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RTO Capacity Markets and Their Impacts On Consumers and Public Power

Summary

Regional transmission organizations (RTOs) created (and now operate) mandatory capacity markets to ensure long-term electric grid reliability. In practice, these complex, opaque mechanisms are not actual "markets." They do not provide for true competition; they increase electricity costs to consumers, interfere with state and local generation resource decisions, and reward incumbent electric power generators with payments that exceed their actual costs. The American Public Power Association (APPA or Association) believes mandatory capacity markets should be abandoned as part of any reforms to wholesale markets or, at a minimum, be structured to ensure the ability of utilities to "self-supply" their reliability needs.

What Is a Capacity Market?

In most wholesale electricity markets, electric power generators are paid for providing:

- **Energy —** the actual electricity consumed by customers;
- **Capacity —** standing ready to provide a specified amount of electric energy;[1] and
- **Ancillary Services —** a variety of operations needed to maintain grid stability and security, including frequency control, spinning reserves, and operating reserves. Ancillary services generally account for a very small portion of market revenue.

The amount of energy a utility needs varies depending on the level of consumption by its customers. The amount of capacity a utility needs is its estimated peak demand, plus a reserve margin. Peak demand generally occurs during the hottest and coldest times of the year. Payments for capacity generally are intended to help a power plant recover costs incurred in the construction, financing, and maintenance of the plant that may not be fully recovered through sales of energy and ancillary services.

Capacity can be purchased from days to years in advance. It can be secured through ownership of a generating unit or through a long-term bilateral contract with a third-party provider (collectively referred to as self-supply). It can also be secured through wholesale capacity markets operated by certain RTOs.[2] Three RTOs—ISO New England (ISO-NE), New York ISO (NYISO), and PJM Interconnection (PJM)—operate mandatory capacity markets. In PJM and ISO-NE, capacity is procured through auctions held three years in advance of a one-year period when the capacity is needed. NYISO operates several capacity auctions. These auctions generally are for capacity needed closer to the time of the auction and generally for shorter periods of time. Midcontinent ISO (MISO) operates a voluntary capacity market for the sale of capacity several months in advance of the planning year.[3] The U.S.'s three other RTOs—Southwest Power Pool, Electric Reliability Council of Texas, and California ISO—do not operate capacity markets.

Wholesale capacity markets are not markets in the common sense of the word, but are RTO-administered constructs to: 1) determine the availability of capacity from generators within the region for a set period of time; 2) determine which capacity can be sold during that time period; and 3) set a price to be paid by utilities and other entities for the capacity to be provided. To sell capacity in a capacity market auction, generators submit a bid that specifies the amount of capacity being offered and the price sought for that capacity. The RTO assembles all such bids—from lowest to highest price—until the amount of capacity needed in the region for that time period can be satisfied. Capacity that was bid at or less than the last bid price clears the auction and is paid this market clearing price. Capacity that was bid at more than the market clearing price has failed to clear the auction and is not paid.

1 Electric utility customers can also sell their willingness to curtail power usage as capacity. This service is called demand response.

2 See APPA's issue brief, "Wholesale Electricity Markets and Regional Transmission Organizations," for more information about RTOs.

3 MISO sought to develop a mandatory capacity market in 2011, but the Federal Energy Regulatory Commission rejected the proposal.

Mandatory Capacity Markets Are Costly, Complex, and Opaque

Capacity markets are complicated and opaque—governed by thousands of pages of rules and little meaningful data available to the public. RTOs do not publish the prices that generators offer for the sale of their capacity. As a result, utilities and their customers have no idea what sort of windfall is accruing to those generators whose actual costs are lower than the market clearing price. In an open market, that would be fine—anyone unsatisfied with the lack of information could seek a better, more transparent deal elsewhere. But PJM, NYISO, and ISO-NE operate mandatory capacity markets where all capacity must be offered into and purchased from the capacity auctions operated by the RTO, with restrictions placed on securing capacity outside these markets through self-supply.

Ostensibly, the purpose of a mandatory capacity market is to encourage new investments where they are most needed on the grid. Instead, these rules have served to increase customers costs. A substantial share of a customer's total electric bill is for capacity in regions with mandatory capacity markets, and a significant part of that bill is for existing, not new generation. Mandatory capacity markets have best served to reward incumbent generators, while throwing up roadblocks to states and local utilities seeking to build or incentivize new or diverse generation portfolios.

For example, approximately $111 billion has been paid or pledged in the PJM mandatory capacity market to capacity suppliers through the middle of 2022—approximately $1,600 per person living in PJM's 13-state area. In 2018, capacity prices in PJM added $140 per year to the average electric bill of a homeowner, $1,000 for a retail establishment, and $28,000 for an industrial facility. But only a small portion of the over $100 billion spent or committed is financing new generation capacity. About 92 percent of the capacity procured in PJM mandatory capacity market auctions has been capacity from existing power plants. Only two percent has been from new and reactivated generation resources.[4]

Buyer-Side Mitigation Rules Block Resource Choices, Self-Supply

About five years ago, several states located in PJM and ISO-NE became frustrated with the lack of new power generation being developed despite billions of dollars spent on capacity payments. They sought to take control of their energy resource future by independently negotiating long-term contracts for new capacity. A long-term contract can provide both cost savings over time and a valuable hedge against price risk. Additionally, purchasing capacity via a bilateral contract allows the buyer to purchase specific attributes largely ignored by the RTO-operated markets, such as reduced emissions, fuel diversity, and local reliability needs. To ensure that these new assets cleared the auction, the plan by states was to bid these new units at a low or zero price, not their actual cost.[5] Such an offer would minimize the risk that the units might not clear the mandatory capacity auction. Had these new units not cleared a mandatory capacity auction, then the utility customers within the state would have had to pay for capacity twice: once as part of the long-term contract to secure that capacity, and a second time to another generating unit through the mandatory capacity market. This issue is very important to public power utilities that also have sought to self-supply capacity, i.e., to purchase generation (and, so capacity) as a physical hedge against price risk in mandatory capacity markets.

Incumbent generators, however, were concerned that this new generation would not only displace other units that submitted higher-priced offers (whose capacity would no longer be needed), but also result in a lower-cost unit setting the market clearing price, thus reducing windfall profits to all incumbent generators. PJM sided with the generators—and the Federal Energy Regulatory Commission (FERC) has sided with PJM—warning against the damaging effect of theoretical buyer-side power to artificially reduce capacity prices. As a result, in 2011, PJM greatly strengthened its minimum offer price rule (MOPR) under which it replaces low- or zero-price bids from new natural gas plants with a higher price that reflects what PJM says the new plants' costs should be.

PJM in 2018 did attempt to implement rule changes to allow for some public power and state exceptions to the MOPR. APPA and other stakeholders had opposed these proposals because they were complex, risky, and likely to cause dramatic price increases. However, FERC upended those efforts with a June 29, 2018, order finding that PJM's current capacity market did not sufficiently prop up prices in the face of increased state efforts to procure or retain specific resources. Instead FERC proposed for consideration a new rule that would apply PJM's MOPR to all resources (not just new natural gas plants) and allow some generators receiving state payments to avoid the capacity market auctions entirely, but the details of that option have not yet been sorted out.

Similarly, ISO-NE has had in place since 2013 a FERC-ordered MOPR that applies to all new resources, including renewable energy (other than a small exemption). NYISO has had a MOPR in place since 2008 for some of the down-state

4 Another six percent has been for demand response, a form of capacity in that a customer stands ready to reduce its demand for power during times of peak usage.

5 These units had "contracts-for-differences," whereby the seller receives, and the buyer pays, the agreed-upon contract price, not the capacity auction clearing price. Either the seller or buyer makes a payment to the other based on the difference between the auction and contract price.

zones. However, while FERC approved two self-supply exemptions in NYISO, RTO-proposed rule changes to implement these exemptions have been objectionable to public power and have failed to proceed.

While many of these rule changes have been proposed and approved by FERC in reaction to states' efforts to assert control over power generation resource decisions, they affect all entities, including public power utilities and rural electric cooperatives seeking similar control. In sum, the removal of the self-supply exemption in PJM, the absence of such an exemption in ISO-NE, and the delay in implementation of a self-supply exemption in NYISO, all create significant uncertainty for public power's ability to self-supply in the future.

Another problematic development in the mandatory capacity markets has been the adoption of capacity performance rules (in PJM) and performance incentives (in ISO-NE) rules. In New England, capacity providers not operating (or available to operate) when needed are subject to stringent penalties. These penalties are driving up the prices bid (and thus the prices being paid) for capacity. Likewise, in PJM, generators wishing to participate in the capacity auction must meet similar availability requirements. PJM also lifted a cap on the bid price for capacity, allowing generators to bid in prices greater than needed to cover the costs of meeting the capacity performance obligations. Moreover, these rules greatly disadvantage hydropower and other forms of renewable energy, demand response, and energy efficiency programs, further constraining supply. PJM's Capacity Performance rule was challenged in the U.S. Court of Appeals for the District of Columbia Circuit by APPA and eight other parties, including public power utilities, trade associations, and environmental groups, but the court upheld the rule in a decision issued in June 2017.

Additional State Actions

In recent years, many states within these RTOs have taken (or are considering) steps, either legislatively or through state commission actions, to procure greater levels of renewable power and/or to establish sources of revenue to prevent existing nuclear plants from retiring. The RTOs have attempted to adjust their rules to better accommodate these state efforts, but thus far these proposed changes have not provided sufficient protection to public power self-supply.

ISO-NE received approval from FERC in March 2018 to implement its proposal to accommodate state-sponsored resources, known as the Competitive Auctions with Sponsored Policy Resources (CASPR). These new rules retain the existing mandatory capacity auction with a MOPR but create a second stage "substitution" auction in which an existing power plant that cleared the first auction can offer to retire and make room for a new resource that failed to clear the initial auction. However, this new rule is of limited use to public power utilities seeking to self-supply their capacity needs. The retiring units must retire permanently to qualify and buy out their capacity obligation from the substituting unit, which can only be a renewable, non-emitting, or alternative energy resource subject to state statute or regulation in place as of January 1, 2018.

PJM proposed complicated rule changes to its MOPR to accommodate state and public power actions, but FERC rejected these proposals. Instead, FERC opened a hearing on PJM's capacity market rules, and proposed that PJM expand its MOPR to all types of generating resources with the option to remove some units from the auctions. APPA has joined efforts to oppose FERC's order and to ensure that the MOPR is not applied to public power self-supply. FERC has been delayed in issuing the final order, creating uncertainty for the next PJM capacity auction.

NYISO is developing a proposal to implement carbon pricing in its wholesale energy market that could in theory achieve the goals of these state actions. Again, this may incent carbon-driven resource decisions, but does not address the underlying impediments to self-supply imposed by NYISO's buyer-side mitigation rules.

Congressional Action

The direction Congress may take on wholesale electricity markets in the 116th Congress remains unclear. In the 115th Congress, the House Energy & Commerce Committee held a series of hearing on these markets, but the Senate Energy & Natural Resources Committee never began a comparable effort. The leadership of the House Energy & Commerce Committee will continue its examination of the Federal Power Act this year, which could touch on wholesale markets issues, and held a hearing on oversight of FERC in June 2019 that examined how the Commission's decisions impact the nation's energy and environmental future. Topics covered included transmission policy, energy storage in wholesale markets, and wholesale capacity markets.

American Public Power Association Position

APPA continues to respond to federal regulatory proceedings and legal actions, both independently and with other stakeholders, in support of public power's interest to ensure its ability to secure capacity at just and reasonable rates and to self-supply capacity without hindrance. Additionally, the Association believes constantly shifting rules are indicative of more foundational problems and has long advocated for fundamental reforms that would transition from mandatory capacity markets to voluntary residual markets. Under such a market, primary procurement of capacity would be conducted by states and local public power and cooperative utilities through bilateral contracts and ownership of capacity. As an interim step to such wholesale reform, APPA has sought to fully restore public power rights to self-supply within the existing mandatory capacity markets.

In close cooperation with its members, in the spring of 2015, the Association drafted legislative language for this intermediate fix for the RTO capacity markets. It proposed that: 1) RTOs that have not yet implemented a mandatory capacity market should not move to do so without unanimous support by the states in the region; and 2) RTOs that have already adopted a mandatory capacity market should not impair (through rates, rules, regulations, or practices affecting rates) the ability of a load-serving entity6 to meet its capacity obligations through a resource it owns, builds, controls, or for which it has a contract for capacity.

6 A load-serving entity is an entity, including a utility or a load aggregator or power marketer, that has been granted the authority or has an obligation to provide electricity to a group of customers, such as those within the utility's service territory.

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The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. Our association advocates and advises on electricity policy, technology, trends, training, and operations. Our members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power.