

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

State Policies and Wholesale)
Markets Operated by ISO) Docket No. AD17-11-000
New England Inc., New York)
Independent System Operator, Inc.,)
and PJM Interconnection, L.L.C.)

**PRE-TECHNICAL CONFERENCE STATEMENT OF
ANDREW G. PLACE, VICE CHAIRMAN
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

The Federal Energy Regulatory Commission is to be commended for hosting discussions on state policies affecting wholesale energy and capacity markets operated by the Eastern Regional Transmission Organizations and Independent System Operators. Such dialogue may indeed prove fruitful in reconciling competitive market principles with current and future state policies to support certain resources or resource attributes. I have a particular interest in this topic and wish to emphasize that my comments are solely my own, and do not reflect the positions of any other Commissioner or of the Pennsylvania Public Utility Commission (PAPUC) as a whole.

This subject is of significant importance to Pennsylvania’s energy consumers, generators and producers. The commonwealth is a major exporter and consumer of power, with 42.6 GWs of generation, and a non-coincident peak of 29.5 GWs in 2015 - generated by a diverse fuel mix consisting of 32% coal, 26% natural gas, 24% nuclear, 11% oil, and 7% renewables.^{1,2} (Nuclear generation, with 5 plants containing 9 units, accounts for roughly 10,300MW of generation capacity.) Additionally Pennsylvania is also the nation’s second largest producer of natural gas

¹ Electric Power Outlook for Pennsylvania, 2015-2020, p. 8, 19.

² An increasing portion of that portfolio is comprised of the renewable resources mandated by Pennsylvania’s Alternative Energy Portfolio Standards Act which requires that load-serving entities in Pennsylvania purchase 18% of their supply from renewable sources by 2021.

and the 5th largest producer of coal.³ Also of relevance to Pennsylvania, in the context of this technical conference, a substantive argument can be made for valuing in the market nuclear's zero-carbon generation.

In terms of public policy actions, the PAPUC currently administers an energy efficiency and conservation program, as well as an alternative electric generation program. The PAPUC was charged by the Pennsylvania General Assembly pursuant to Act 129 of 2008 (Act 129) to establish an energy efficiency and conservation (EE&C) program for certain Electric Distribution Companies (EDCs) which is now in its 8th year, and its third phase.⁴

The PAPUC is also charged with carrying out the provisions of the Alternative Energy Portfolio Standards Act of 2004 (the "AEPS Act"), 73 P.S. § 1648.1, et seq. Under the AEPS Act, EDCs and Electric Generation Suppliers (EGSs) must supply 18 percent of their retail electric sales using alternative energy resources by 2021, meeting their AEPS requirements through the purchase of alternative energy credits (AECs) in amounts corresponding to the percentage of retail electric sales required from alternative energy sources.⁵

Recently, Pennsylvania's General Assembly began an internal deliberative process to explore the future of nuclear generation assets in Pennsylvania through the creation of a nuclear caucus.⁶ However, it is unknown whether these discussions, or any other deliberations that may take place, will result in formal legislation.

In terms of accommodating public policy goals associated with our EE&C programs and the AEPS Act, a short term resource procurement target has historically worked well in providing flexibility to accommodate reductions in load associated with these state programs. This target enabled PJM to make adjustments to its reliability requirement, which in turn, avoided over-procurement of capacity. I do recognize that restoration of a short term resource procurement target could cause a one-time reduction in capacity prices associated with this

³ <https://www.eia.gov/tools/faqs/faq.php?id=69&t=2>; <https://www.eia.gov/tools/faqs/faq.php?id=46&t=8>.

⁴ The Phase 3 EE&C program has an annual maximum budget of \$246 million, with 5-year savings requirements of between 2.6% and 5.0% for the 7 major electric distribution companies (EDCs) in Pennsylvania for the period June 1, 2016 to May 31, 2021.

⁵ Eight percent of their retail sales must come from Tier I resources, which include solar photovoltaic and solar thermal energy, wind power, low-impact hydropower, geothermal energy, biologically derived methane gas, fuel cells, biomass energy, and coal mine methane. The remaining 10% includes other Tier II resources, including waste coal, distributed generation systems, demand-side management, large-scale hydropower, generation of electricity utilizing by-products of the pulping process and wood manufacturing process, municipal solid waste and integrated combined coal gasification technology. After May 31, 2021, the 18% AEPS obligation continues at that fixed rate unless altered by legislation.

⁶ The nation's first bicameral, bipartisan Nuclear Energy Caucus (NEC) composed of 18 State Senators, and 49 State Representatives has been established to educate their colleagues about the economic and environmental contributions that the state's nine nuclear power reactors provide. In addition, a diverse coalition of Pennsylvania citizens' groups (including AARP), power generators and energy, business and manufacturing associations have formed a group called "Citizens Against Nuclear Bailouts" which industry press has reported is in opposition to any legislative effort to require consumers to pay higher energy rates to subsidize nuclear energy.

action. However, avoidance of over-procurement of capacity, would increase energy market revenues to offset this temporary capacity market adjustment.

Another important tool in accommodating our EE&C programs and the AEPS Act is seasonal resource procurement. Such an approach provides greater efficiency in avoiding procurement of unneeded annual capacity resources, when only summer or winter resources are required. This tool also provides more flexibility for resources to participate in capacity markets, particularly traditional base capacity generation resources, seasonal renewable resources, and demand response. Lastly, seasonal procurement avoids excess procurement of annual resources, thus reducing energy market price suppression effects. Again, capacity prices may be temporarily reduced during the transition to seasonal capacity procurement.

Impact of Subsidies on Generation Resources: As to the impact on wholesale energy and capacity markets of direct subsidies for targeted generation resources, including nuclear units,⁷ I believe that the magnitude of this policy mechanism on price signals is of paramount concern.

Very moderate, and incremental programs, such as energy efficiency programs and demand side management programs can and have been accommodated in the past without major market impacts,⁸ as has the excess power sales permitted under PJM's tariff for excess power under PJM's Fixed Resource Requirement (FRR) alternative.⁹ ISO New England Inc. (ISO-NE) exempts 200 MW of renewable resources from the minimum offer price rule (MOPR) in its capacity market and allows any unused portion to carry forward for up to three years and 600 MW. Today, only 1.819 GWs (Quad Cities alone) is poised to receive nuclear subsidies within the PJM footprint. While it is unclear whether such programs might be frozen, whether the federal courts might take action, or whether similar programs will take root in other jurisdictions, the potential exists for any considered subsidies in Pennsylvania to have substantive impacts on market efficiency.

To the extent multiple state programs provide support to a substantial amount of nuclear generation, a regional approach to "clean energy" incentives may be more desirable from a market efficiency and customer perspective. In examining the various options, it is critical to

⁷ Examples of subsidies include Illinois' procurement of zero emission credits. Senate Bill 2814.

⁸ PJM's previous 2.5% Short-Term Resource Procurement Target is one such tool that in the past effectively accommodated such short-term resource state policies, when combined with seasonal and other peak demand side products.

⁹ Intra-PJM Tariffs --> RELIABILITY ASSURANCE AGREEMENT --> RAA SCHEDULE 8.1 --> RAA SCHEDULE 8.1.E-Conditions on Purchases and Sales of Capacity Resources by FRR Entities.

fully analyze both the achievement of program goals, and the positive and negative impacts on energy and capacity prices on customers and various technologies.

Price on Carbon: While internalizing a carbon price throughout PJM would produce a more optimal market solution, sub-regional pricing is both feasible and, perhaps, a more likely policy outcome.¹⁰ A carbon fee would be technology agnostic – permitting nuclear, wind, solar, demand response and clean coal to compete on an equitable footing. Resultant increases in energy prices can help existing nuclear plant economics, while carbon revenues could be returned to customers, or used for other social program purposes as directed by the state. On the negative side, carbon prices may not be sufficient to maintain the economic viability of the least efficient nuclear plants. Additionally high carbon emitting technologies, absent advances in carbon sequestration technology and economics, would clearly be negatively affected. I also fully appreciate the challenges of carbon pricing, and alternatives would likely need to be developed to address states that choose not to implement a carbon pricing mechanism.

To address the “leakage” problem associated with non-participating states, PJM is prudently exploring a “border adjustment mechanism” that would address this challenge which arises with such a sub-regional approach. These measures would preserve PJM’s ability to economically dispatch generation over the full PJM region, while isolating the pricing impact of the policy choice to only those states incorporating carbon pricing. While such a mechanism may help resolve some regional pricing impacts and issues of carbon intensive imports into a carbon priced region, it may not resolve competitive equity issues associated with exports of energy from a carbon-priced region into non-carbon-priced regions. Such considerations are of particular interest to energy exporting states such as Pennsylvania.

A further potential energy market based pricing reform might be to reevaluate the ability of renewable generation to bid in negative energy prices. I encourage stakeholders to continue discussions around energy market pricing reforms, particularly given the newness and complexity of this issue, as energy market solutions are preferable to capacity market solutions

¹⁰ As an example of the benefits of a regional approach see PJM Phase 1 Long-Term Economic Analysis of the EPA’s Clean Power Plan Final Rule, May 5, 2016, p. 1.

as energy markets are inherently more competitive than capacity markets and, as such, require less market power mitigation.¹¹

However, in the event energy market solutions are not viable, capacity market mitigation strategies may be necessary. This mechanism must, at its core, mitigate significant market price suppression effects, yet also avoid administratively determined prices that can impose above-market prices in other jurisdictions. The Reliability Pricing Model (RPM) has an increasingly heavy dependence on theoretical prices based on assumptions of the marginal technology.¹² In reality, market clearing prices for capacity have cleared well below these theoretical prices, resulting in consistent and ever increasing over-procurement of capacity resources.¹³

To the extent capacity adjustment mechanisms are considered, any adjustments to market-clearing capacity prices resulting from market mitigation mechanisms should reflect more empirical/market-based pricing, rather than theoretical-based marginal unit pricing, which PJM has historically relied upon.¹⁴ To do otherwise will cause additional over-procurement of capacity resources, which ultimately suppresses long-term energy prices. Given that nuclear units rely substantially on energy market revenues, this approach may be counter-productive. Further, capacity markets are characterized by high market power, and price adjustments can be volatile. Lastly, subsidized generation may impact the level of developer interest in a region, which may distort repricing under a capacity price adjustment mechanism.

¹¹ Energy market power mitigation is limited to periods of transmission constraints and may also be exercised during a few brief periods of high demand at an aggregate PJM market level.

¹² The Reference Resource is a combustion turbine (CT) generating station, configured with two General Electric Frame 7FA turbines as defined in the OATT. Manual 18, section 3, p. 27.

¹³ PJM over-procurement has increased from 5.0GW in 2008 to 8.7GW in 2019. (SOM Report, Volume II, Section 5, p. 232.) The 2019/2020 RPM Base Residual Auction cleared 167,305.9 MW of unforced capacity in the RTO. Accounting for load and resource commitments under the Fixed Resource Requirement (FRR), the reserve margin for the entire RTO for the 2019/2020 Delivery Year as procured in the BRA is 22.4%, or 5.9% higher than the target reserve margin of 16.5%. (<http://www.pjm.com/~media/markets-ops/rpm/rpm-auction-info/2019-2020-base-residual-auction-report.ashx>)

¹⁴ The complexity of capacity market solutions is illustrated by PJM's proposal put forward at its August 2016 Grid 20/20 Forum. It's "Capacity Market Repricing" proposal would allow the quantities of those subsidized resources to be recognized as capacity for purposes of meeting the PJM installed reserve margin (so as to avoid the "paying twice" problem) while seeking to insulate the overall market clearing price from the impact of those subsidies.

In conclusion, I respectfully suggest that in examining solutions to out-of-market payments to targeted generation and the lack of recognition of the value of nuclear zero carbon generation, I have a stronger preference for market-based, energy market solutions, rather than capacity price adjustment solutions.

Respectfully submitted,

/s/Andrew G. Place

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have this day e-served a copy of the foregoing document upon each person designated on the official service list compiled by the Federal Energy Regulatory Commission in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure.

Dated at Harrisburg, PA this 25th day of April 2017.

Respectfully submitted,

/s/ Andrew G. Place
Andrew G. Place, Vice Chairman
PA Public Utility Commission