constrain the levels of natural gas the system could accept to operate reliably.

As defined by PJM, fuel security is the ability of the system's supply portfolio, given its fuel supply dependencies, to continue serving electricity demand through credible disturbance events. In 2018, PJM studied the fuel security of our system through numerous scenarios that included various levels of generation retirements and fuel supply disruptions. In general, PJM found that the system is currently fuel secure even under extreme but credible operating conditions. However, certain scenarios that included plant retirements well above current projections coupled with extensive, long-duration fuel supply failures would likely result in electric service disruptions. Given the results of the study, PJM opened a process with our stakeholders to discuss how best to leverage our markets to monitor fuel security and incentivize resources to maintain or build capabilities that would protect against the deterioration of fuel security in the future.

PJM believes the most effective way to address fuel security is through competitive forces. Specifically, PJM seeks to define fuel security criteria and quantify the requirements for that criteria, and then use market forces to allow all resources to compete to meet those criteria. The PJM markets can provide fuel-neutral signals to value verified fuel security attributes such as direct access to pipelines, the benefits of resources with on-site fuel, and the value of new technologies that promote an array of fuel-secure resources.

Market-based solutions to resilience and fuel security should be especially important to Ohioans as it is in the epicenter of new generation development. Market-based solutions that value fuel security attributes ensure that all those that benefit from Ohio's fuel secure resources, both inside and outside the State of Ohio, pay for those benefits while the resources providing them are compensated accordingly.

VI. Conclusion

As consumer advocates often say, low prices are not a problem for consumers. PJM's markets have provided reliable service at the lowest reasonable cost. While we are neither proponents nor opponents of any bill this Committee evaluates, what is clear not only in this State but across the PJM footprint is that efforts to subsidize less competitive plants will result in higher power prices for Ohioans. Such actions have the potential to roll back the progress and stability that the markets have facilitated. Such actions could prevent the building of more efficient and cost effective plants, including cleaner technologies like solar and wind. Such actions, according to the independent market monitor who oversees PJM's market operations, could result in an increase in costs upwards of $3.8 billion across the PJM footprint.

I conclude my testimony by re-iterating the three points I began my testimony with. PJM's competitive markets have provided tremendous cost savings to your constituents and Ohio's consumers. PJM's competitive markets have attracted an abundance of new investment in Ohio.

And last, PJM's markets, in tandem with its expert planning and operations teams continue to keep the lights on, and keeping the lights on is job one at PJM.

Chairman Vitale and esteemed members of this Committee, I thank you for the opportunity to present my testimony today. I invite you and your staff to visit PJM's control center in Valley Forge, Pennsylvania to view our operations in person. We recently hired a familiar face from the great State of Ohio who I'm sure would appreciate the opportunity to be your ambassador.

Thank you, and I am happy to engage in a dialogue and answer any questions you may have.