



Before the Indiana Senate Utilities Committee

Testimony of Evelyn Robinson, Managing Partner – State Government Policy

PJM Interconnection, L.L.C

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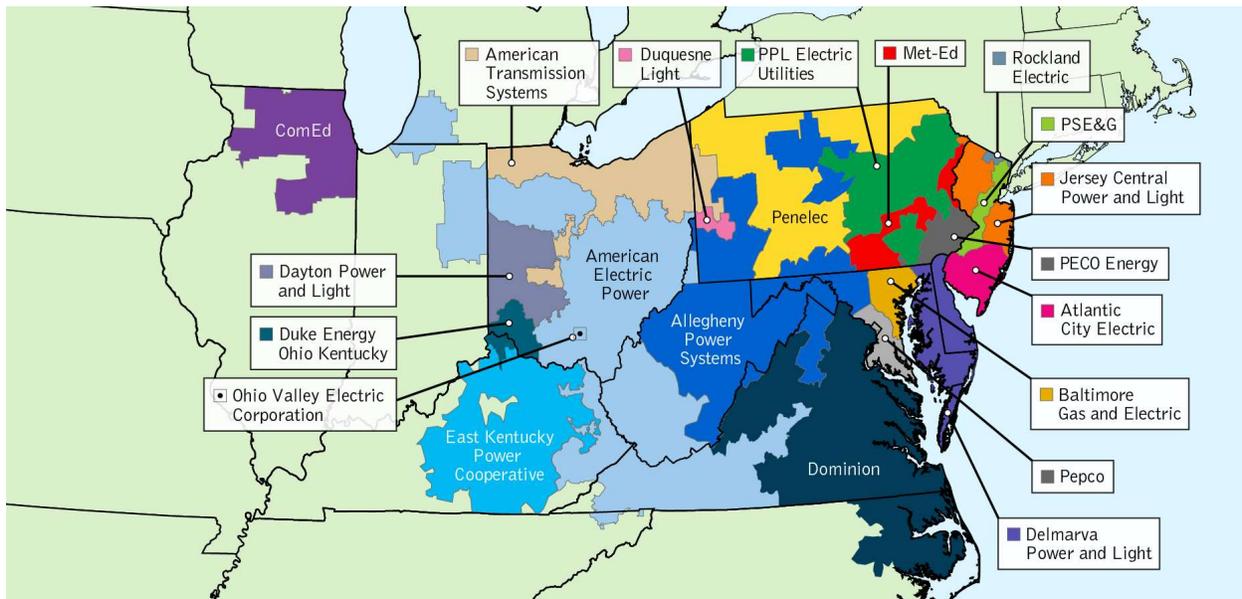
Introduction

Good day Chairman Koch, Ranking Member Perfect and esteemed members of the Utilities Committee. My name is Evelyn Robinson, and I am the Managing Partner within the State Government Policy Department at PJM Interconnection, L.L.C (“PJM”). Thank you for having me today. I am here before this committee to speak on PJM’s role as a regional transmission organization (“RTO”) and to discuss PJM’s winter preparedness and performance during the recent cold weather event.

As an RTO, PJM’s primary focus is the reliable operation of the nation’s largest electric grid for 65 million people in 13 states and Washington, D.C. – including portions of Indiana.

As illustrated in Figure 1 of my testimony, our service territory extends from New Jersey to Illinois, encompassing the Indiana/Michigan electric utility portion of the AEP transmission zone. This scale allows us to provide reliable electric service from the Atlantic Ocean to the Mississippi River; from the Great Lakes to the Outer Banks.

Figure 1. Map of PJM Footprint



Like the Midcontinent Independent System Operator (“MISO”), PJM is situated within what is called the Eastern Interconnection, one of the three major electric grids in the continental United States. As illustrated in Figure 2 below, the Eastern Interconnection, the Western Interconnection and the Texas Interconnection typically operate independent of each other. The Eastern Interconnection extends from the Atlantic coast to the Rocky Mountains and operates as one harmonized machine. Various entities across the Eastern Interconnection are responsible for aspects of reliability, depending on geography and the role of the organization.



Figure 2. **Map of the Three Interconnections**

Source – United States Environmental Protection Agency

Configured as an integrated machine, the Eastern Interconnection allows for resources within the interconnection to provide reliable energy across state boundaries. With electric demand being largely driven by weather conditions, the broad regional scope of operations permits energy to be efficiently transferred to locations in need of power – such as Indiana, when weather is mild in, say, New Jersey – and vice-versa. This regional scope of operations provides consumers with access to plants across a large footprint and ultimately lowers the overall cost to consumers through a regional scale.

Winter Preparedness

Next, I will discuss the two methods by which PJM prepares for winter conditions. First, PJM leads a range of operational readiness activities that are focused on winter preparedness. Second, the incentive structure for power plants in PJM is designed – through a series of payments and penalties – to drive investment by plant owners in winterization activities. I will briefly describe each method in further detail.

Operational Readiness

With respect to operational readiness, navigating through severe cold weather is one such situation that PJM prepares for annually. Our cold weather preparations are extensive and are planned throughout the year in coordination with our member companies.

We have incorporated an extensive pre-winter checklist into our manuals. This checklist, which is directed to generators, covers a variety of winterization actions to be undertaken. Generators report the results of their analysis to us through our electronic eDART reporting system. Even though the reporting is voluntary today, we have received an extremely high level of generator compliance – particularly from those fossil-fueled units that otherwise could face the most weather-related impacts. In addition, at the start of the summer and winter season, we conduct emergency response drills with our members, natural gas pipelines and survey generators for fuel inventory.

PJM and its members' preparation includes everything from increasing staffing for weather emergencies to coordinating maintenance activities that ensure equipment is ready for winter conditions. The extensive preparations of our members, and the close coordination with those members and other stakeholders, allow PJM to prepare for unforeseen outages or other system disruptions. All of these elements have contributed to a definite trend of improved performance of our generation resources.

Other measures taken by PJM and its members for winter preparedness include:

- *Reactive Capability Verification*: PJM verifies every generator's reactive capability. This is used to ensure that real-time, day-ahead and seasonal analysis accurately reflect the capability of generators to support system voltage.
- *Seasonal Fuel Inventory and Emissions Survey*: This survey is focused on fuel supply and delivery details, fuel inventory and emissions limitations. This information is used for preparation in advance of the winter (as well as summer).
- *Generator Minimum Operating Temperature Survey*: This focuses on determining the ambient conditions generators at which are capable of running. Ninety-one percent of generators responded for the 2020/2021 winter period.
- *Cold Weather Exercise*: PJM recommends generators that have not run on their primary or alternate fuel in the preceding eight weeks leading up to Dec. 1, should self-schedule a test to run during the month of December when temperatures are below 35 degrees.
- *Annual NERC Winter Readiness Webinar*: PJM participates to review/refresh on winter lessons learned, related to the NERC Reliability Guideline: Generating Unit Winter Weather Readiness.
- *Gas- Electric Coordination*: PJM works very closely with the multiple natural gas operators in the PJM region, especially in the winter, to model and analyze any potential fuel constraints.

Incentive Structure

Our markets exist to reinforce grid reliability by ensuring that physical asset owners have a financial incentive to act in a manner that supports reliable operations.

As a result of extreme weather conditions our region experienced during the Polar Vortex of 2014, we made notable changes to our market design to ensure that the market both rewards superior generator unit performance and penalizes poor generator unit performance. This market design, called "capacity performance," ensures that capacity offered into the market appropriately reflects performance risk, and megawatts from units less likely to perform during such conditions are offered at higher prices to reflect that risk.

During the 2014 Polar Vortex, up to 22% of generators in our footprint were unavailable. As a result of the winterization procedures which I described above, along with the incentive and penalty reforms we instituted in 2016, we have seen a notable improvement in generator performance, including during periods of extreme weather. Outages during the recent cold weather in PJM peaked at 9%.

Again, our market structure creates an environment that better incentivizes power plants to perform when needed or face stiff financial penalties.

February Cold Weather Event

The cold spell that afflicted much of the country in mid-February 2021 brought heightened awareness to the importance of dependable electric service and the entities responsible for operating the grid. Being one of those entities, PJM was able to reliably serve its customers and did not face any significant operational challenges during the week of Feb. 14.

In fact, during the cold snap, PJM's winter preparedness activities noted above, as well as the conditions within the PJM region, allowed for PJM to export power to neighboring regions, including MISO. While maintaining reliability for its own system, PJM was also able to provide electricity to neighboring regions. PJM electricity exports set records with at least 10 hours of more than 13,000 MW exported and exceeding 15,700 MW at one point on Monday, Feb. 15. This is more than double what PJM would export during a typical day.

However, February's cold weather event was not the first time that customers in PJM and MISO benefited from an interregional network and coordinated operations. During the 2014 Polar Vortex, it was PJM that found itself with severe cold weather and a need for additional power. Because of the transmission network linking PJM and MISO, PJM was able to import 8,600 MW¹ from PJM neighboring systems to help serve our customers. This is the benefit, again, of being part of the Eastern Interconnection.

Put together, coordinated operations and joint planning between PJM and MISO work to provide reliable continuity of service.

Conclusion

In conclusion, PJM remains confident in its ability to operate through adverse and extreme weather scenarios. We can never guarantee that an event will occur without incident, but we believe that we have taken appropriate measures to mitigate against extreme weather. PJM has learned from previous cold weather periods and sees this as an opportunity to continue to learn from the industry.

The events of the past several weeks demonstrate the continued strengths of an interconnected grid that can share its resources and move power to where it is needed most. Like all of the states in PJM's footprint, Indiana benefits from the regional lens through which PJM plans and operates the transmission system. This has made the delivery of electric service to Indiana's customers both reliable and more affordable.

PJM welcomes the opportunity to work with its states, stakeholders and the other grid operators to identify ways we can continue to enhance our grid operations.

Thank you.

¹ <https://www.hydro.org/wp-content/uploads/2017/08/PJM-January-2014-report.pdf>