

PJM's Capacity Performance Plan:

A restructuring of the market that promises greater reliability

In June 2015, the Federal Energy Regulatory Commission (FERC) approved a Capacity Performance plan from PJM that has been called a “dramatic restructuring” of the grid operator’s capacity market. The changes are designed to improve reliability and avoid a recurrence of problems that arose during the 2014 polar vortex, when extreme temperatures forced a significant portion of PJM’s generation offline. Despite any potential advantages of this “pay for performance” proposal, its ultimate impact on consumers is clear: costs will go up.

Background

In January 2014, a mass of arctic air swept into the Northeast and Midwest, dropping temperatures to levels that are typically seen in Antarctica and creating conditions that meteorologists said happen once every few decades. Because of this so-called polar vortex, PJM set a winter peak demand record on the evening of Jan. 7 of more than 141,312 MW, breaking a mark that had been set during that morning’s peak. The following day, PJM’s outage rate hit 22 percent, which was roughly three times the historical average; more than 40,000 MW of the fleet’s 180,000 MW could not be delivered.

In an Aug. 1, 2014, “problem statement,” the PJM staff said these conditions revealed, among other concerns, that “current market rules provide insufficient incentives for resource performance and penalties for non-performance”; it also noted that problems existed with fuel security and that gas supply inflexibility led to “sub-optimal price formation and unprecedented uplift payments to generation resources.” *GreenTech Media* summed it up accordingly:

Gas-fired power generators, lacking firm delivery contracts with gas suppliers, backed off their plants as gas prices skyrocketed. The price of electricity briefly shot up to \$9,000 per megawatt-hour, and operating margins tightened.

The cold weather also caused problems for power plant operations. Not only was natural gas less available and more expensive, but coal-plant operators discovered their coal piles were frozen. Gas igniters failed, pipes froze, and seals cracked. Backup oil plants were unavailable, as trucks couldn’t make fuel deliveries.

On Aug. 20, 2014, PJM released a capacity performance proposal that aimed to correct those problems. It had five primary objectives: fuel security through a dependable fuel source; enhanced operational performance during peak periods; high availability of generation resources; flexible unit operational parameters; and operational diversity. In mid-December 2014, PJM’s Board of Managers filed the plan with FERC, which approved it on June 9, 2015, with a request for relatively technical modifications. The grid operator began implementing the plan in capacity auctions that began on Aug. 10, 2015, for the year starting June 2018. The results of the auctions have now been published, and load service entities and their customers are now liable for the increased costs of reliability.

The Plan

Under the Capacity Performance plan, generators that commit to having power available when demand is highest will receive larger payments than those that do not. If the generators that commit do not meet those commitments, they will for the first time be penalized under a “no excuses” policy. Plants qualifying for higher performance payments must agree to be available for at least 700 hours of non-emergency operations throughout the year.

Key elements of the plan include:

- To be eligible for higher capacity performance payments, resources must be able to provide (1) “sustained, predictable operation” for 16 hours per day for three consecutive days; (2) an annual demand response capable of sustained curtailment for 72 hours “such that it is capable of reducing demand at least in the amount of the committed quantity for the 16 peak hours of three consecutive days”; and (3) energy efficiency plans that PJM determines can be offered in its Reliability Pricing Model auction and that show the committed level of reduction for all of a given delivery year.
- Capacity performance resources must deliver energy in all hours scheduled by PJM or those hours self-scheduled when PJM has declared a hot or cold weather alert and/or a maximum emergency generation alert.
- Capacity performance resources must offer energy into the day ahead market as available on a non-emergency schedule

continued

(economically for DR resources). Limited exemptions would be granted only for resources not scheduled by PJM. Penalties will be applied for each hour that scheduled energy is not delivered, with a provision that generation owners could avoid the penalties by providing energy from a non-capacity resource in their portfolio.

- “High availability” is defined as the ability to run for a minimum number of hours over three consecutive days, with energy being offered as a non-emergency resource with no limitations.
- Non-performing resources would be penalized for every hour when energy was scheduled but not delivered. Those penalties would be based on the net cost of new entry and capped at 1.5 times net CONE for the delivery year and 0.5 percent net CONE for a single event. Generators that were scheduled to operate by PJM but that were “forced out for the operating day” would incur penalties for the entire 24-hour period in which the hot or cold weather alert was issued.
- The Capacity Performance plan would have no immediate impact on the installed reserve margin (IRM) calculation: “This reflects the fact that the existing IRM calculations already assume higher capacity performance than is occurring, meaning that the new product should produce performance that already is factored into the IRM calculation.”

First Auction Under the Capacity Performance Plan

In the first auction under its new Capacity Performance plan, PJM saw clearing prices for the 2018-2019 delivery year rise 37 percent, to \$164.77, in most of its market. That is an increase from the \$120 figure for the prior 12 months, which was reached in a 2014 auction and was the highest in eight years. The overall cost of securing the supply increased from \$7.5 billion last year to \$10.9 billion. The 2015 auction procured 166,837 MW of capacity, representing a 19.8 percent reserve margin. It also attracted more than 3,500 MW of new generation – 3,000 from new generating units and 500 MW of updates to existing generating units. Capacity secured from DR rose 1 percent, to 11,084 MW. The RTO also held two Capacity Performance incremental auctions in August and September. The first resulted in a \$38.17/MW-day uplift to load, or about \$2.65/MWh for a 60 percent load factor customer; the second resulted in a \$27.69 MW-day uplift, or \$1.90/MWh for a 60 percent load factor customer.

Cost/Benefits

PJM has consistently stated that by the time the plan is fully in place in 2018, it will increase average consumer costs by \$2 to \$3 per MWh across its footprint. It has also said

that the rules would increase costs at the auction for the year starting June 2018 by \$1.9 billion to \$5 billion, a figure within the margins of the results of the first auction. However, the grid operator has argued that those increases would be offset by benefits that include greater reliability and less volatile pricing.

The results of the three auctions yielded capacity performance uplift charges that vary depending on the planning year and each individual user’s load factor (the efficiency ratio of usage relative to peak demand) as follows:

	PLANNING YEAR 16/17	PLANNING YEAR 17/18	
LOAD FACTOR	\$38.17	\$27.69	<<<< Capacity Performance Uplift Rate (\$/MW-Day)
20%	\$7.95	\$5.77	Approximate Capacity Performance Uplift at Various Load Factors (\$/MWh)
30%	\$5.30	\$3.85	
40%	\$3.98	\$2.88	
50%	\$3.18	\$2.31	
60%	\$2.65	\$1.92	
70%	\$2.27	\$1.65	
80%	\$1.99	\$1.44	
90%	\$1.77	\$1.28	

GDF SUEZ Energy Resources’ Position

GDF SUEZ Energy Resources’ practice is to accurately and correctly account for risk within our pricing model, given the rules in effect. Now that PJM’s auctions are over, our prices have been updated, and the curves for PJM capacity have been updated. Given the change in the law and the revised cost of capacity for our customers, GDF SUEZ Energy Resources is forced to recover uplift costs from those customers affected. Please be aware that other suppliers may not have taken this same approach and could uplift these capacity costs in your bill. Customers concerned that they might be impacted by this kind of pricing position should ask their suppliers how they are treating PJM’s new capacity performance rules.

For more information about these charges, please visit the following websites:

<http://pjm.com/~media/documents/reports/20150720-capacity-performance-at-a-glance.ashx>

<http://www.gdfsuezenergyresources.com/index.php?id=1209>