Capacity Senior Task Force
RPM Issues Summary

Last Updated: October 18, 2013
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1. Clearing of Limited Demand Response in RPM

Issue Summary:

In the current implementation of the Limited and Extended Summer Demand Resource Reliability Targets in the RPM auctions, the Targets are represented as *minimum* requirements for the higher valued Annual and Extended Summer resources. This means that as long as the auction procures sufficient Annual and Extended Summer Resources to satisfy the minimum requirements, any procured resources in excess of the PJM Reliability Requirement can be provided by resources with lower availability and reduced response requirements, such as Limited Demand Resources.

The effect and unintended consequence of implementing minimum requirements for the Annual and Extended Summer products in the RPM auction algorithm is to reinstate a vertical demand curve for the procurement of annual resources, which leads to boom-bust pricing cycles detrimental to attracting investment in the market. In contrast, a sloped demand curve dampens the price and resource adequacy volatility characterized by boom-bust cycles.

Status Quo:

Minimum requirements for Annual and Extended Summer resources have the unintended consequence of essentially instituting a vertical demand curve for these higher quality products and, in some locational areas in PJM, allow Limited DR to set the price, thereby suppressing the investment signal needed to maintain an adequate supply of the higher quality products.

Figure 1: Current Modeling of the Minimum Annual and Extended Summer Requirements
Package A (PJM):

This package uses the Limited and Extended Summer Demand Response Reliability Targets established by PJM’s Resource Adequacy Department as maximum procurement targets, or “caps”. This proposal re-institutes the clearing of annual resources through the sloped VRR curve and restores an accurate investment signal for these higher reliability value products.

Figure 2: The PJM Proposed Method for Modeling of the Limited and Extended Summer DR Targets

Package B (Wilson/SMECO):

This package uses the Limited DR Reliability Target minus a portion (TBD) of the STRPT to establish a Maximum Limit on the amount of Limited DR cleared in the BRA. The Limited DR Reliability Target will increase (by an amount designated as "X") to reflect changes currently under discussion by this Task Force under the “DR as an Operational Capacity Resource” issue. All product types would clear against the VRR curve in a least-cost manner subject to Maximum Limited DR constraint and Minimum Annual Resource Requirement. This package supposes that the reliability value of Annual and Extended Summer resources is the same once the minimum annual resource requirement is met.

Package D (Johnson Controls):

Same as Package B but with the Limited DR Reliability Target described in Package A.

Package E (EnerNOC):

Use minimum resource requirements for Annual and Extended Summer resources to create sloped demand curves for those products respectively, akin to the manner in which the VRR curve is created. There would be no cap on the Limited DR product. All products would clear in the same way they do.
today, i.e. merit order, unless the minimum requirement has not been met. This would prevent Limited DR from clearing until the minimum requirements of the Annual and Extended Summer resources have been met. The auction would use the same clearing mechanism as today, but would have to clear to the sloped curves instead of the vertical curves, before resuming clearing in merit order for all products.

**Process Status:**

A vote at the CSTF level is being conducted from Oct 17 – 22. The results of this vote will be offered as a first read to the MRC on Oct. 24th. A vote on this topic is scheduled for the MRC meeting on 11.14.2013 and the MC meeting on 11.21.2013. This timeline accommodates a FERC filing by no later than December 1st.

2. **Demand Response as an Operational Capacity Resource**

**Issue Summary:**

PJM expects that it will need to dispatch capacity Demand Response on a much more operational basis going forward. Currently large blocks of demand response have exactly the same notification time which is based on minimum standard rather than physical capability. Large amounts of Demand Response are emergency-only which creates large discontinuity in dispatch when moving into emergency operations. PJM recognizes the potential impact to reliability based on the existing capacity Demand Response construct that requires administrative procedures under Emergency operations to deploy capacity Demand Response.

**Status Quo (summary):**

Approximately 95% of all DR committed in the capacity market has a 2 hour notification lead time and 100% of resources have a 2 hour minimum event duration. These resources can only be activated to respond when PJM declares an Emergency capacity event, an administrative procedure that is being used today to gain access to a large tranche of capacity resources that would not otherwise be deployed and that can be priced at an offer cap that signifies PJM should be short reserves. The effects of this continued practice is to not let PJM operators use demand response to the full potential of its capabilities, and to downgrade the impact of PJM declaring emergency operating procedures.

**Key Discussion Points:**

- Should DR have a must-offer requirement in the energy market akin to generation capacity resources and therefore could be dispatched economically as opposed to only under emergency procedures?
- How can PJM gain more operational flexibility through diversification of lead time requirements? Can lead times reflect actual physical capabilities?

**Summary of PJM Proposal:**
- Align emergency strike price offer caps with notification lead time. Shorter lead times get higher offer cap. The purpose of this measure is to provide the incentive for DR resources with the physical capability to respond in 30 minutes or 1 hour to do so. Starting in Delivery Year 15/16, 30 minute lead time is the default for DR resources unless physical capabilities can be proven to require longer (i.e. safety or equipment damage).
- 1 hour minimum event duration
- No energy market must-offer. Instead, two types of Demand Response: “Capacity DR” and “Emergency DR”
  o “Emergency DR” is Demand Response that has environmental restrictions (i.e. backup generation)
  o “Capacity DR” is all else. PJM able to call on “Capacity DR” when least-cost economic resources are exhausted. Events may be notified by something similar to a Hot Weather Alert or other operational alert/notice.

Process Status:

This item will be voted at the CSTF level after the November 4th meeting. The results of the vote will be offered as a first read to the MRC on Nov. 14th. A vote on this topic is scheduled for the MRC meeting on 11.21.2013 and the MC meeting on 12.13.2013. This timeline accommodates a FERC filing by December 15th.

3. Replacement Capacity/Prospective Capacity Resource Incentives

Issue Summary:
Consistently lower Incremental Auction (IA) prices and ability for financial gain via IA buy-out of BRA commitment creates unintended perverse incentive for BRA sellers to over-estimate actual physical capability in BRA sell offer. Resources adopting this behavior in the BRA displace known physical capacity and create a potential reliability issue in the future.

Key Discussion Items:
- Deficiency Penalty Rate
  o Currently, resources that fail to deliver at the beginning of the delivery year pay 120% of the Resource Clearing Price (average of BRA or IA clearing price)
  o Is this an adequate penalty to deter speculative activity in the BRA?
- PJM Sell Offer
  o When reliability requirement is revised down due to load forecast, PJM sells over procured capacity in BRA into IAs.
  o Currently, PJM upward sloping offer curve results in a lot of capacity being offered at very low prices.
- Milestones
Should Planned Internal, External, DR, and EE resources have stricter milestones to meet for PJM's tracking purposes, and should PJM have a mechanism or the authority to penalize or bar resources that don't meet those development milestones?

**Package A (PJM)**
- Deficiency penalty rate of 200% of BRA clearing price.
- Buy bids settle against IA clearing price, but pays difference between IA clearing price and BRA clearing price (or whichever auction the resource originally sold in). This "charge" is then allocated back to load zones proportionally.
- PJM Sell offer would be floored at the BRA price.
- 2 Incremental Auctions, instead of 3 (Status quo).

**Concepts from other packages**
- 140% deficiency penalty rate
- 200% deficiency penalty rate for planned resources, 120% for existing.
- 200% deficiency penalty rate that decreases as planned resources meet certain milestones (see graphic for example)

![Dynamic CRDC Adder Reduction Amount vs. Traditional Generation Milestones](image)

*Figure 2: Source, Mike Borgatti, Gable Associates, CSTF 10/16/2013.*

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