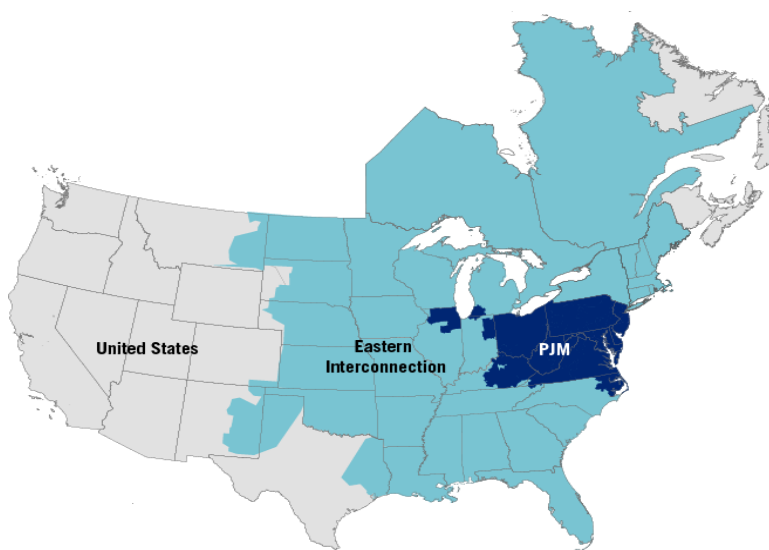


Statement of PJM Interconnection, LLC for DOE's Quadrennial Energy Review Public Meeting

Boston, Massachusetts, April 15, 2016

PJM Interconnection appreciates this opportunity to participate in the Department's April 15 public meeting re: the DOE Quadrennial Energy Review. PJM operates the world's largest competitive wholesale electricity market and ensures the reliability of the bulk power grid in a 13-state region which includes all or parts of New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, West Virginia, Tennessee, Kentucky, Ohio, Michigan, Indiana, Illinois and the District of Columbia, a region that includes over 61 million Americans.



As a Regional Transmission Organization (“RTO”) regulated by the Federal Energy Regulatory Commission, PJM integrates markets, operations and regional planning to ensure the reliable delivery of electricity to customers in the region at prices which are both competitive for customers yet sufficient to incent the development of new resources where needed to meet the forward reliability needs of the region. PJM has been an industry leader in integrating new and innovative technologies ranging from technologies on the customer side of the meter, such as energy efficiency and demand response to innovations on the supply side such as the integration of energy storage technologies.

Today's hearing is focused, among other subjects, on ensuring regional supply adequacy and by extension, the role of capacity markets in ensuring adequate resources for the future. PJM operates an integrated set of markets for energy, capacity and ancillary services which together are designed to ensure the reliable provision of electricity to wholesale customers at competitive prices. Each market serves its respective role:

- The energy market ensures that energy delivered to customers is provided at competitive prices and that the least cost resources to meet demand in a given hour are selected;

- The ancillary service markets ensure that needed ancillary services such as regulation are always available to support reliable grid operations; and
- The capacity market establishes forward commitments of sufficient resources to meet the region's electricity needs at the least cost. Capacity resources have a "must offer" requirement and must be made available to PJM as the grid operator when called upon to address system emergencies.

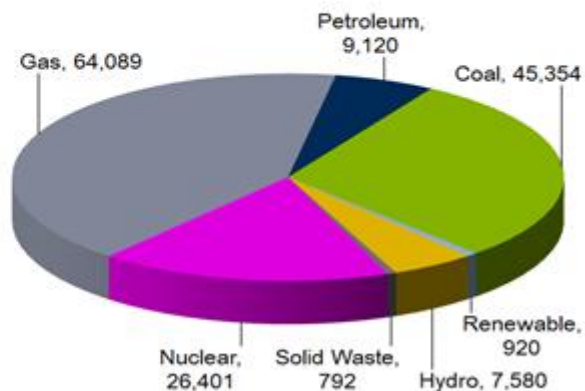
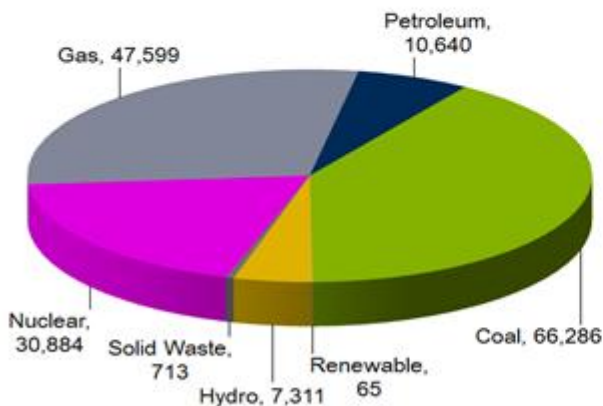
Taken together, the markets are designed to produce efficient outcomes and to reward generation and demand side resources that are able to operate most efficiently. Units compete with one another in a bid stack with the most efficient units clearing first. As a result, resources such as wind or solar or nuclear, each of which have low going forward costs (and in the case of wind and solar resources, zero fuel costs), are awarded for those efficiencies through PJM's energy markets.

PJM's capacity market similarly is designed to incent the development of the most efficient new resources and retain the most efficient existing resources needed to meet forward demand. As a result, the most efficient generation resources which meet strict performance requirements are recognized through the process of clearing bids based on their costs. This feature of the market works to ensure a reliable fleet and recognizes the reliability benefits of various resources including nuclear, coal, natural gas-fired units and renewable resources.

The market results in ensuring reliability are proven. For one, in very short order PJM has managed a significant transition of its generation fleet as a result of EPA's imposition of the MATS rule. As a result of this transition, a new cleaner fleet has been developed which will serve the region well into the next decade. Since the inception of the capacity market, PJM has seen over 29,000 MW of new cleaner generation and 12,000 MW of new demand response and energy efficiency resources which have cleared and substituted for traditional fossil generation. And although most of that new generation is gas-fired, the resource mix for the 2018/2019 capacity auction included over 6500 MW of nameplate capacity in the form of wind resources. Although we have seen significant retirements of coal generation, coal generation continues to play a significant role in the PJM region as evidenced below:

2007 PJM Installed Capacity

Capacity Cleared Market for 2017/2018 Delivery Year



Specific Observations for the Department's QER Work

As the QER is designed to consider potential policy initiatives going forward, it is important to step back and recall what the markets, and in particular the capacity market, are designed to do and what they are *not* designed to do. PJM's markets *incorporate* the policy choices of policymakers—the markets do not set those policies. To the extent states in our region have adopted RPS standards, those policies have been reflected in the new cleaner profile of the fleet which is bidding into our markets. Moreover, the prices resulting from the energy market reflect the deployment of those resources including the lower energy prices resulting from the increased gas fired generation and renewable resources in the fleet.

Where markets do not function as well is when policymakers impose conditions on the markets that cannot be priced. For example, individual policy choices such as environmental rules that put a value on emissions *can* be incorporated into the market. On the other hand, policy actions that are targeted to specific units or are otherwise not resource neutral work against what would otherwise be the economically best solution and distort what would otherwise be the monetization of those preferences into the market price. The problem is further exacerbated when states within a single market take different actions which potentially contradict each other. Just like electrons don't respect state borders, state A's individual actions can lead to other states picking up the costs of State A's policy choice or otherwise demanding their own out-of-market work-around.

This does *not* mean that state preferences cannot be accommodated in the markets. We are a nation of 50 states and the markets should reflect those state preferences. Instead, the issue is *how* state policies are designed and implemented not whether they should exist. This entire area is one which is ripe for further policy development and will be informed by the US Supreme Court's resolution of the pending case Hughes vs. PPL Energy Plus, L.L.C.

In short, the markets are a valuable tool to effectuate public policy in the most efficient manner but they were never designed to be a substitute for that policy. As a result, the most direct way to ensure a set of resources that meet policy objectives into the future is for policymakers to effectuate public policies that value those attributes which policymakers wish to reward be it carbon reduction, preservation of nuclear or additional deployment of renewable generation. It would be unreasonable to judge the markets as not producing results which policymakers have themselves not specifically adopted. As noted above, the PJM markets have successfully incorporated record amounts of renewable resources, demand response and energy efficiency. But going forward, we urge the DOE to focus the QER on consideration of how policies can be designed so as to best utilize the markets to incorporate those policy choices rather than having policies designed in a manner that works against market outcomes. In short, the markets can be a helpful tool if public policies are designed in a way which allows the markets to produce the most efficient dispatch results for the benefit of customers consistent with that policy choice.

Another ripe area for QER consideration relates to the growing role of microgrids and other behind the meter generation in ensuring the overall reliability of delivery of electricity to the ultimate customer at the lowest cost. These behind the meter resources can potentially serve as a valuable tool to enhancing reliability. However, to date, PJM has had little visibility into these resources given their "behind the meter" status. With the Supreme Court's clarification in the EPSA proceeding, PJM is now able to work closely with states and behind the meter resource owners to ensure better visibility into the performance of these resources as well as a greater potential to integrate these resources into the wholesale markets. We believe this is a ripe area for development in the future. Accordingly, we suggest the QER recognizes the importance of establishing greater visibility and participation by these resources into the markets, while still respecting jurisdictional bounds. In so doing, the QER would be fulfilling its goal of flagging key topics for consideration going forward.

PJM stands ready to work with the Department and stakeholders as it continues to deliberate these issues in the development of the QER. We appreciate the Department's considerable efforts and its work to reach out to grid operators and all affected stakeholders.