



PJM developed its current capacity market model to ensure the future availability of power-generating capacity and other resources needed to help keep the bulk electric system operating reliably for consumers.

Capacity Market Supports Reliability

PJM's capacity market secures enough power supplies three years in the future to ensure that sufficient supply will be available to meet peak consumer demand.

Capacity resources include generators that produce electricity, and other resources, such as demand response, that can reduce consumer use and help operators keep the supply and demand for electricity in balance. Both types of capacity resources are procured in PJM's capacity market (also known as the Reliability Pricing Model or RPM).

To meet federally mandated reliability requirements, a utility that delivers electricity to end-use customers must have the resources available to meet customers' demand. Utilities must also provide readily available reserve power in case of emergencies. Utilities can meet these requirements three ways: with generating capacity they own, with capacity purchased directly from others or with capacity obtained through PJM's capacity market auctions.

Key Facts

- Designed to ensure future availability of energy resources
- Encourages investment in generation infrastructure
- Includes both generation and demand response capacity resources
- Introduced in 2007

The History of the PJM Capacity Market

Before 2007, PJM operated using a short-term capacity model. It was characterized by low prices and significant investor risk, which didn't encourage enough new investment in the right places to meet future energy supply needs. Areas of PJM were facing the prospect of not having enough resources to serve customers in the future.

Although PJM as a whole had enough generating capacity, the pace of generation development had slowed because – though electricity demand was rising – revenues were low, and there was not enough financial incentive and too much uncertainty to attract investors. Low prices had also forced needed generation in certain areas to retire, exacerbating the issue.

A Market-Based Solution

In 2007, the current design of the capacity market was implemented, using a market-based approach to obtain the resource capacity needed to ensure reliability, with incentives that stimulate investment and lessen investor risk.

The essential elements of the capacity market are:

Procurement of capacity three years before it is needed through a competitive auction

Payments are made to the resources in the delivery year when the resources have agreed to be available.

Locational pricing

Locational pricing helps to identify capacity needs throughout the region.

Price differences reflect limitations on the transmission system's ability to deliver electricity into an area.

A variable resource requirement curve (VRR) to set the price for capacity





The previous “vertical” demand curve valued capacity only up to the minimum reserve requirement. Anything above that was valued at zero. This price volatility created considerable financial risk and discouraged investors. The current downward-sloping demand curve pays for capacity above the minimum reserve requirement, reduces investor risk and helps to lower the price for all capacity acquired in the annual auction.

Three-Year-Forward Auction Fosters Competition

The three-year-forward auction allows for competition between new resources and existing resources, and it draws resources from across the PJM footprint. The wide scope of the market provides for a competitive marketplace, which helps the transition of capacity resources as new resource technologies are developed and implemented.

Under the design, demand response resources can compete with generation. Utilities can meet their requirements through generation, demand response or energy-efficiency programs. Demand response resources can submit offers to reduce demand in the capacity market auctions, and those offers are eligible to set the market-clearing price for capacity, similar to generation resources.

Ensuring Competitive Market Outcomes

PJM has three specific procedures in place to ensure a competitive outcome for each auction: its must-offer requirement, its Minimum Offer Price Rule (MOPR) and its Market Seller Offer Cap (MSOC).

Must-Offer Requirement

All existing generation capacity resources are required to offer into an auction unless an exception is approved by PJM with input from its market monitor. This ensures that resources cannot be withheld from the market in an effort to increase the clearing price for capacity.

Minimum Offer Price Rule

PJM’s Minimum Offer Price Rule was established to ensure that resources do not exercise buyer-side market power in order to artificially reduce capacity prices. It applies to all new and existing generation resources.

PJM’s current MOPR rules went into effect for the capacity auction conducted in June 2022 for the 2023/2024 Delivery Year. These rules work to accommodate state policy and self-supply business models and address attempted exercises of buyer-side market power. The rules are also designed to avoid the potential for customers to pay twice for capacity and create a sustainable market design by keeping clearing prices consistent with supply and demand fundamentals.

Market Seller Offer Cap

The Market Seller Offer Cap was established to ensure resources do not exercise seller-side market power in order to artificially increase capacity prices. It applies to all existing generation capacity resources.

The MSOC rules were changed, based on an order from the Federal Energy Regulatory Commission, effective for the capacity auction conducted in June 2022 for the 2023/2024 Delivery Year. The current rules set the cap at a value that subtracts a resource’s historic net energy and ancillary service market revenue from its Avoidable Cost Rate (ACR).

The ACR reflects the cost incurred by the resource if it is not used for the delivery year and excludes all costs included in the resource’s cost-based energy offers. Resources may use a default ACR if one exists or request the use of a resource-specific ACR. All resource-specific MSOC values are reviewed and approved by PJM with input from its market monitor.

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