

Capacity Overprocurement

Draft Problem / Opportunity Statement

The Base Residual Auction (BRA) has consistently cleared more capacity than required by the Installed Reserve Margin (IRM). The load forecasts that the IRM is based on have consistently over forecast load, leaving reserve margins even higher than expected once actual load is taken into account. The result of these two factors is that PJM consistently holds reserves far in excess of reliability requirements. PJM currently has 24.5GW of capacity in excess of reliability requirements. Despite nearly zero load growth, PJM has added a net 15GW of generation since 2008.

The demand for capacity in the BRA is set by the Variable Resource Requirement (VRR) Curve. This curve is determined by an estimate of the Net Cost of New Entry (Net CONE), the IRM, and an administrative formula. Aspects of each of these components contribute to overprocurement.

Net CONE: Net CONE is intended to represent the price which would incent development of new capacity resources. By design, RPM will pay Net CONE when capacity falls below the IRM, with the intent that this drives new resource development as the region approaches a capacity shortage.

In practice, the region has observed abundant new entry at prices far below the administratively set Net CONE. This creates a situation of permanent oversupply: if actual Net CONE is lower than the one used to run RPM auctions, the auctions will create incentives for new development even while the region has a surplus of reserves.

Installed Reserve Margin: The IRM is set as a function of the load forecast and other factors. Despite many years of effort, the load forecast used to run the BRA has been high every time. The results is overprocurement of unneeded capacity that is either later liquated at a steep discount or simply retained.

Risk management is a highly developed art. The PIEOUG is concerned that RPM's practice of making firm commitments for the entire estimated capacity requirement three years in advance fails to follow best practices for managing load forecast uncertainty.

Errors in the load forecast may be unavoidable, but how the BRA handles those errors may be improved. For example, for some years, the BRA only procured 97.5% of estimated capacity requirements three years in advance, with the other 2.5% held-back for later purchase. The stated purpose of that rule was to provide opportunities for latecomers to sell capacity closer to the delivery year, but its effect was primarily to reduce overprocurement. The 2.5% hold back ended up almost entirely being absorbed by downward revisions to the load forecast. Although the hold-back might not have achieved its intended purpose, it proved a useful tool to reduce capacity overprocurement.

As another example, many market participants committed capacity in BRAs, only to later purchase replacement capacity and exit those commitments as load forecasts declined. Although PJM has been consistently opposed to these transactions, such behavior is both expected and beneficial. Indeed, financial transactions similar to these are considered an important part of most future market design, as it provides tools to manage precisely the types of forecast risk RPM is plagued with.

VRR Curve: The VRR curve sets the price PJM will pay for capacity beyond the IRM. It is intended to provide more price stability and give consumers greater reliability if the price is right. However, the VRR curve is set more-or-less arbitrarily, without consideration of the actual reliability value of extra capacity. Currently, ratepayers are paying substantial amounts of money for capacity that has, according to PJM's own analysis, virtually zero reliability value.

The costs of this overprocurement are significant. PJM consumers most likely pay billions each year for unnecessary capacity. Asset owners make investments based on price signals that may prove faulty, creating a risk of a large pool of stranded assets. Overreliance on capacity markets distorts energy markets, creating a competitive disadvantage for many sources of low-carbon electricity.

Less concretely, but just as important, the growth of capacity markets presents a threat to RTO governance and legitimacy as institutions. The complexity and administrative nature of capacity markets makes them subject to endless tinkering. The last decade of PJM's history make clear that many interests see capacity market design as a forum where they can gain economic advantage. Preventing expansion of the capacity market beyond what is needed to ensure reliability will help preserve the fairness and objectivity of wholesale electricity markets.

PJM has a quadrennial review process intended to address problems with

Draft Issue Charge

Issue Source

This issue has been referred to the Members Committee for action by the PIEOUG

Issue Content

A review of RPM rules to address persistent overprocurement of capacity.

Key Work Activities and Scope

1. Review history and education on RPM intent, design features, and performance.
2. Education on:
 - a. current new entry by generation and demand response;
 - b. best practices from outside the power industry for managing procurement risk in the face of uncertain future needs; and
 - c. Quadrennial Review.
3. Evaluate alternatives to the current method of determining Net CONE or an alternative, including but not limited to use of empirical values. Ensure that RPM demand curves represent both the best estimate of the actual cost of new capacity, including both supply and demand side options.
4. Evaluate alternatives to the current practice of running the BRA based on the full IRM. Alternatives to be evaluated to include, but not be limited to delayed procurement of some portion of the IRM (i.e., a holdback) and participation of virtual offers or similar financial products.
5. Develop an alternative VRR curve shape that sets a price consistently based on the marginal reliability value of additional capacity.
6. Review the quadrennial review process and recommend changes if necessary.

Areas not to be addressed

1. Load forecast methods.
2. Resource eligibility for RPM
3. Capacity Performance requirements.

Expected Deliverables

1. Recommended a new method for determining the VRR curve.
2. Recommend other modifications to RPM rules to better manage load forecast uncertainty.
3. Possible improvements to the Quadrennial Review process.

Duration of Work

TBD; consider synching deliverables with the auction timing to be determined in the MOPR compliance filing.