

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

I. Introduction

Good morning, Caucus Chairs - Senators Aument and Yudichak, Representatives Corbin and Matzie - and members of the Nuclear Energy Caucus. My name is Stu Bresler, and I serve as Senior Vice President of Operations and Markets for PJM Interconnection, LLC based in Valley Forge, Pennsylvania. Thank you for inviting me back to Harrisburg and for the opportunity to provide an update on PJM's activities since we last spoke in April of 2017. I would like to start by inviting the members of this Committee and your staff to visit our control center and see first-hand what we do.

The energy industry and the power sector are evolving rapidly. We have seen and continue to see significant changes in the way electricity is produced and consumed across the PJM region. On the consumption side, customers are taking a more active role in their electricity purchase decisions, leading to increases in demand response, energy efficiency, and distributed generation technologies. On the production side, Pennsylvania continues to be one of the epicenters of the shale gas revolution. The combination of abundant, low-priced gas from the Marcellus and Utica shales and policies supportive of competitive markets are fueling Pennsylvania's growth in the future energy economy.

Pennsylvania's policy of electric competition has benefitted the Commonwealth in at least two meaningful ways. First, through its commitment to competitive markets, Pennsylvania

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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October 1, 2018

electric consumers saw the immediate benefits of the industry's game-changing innovation that is shale extraction. Over the last decade of shale gas development, Pennsylvania consumers have seen wholesale energy costs decline between 30 and 50 percent. Without competitive electricity markets, consumers could have been locked in to outmoded, high-cost power generation technologies. Instead, Pennsylvania's 13-million residents saw the market react with agility to reflect the new pricing dynamics of low cost fuel and highly efficient new technologies. This is a major success for Pennsylvania and its consumers.

Second, through its commitment to competitive markets, Pennsylvania has developed the most robust generation development market among the PJM states. Over the last several years, 13 new natural gas plants – totaling over 10,400 megawatts of capacity – are in-service or under construction. An additional 15,000 megawatts of new natural gas projects are presently being studied by PJM. This is also a major success for Pennsylvania and its consumers. Importantly, given the open, transparent, non-discriminatory markets in place in our region and supported by Pennsylvania's policies, these resources have been financed and constructed mostly by merchant developers, with the risk of these investments assumed by the developers, not by end-use customers as was the case under a regulated regime.

Turning to the primary subject of my testimony this morning, I intend to focus on three ways that PJM and its markets are evolving so that we may continue to meet our mandate of low-

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

cost, reliable wholesale electricity. First, PJM is working with its stakeholders to enhance the transparency and accuracy of our energy prices through our Energy Price Formation initiative. Second, PJM is working with its stakeholders to develop market-based solutions that can value certain market externalities like fuel security and emissions. Third, PJM and its stakeholders are responding to a recent Federal Energy Regulatory Commission (FERC) Order that directs PJM to modify the way subsidized resources participate in PJM's capacity market auctions. FERC, in response to an observed trend in which significant amounts of PJM generation capacity may become entitled to out-of-market subsidies, directed PJM to develop a mechanism to prevent those subsidies from negatively impacting the efficient functioning of the wholesale markets.

II. The Role of PJM

Before getting into the substance of my testimony, I would like to quickly reiterate PJM's role as an independent and neutral party established to maintain the reliability of the high voltage transmission system for both Pennsylvania and the broader region we serve. The PJM planning process and markets exist together to ensure reliability and to do so at the lowest cost. Importantly, the markets exist for one reason: to support the reliable operation and planning of the bulk power transmission grid at the lowest reasonable cost. Through the exercise of these responsibilities PJM remains uniquely positioned to offer perspective that can inform this Caucus in its efforts.

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

III. Energy Price Formation

Turning to my first point: *PJM's efforts on energy market design*. Much attention is paid to PJM's capacity market. While the capacity market is important, the energy market is, and will continue to be, the most foundational of the PJM markets. Energy, what is produced instantaneously to power our homes and businesses, is the primary commodity of power generation and serves as its primary revenue stream. Therefore, ensuring energy market prices reflect the full cost of serving demand, especially at peak conditions, is critical to a robust market.

To move Energy Price Formation forward expeditiously, PJM and its stakeholders agreed to initially focus on improving "shortage pricing." Shortage pricing refers to how prices react when there is limited, or *short*, supply on the system. Shortage pricing is a critical component of energy market design and presents an important opportunity for PJM and its stakeholders to enhance price formation.

An effective shortage pricing model provides clear, transparent pricing signals that reflect the current state of the system and incentivizes market participants to act in a way that promotes system reliability. Prices that increase commensurate with tightening system conditions help mitigate emergency operations by incenting additional generation and non-generation resources to sell energy into PJM. Shortage pricing is also critical to ensuring that competitive resources

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

have the opportunity to make sufficient revenues via the markets to cover both their fixed and variable costs. By setting energy and reserve prices to levels that accurately reflect system conditions during a shortage, resources operating during this period collect revenues for responding when needed most.

As you may recall, last February this Caucus submitted a letter to PJM offering its support for Energy Price Formation reform. PJM's proposed Energy Price Formation enhancements will increase price transparency, provide load-serving entities with the ability to hedge against price volatility, and help ensure that electric market prices during peak conditions reflect the full cost to serve demand. While all resources running at PJM's direction to ensure reliability make back their costs, when all of these costs are not reflected in the market clearing prices, PJM must compensate resources through a supplemental uplift payment. By ensuring that as much of the resources' costs operating in the market are included in clearing prices, supplemental uplift payments are reduced. This improves the transparency of price information on which generators rely to mitigate risks and make capital expenditure decisions. This also improves decision-making by consumers, allowing for hedging opportunities of their own or encouraging demand reductions.

Energy Price Formation is just one example of PJM evolving to meet the needs of a changing marketplace so it can continue to deliver on its mandate of reliability electricity at the lowest cost. Importantly, these efforts are focused on refining the existing market-based

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

incentives so the generators that are necessary for reliability receive compensation commensurate with the services they provide. The PJM system is reliable today and is projected to continue to be so into the foreseeable future. Our efforts, along with those of our stakeholders, on Energy Price Formation will help ensure that future reliability is achieved efficiently and at the lowest cost to the customers in Pennsylvania and across PJM.

IV. Market-based Solutions for Externalities

Turning to my second point: *Using market-based solutions to value externalities.* PJM's markets ensure two distinct but simultaneous objectives: reliability at least cost. These objectives did not develop in a vacuum; they were developed to address a period of significant generation build cost overruns. Congress, on the wholesale side, and this General Assembly and other state legislatures like it, on the retail side, made an informed decision to leverage the power and efficiency of competitive markets to preserve reliability and discipline costs. The mandate was clear: keep the lights on and the prices as low as reasonable. Focusing on these simultaneous objectives has worked well for over 20 years. Today, the energy industry is changing and with it, the expectations of contemporary energy policy.

To the extent that certain other policy objectives are desired – such as fuel security or reduced emissions – the market can be used to value and ensure provision of sufficient quantities of these attributes. The market can efficiently incorporate these objectives and reflect them in

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

least-cost terms to producers and consumers. In fact, PJM is currently working with stakeholders to develop criteria and a market structure that would value system resilience through 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. As is the case with reliability standards, PJM believes the most effective way to address fuel security is to define fuel security 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 Pennsylvania as it is rich in energy and generation resources. To the extent that Pennsylvania supply resources are found to provide resilience and fuel security benefits to the PJM system, several of your neighboring states are likely to benefit. Market-based solutions that value fuel security attributes ensure that all those that benefit from Pennsylvania's fuel secure resources, both inside and outside of the commonwealth, pay for those benefits while the resources providing them are compensated accordingly.

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

PJM is confident that a market-based approach can work to achieve a cost-effective, fuel-secure fleet of resources just as it has for reliability. It can also work to efficiently to achieve state, regional, or even national policy goals to manage carbon and other generation-related emissions. Importantly, using market-based solutions to assign value and cost to these externalities ensures those that benefit from the positive attributes also pay for those benefits.

V. FERC Directed Efforts on Subsidy Induced Price Suppression

Turning to my last point: *PJM efforts to address subsidized resources*. In June, the FERC ruled that PJM's existing tariff is unjust and unreasonable because it does not prevent the price suppressive effects subsidies may have on our capacity market. In its ruling, the FERC recommended that PJM implement an extension of the Minimum Offer Price Rule (MOPR) that would apply to both new and existing subsidized resources. The FERC's order also proposed allowing subsidized units to be carved out of the capacity market on a resource-specific basis. As a result, these resources would not be paid the PJM capacity price and their capacity revenue requirement would ostensibly be met by the subsidizing state.

PJM is hopeful that the resource-specific carve out will provide balance between states that want to implement certain policy goals and the PJM markets on which those states rely to provide accurate price signals to perform their assigned function. However, removing generators from the capacity market is not without potential risk. As with any market, PJM's markets

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

derive benefits from scale and liquidity. Carving out resources has the potential to impact both. If the current trend of offering state or federal subsidies to favored resources accelerates, a significant amount of generation may ultimately remove itself from the capacity market. If this were to happen, it is conceivable that a “tipping point” could be reached at which the PJM capacity market could lose its ability to procure the requisite levels of resource adequacy at an efficient price in the long term.

VI. Conclusion

With that I will end where I began: by reiterating my three main points for today. First, PJM is working with its stakeholders to enhance the transparency and accuracy of our energy prices through our Energy Price Formation initiative to ensure market compensation commensurate with the reliability services supply resources provide. Second, PJM is working with its stakeholders to develop market-based solutions that can value fuel security attributes, price emissions, and ensure those that benefit pay for those benefits. Third, and finally, PJM and its stakeholders are working diligently to find a solution to address the potential for subsidized resources participating in RPM capacity auctions to suppress the market price signals that are critical for the market to continue to provide efficient, reliable, low cost electricity to Pennsylvania. Pennsylvania’s leadership is to be commended for its ongoing commitment to leveraging competitive forces that result in the provision of reliable electric service to consumers

PENNSYLVANIA GENERAL ASSEMBLY

NUCLEAR CAUCUS

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

October 1, 2018

at low cost, all while ensuring that the investment risk in supply resources is borne by the investors, and not on the back of the ratepayer. PJM looks forward to continuing to support Pennsylvania in these efforts.

Chairs Aument, Yudichak, Corbin and Matzie and distinguished members of the Caucus, thank you for the opportunity to provide my comments before you today. Again, on behalf of PJM I invite you to visit our control center in Valley Forge, Pennsylvania to view our operations in person. I would be happy to answer questions.