

ENERGY AND PUBLIC UTILITIES COMMITTEE

Statement of Asim Z. Haque, on Behalf of PJM Interconnection

June 5, 2019

I. Introduction

Chairman Wilson, Vice Chairman McColley, Ranking Member Williams and respected members of the Energy and Public Utilities Committee, good afternoon. My name is Asim Z. Haque, and I am the Executive Director for Strategic Policy and External Affairs at PJM Interconnection. Thank you for the invitation to appear before you this afternoon.

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 being geographically situated within PJM's footprint in more than a few ways. Let me give you a few highlights:

Lower Costs. First, PJM's core functions, including its 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 \$2 billion dollars in savings through our core functions. 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.

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Reliability. Second, PJM is a very important player in helping to keep the lights on in Ohio. PJM expertly plans and operates the high voltage electric grid which includes over 84,000 miles of transmission line across the entire PJM footprint. We do this while adhering to a number of federally promulgated standards relating to cyber and physical security threats, constantly mindful that we must have both the intellectual bandwidth as well as the vigilance to protect the grid for the roughly 65 million people in our footprint.

Investment in Ohio. Last, through the markets that PJM operates, Ohio has seen an influx of new generating plants 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. Private investors, not Ohio consumers, bear the financial risk of this power plant development.

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.

I will also be referring to the PowerPoint attachment which supports my comments today. Please do go ahead and refer to page 2.

II. The Role of PJM

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PJM is an independent, revenue neutral organization established to coordinate the movement of electricity in all or parts of 13 states and the District of Columbia, including all of Ohio. PJM is not publicly traded and it has no shareholders. PJM is viewed by much of the industry as serving a quasi-governmental function established by the United States Congress and effectuated by the Federal Energy Regulatory Commission (FERC). In fact, PJM receives its revenue based upon tariffs on file with the Federal Energy Regulatory Commission. We work hard at our mission, which is, broadly speaking, to keep the lights on at the lowest reasonable cost to the consumer.

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

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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 core functions 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.

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Page 6 of the attachment briefly describes the various wholesale markets PJM operates. We are consistently matching supply and demand from both a technical operations standpoint, as well as a markets standpoint. And from a markets standpoint, we do this both through short-term and long-term markets, with the underlying thread being 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

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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, under its tariff, is required to conduct a type of reliability analysis when it receives such a deactivation notice. 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

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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

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)

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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, roughly 24 percent of the electricity consumed in Ohio was in fact 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. Again, the goal of PJM's markets is to preserve reliability at least cost. The markets don't pick winners and losers based upon fuel type, but rather, they select the least cost resource that will continue to preserve a reliable grid. An important result of that market construct is what you'll find on page 12, which represents the new investment I previously described of ~7,800 MW of new, highly efficient natural gas technologies in some stage of development, which advances Ohio's economy in places like Trumbull and Lucas counties; Carroll and Butler; Guernsey and Harrison.

At the same time, PJM is not putting its proverbial head in the sand and resting on its market laurels. There are more states than Ohio that have either taken action, or evaluating whether to take action to preserve its nuclear units. Some states are increasing their renewable portfolio standard targets as well. PJM is an independent thought leader in the energy space, and

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as such, we are facilitating discussion as to whether PJM's markets should evolve to value certain attributes of generating units that state policymakers are finding valuable. Let me describe a few of those efforts for you.

V. *Thinking Ahead*

Fuel Security. 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. We believe the best way to address fuel security, whether we are talking about attributes related to having fuel onsite, direct access to a pipeline, etc. is through competitive forces - by valuing this attribute in the marketplace.

Carbon Pricing. Our stakeholder community has just begun talking about the concept of carbon pricing in our energy market. The effort currently being contemplated would place states

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in the driver's seat of this endeavor, while putting PJM in the position of market facilitator of state programs. A state would set a price on carbon and PJM would then incorporate that price into PJM's energy market. Again, the discussion is in its very early stages, and we are well aware that carbon is a politically sensitive topic. Some of our members, however, are interested in a market-based solution to state endeavors focused on clean energy.

PJM has over one thousand members, each of which has an opinion about market design and each of which thinks they are correct. In that sense, my job now sort of reminds me of the job I had just a few months ago. But as we sit here today, there are two baseline policy considerations that PJM continues to adhere to – (i) that when people flip the switch, the lights come on, and; (ii) those same folks hope that they are paying the least possible price when that switch gets flipped. Our members and our states may want something different than that and ultimately it is the FERC that makes decisions about what our market design looks like. But please know that PJM is not blind to the concerns of our members or the various state initiatives cropping up around our footprint. We will facilitate discussion surrounding whether there are attributes of our generating units that should be evaluated differently, whether any consensus can be reached, and whether the FERC agrees.

VI. Cost Analysis

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Last, I want to preview for you a cost analysis that was released by PJM this morning in response to inquiries submitted to us by both the Pennsylvania Public Utility Commission and the Ohio Consumers' Counsel. A quick review of this cost analysis is as follows:

- *Year and Market:* PJM modeled wholesale energy market prices only in the year 2023.
- *Base Case:* Assuming that all remains status quo today with expected new gas units coming online and all FirstEnergy Solutions nuclear units retiring, the wholesale energy market will produce \$1.6 billion in annual savings by 2023.
- *Davis-Besse and Perry Retirements Withdrawn and All New Gas Units Still Enter Market:* This creates a scenario where an abundance of generation exists to bid into the energy market, and with nuclear units typically being “price takers” in the energy market, our modeling shows that prices will be driven even lower, saving Ohioans an additional \$95 million in the year 2023. This decrease, however, does not factor in any subsidy payments that the nuclear units would receive.
- *Davis-Besse and Perry Retirements Withdrawn and Only 50% of Planned New Gas Units Enter Market:* If, as PJM believes could be the case in the long term, development of new gas units is stunted as a result of retaining generating units in the state that would otherwise retire if not for an out-of-market subsidy, the results of the analysis would change. To illustrate this potential effect, PJM executed an additional sensitivity and assumed 50% of new gas

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units don't enter the market. In this scenario, our modeling shows that Ohioans would save less than the base case in an amount of \$16 million in the year 2023. This increase does not factor in any subsidy payments that the nuclear units would receive.

Respected members of the Energy and Public Utilities Committee, I appreciate the time that you've given me, and I look forward to answering any questions that you may have.