Energy Market Advisors LLC

Conceptual Framework for Supporting Balancing Resources in New England without the Minimum Offer Price Rules (MOPR)

Overview and Defining the Problem

According to ISO-NE, the clean energy transition in New England will depend on two types of resources - Variable Renewable Energy Resources (VRERs) and Balancing Resources (BRs).[1] VRERs will eventually become the new "baseload" resources and produce most of the electrical energy. ISO-NE notes that these resources are evolving, but still require "above market" financial support via state incentives and contracts, making them largely indifferent to wholesale market prices. BRs will be necessary to "fill in" the energy gaps, which may last from milliseconds to multiple weeks. Currently, BRs that are needed for reliability are primarily made up of Merchant Resources (non-utility owned or non-state-sponsored) and are wholly dependent on wholesale market prices. The MOPR and CASPR (Competitive Auctions with Sponsored Policy Resources) are intended to protect price formation in the capacity market, while providing a path for state sponsored resources to enter the market over time. However, if insufficient trading occurs in CASPR, the region may experience some overbuilding. ISO is concerned that if the MOPR is eliminated, price suppression could occur in the FCM and unsponsored BRs may retire prematurely, leading to uncertain reliability outcomes. In effect, removing the MOPR requires a solution to potential price suppression in the capacity market, or moving to a different resource adequacy construct. The key question ISO has posed is: "How can the market design solve for both reliability and the States' clean energy objectives?" This paper provides thoughts on this and a possible conceptual framework for addressing this question from a consumer-owned utility perspective.

Alternatives for Solving for Resource Adequacy

At the September 3, 2020 Participants Committee meeting, Rob Gramlich's presentation[2] identified six Resource Adequacy models. These are:

1. Current Capacity Construct with MOPR
2. Eliminate Broad MOPR
3. PJM Fixed Resource Requirement (FRR)
4. Voluntary-Residual Capacity Market
5. LSE Responsibility with Vertically Integrated Utility & RTO
6. LSE Responsibility with Competitive Generation and Retail Markets

Public power systems have long argued for eliminating the MOPR and/or implementing a Voluntary-Residual Capacity Market construct. As noted above, to implement either of these

[1] See Gordon Van Welie presentation to New England Council - "The Clean Energy Transition is Driving Change to New England's Wholesale Electricity Market", October 2, 2020.

[2] See Rob Gramlich presentation to NEPOOL Participants Committee - "Resource Adequacy Models and Low Carbon Markets", September 3, 2020.

approaches, the region will need to address the purported price suppression effects and the corresponding potential impact on continued operation of BRs needed for reliability. In order to achieve this outcome, we present a conceptual framework that retains much of the current New England resource adequacy construct, but replaces the MOPR and CASPR with a minimum BR constraint in the FCM.

Conceptual Framework for Replacing MOPR/CASPR with a Minimum Balancing Resource Constraint in the Forward Capacity Market (FCM)

To address the potential price suppression impacts on BRs from eliminating the MOPR, we propose consideration of a minimum BR constraint in the FCM settlement, along with selected other changes to the FCM construct. This new construct could be structured along the following lines:

1. Eliminate the MOPR for all resources.
2. Utilize Effective Load Carrying Capability (ELCC) for determining the Qualified Capacity for all resources participating in the FCM.
3. Incorporate a minimum BR requirement constraint in the primary FCA settlement.
    a) The minimum BR constraint would take the form of an MRI-type demand curve (calculated consistent with how zonal demand curves for Import and Export Zones are determined.)
    b) The rate paid to BRs that clear in the FCA should be greater than or equal to the primary FCA clearing price.
    c) A series of GE MARS (or similar software) runs starting with the Qualified Capacity of the resources that cleared in the most recent FCA could be used to calculate the change in the Expected Energy Not Served (EENS) as the relative quantity of BRs and VRERs assumed in the regional resource mix changes.
    d) The total payment to BRs (BR adder plus primary FCA system price) at the estimated total quantity of Energy Security Improvements (ESI) requirement (GCR+RER+EIR?) for the applicable FCA delivery period would be equal to Net CONE.
    e) Calculate the Scaling Factor and apply it to the BR marginal reliability impact curve to pivot the rest of the BR demand curve around this point.
4. To facilitate settlement of this construct, we would strongly suggest that the region consider changing from a “Descending Clock” auction to a “Sealed Bid” auction structure for settling the FCA.

Under this revised FCA construct, as the quantity of BRs decrease, the payments to the remaining BRs should go up. This would make up, in whole or in part, for any downward pressure on the primary FCA price associated with clearing of resources receiving support to promote State policy objectives due to elimination of the MOPR. In addition, this approach avoids challenges of integrating any Forward Clean Energy Market (FCEM) revenues into the FCM, to the extent that the region decides to pursue such mechanism. Should the region consider a Voluntary-Residual FCM construct in order to allow States to assure development of

specific resources to meet State policy objectives through direct procurement of specific technologies, we believe that this approach could also facilitate this structure.

Initial Thoughts and Observations

1. Replacing the MOPR/CASPR with a minimum BR constraint provides a way of providing support to needed BRs as the share of VRERs installed on the New England system increases. To the extent elimination of the MOPR depresses the primary FCA clearing price, BRs would be somewhat insulated from any such a drop in revenues.
2. Typically, people have viewed qualifying capacity using the ELCC as a way of putting intermittent and renewable resources on a more equal footing with respect to contributions to reliability. For example, an all gas resource should have a lower ELCC than a dual fuel unit with 24 hours of firm or on site fuel. Similarly, a dual fuel resource with 10 days of firm or on site fuel should have a higher ELCC than a dual fuel unit with only 24 hours of firm or on site fuel.
3. Linking the payment to BRs to the primary FCA clearing price and a demand curve that pivots around the value of Net CONE helps preserve consistency between payments to BRs and other resources in the FCA. Explicitly calculating the reliability impacts of changes in the share of BRs on the system also helps promote linkages between the payments to BRs and their relative contributions to reliability.
4. We have tied the BR curve to the estimated ESI quantity during the FCA delivery period because it appears that ESI reflects the minimum quantity of resources with firm or stored energy supply needed to maintain reliability. ISO has previously indicated that as the quantity of VRERs installed on the system increases, the ESI quantities should also increase. This seems to be an appropriate relationship. We also believe that the ESI quantities are reasonably well understood and could be defined in a time frame to support the proposed FCA structure. With that said, we would also consider a different way of determining an "anchor" BR quantity should the ISO decide that something other than estimated ESI requirements is needed.
5. We have not considered the critical factor concerning how BRs that receive a commitment through the FCA should be settled as we approach the delivery period. Possible approaches would be to settle against the near-term ESI forward procurement mechanism under development, or absent that against the DA ESI option premium clearing price.
6. Based on what ISO has already developed, we believe that the BR demand curve structure is consistent with the principles already being applied in the FCM and should be reasonably transparent and understandable to stakeholders. Since the basic construct builds on the current capacity market model, we believe that this approach could be implemented sooner and with less difficulty than developing a totally new construct that may require developing a new set of tools from scratch.

Conclusion

The focus of this methodology has been to try and develop a framework to provide added support for BRs that are needed to maintain reliability on the New England system as it evolves

over time and greater quantities of variable renewable energy resources get installed and participating in the New England markets. Clearly, these concepts will need to be better defined, tested, and refined further, but we believe that this approach holds promise for facilitating the New England grid transition in the nearer term and helping maintain resources needed to meet applicable reliability standards. We look forward to any thoughts, questions or concerns.