RCSTF Issues Overview

RCSTF

May 1, 2026

IMM

Monitoring Analytics

PJM's Proposal Aims to Raise Energy Prices

- **Higher energy prices will not be offset by lower capacity market prices.**
  - **Recent changes to Energy and AS offset and VRR curve**
  - **If the capacity market is in shortage, energy market net revenues do not affect the price when the maximum price is defined by Gross CONE.**
- **Reductions to uplift from higher LMP will not be significant without much higher energy prices.**
- **Efforts to raise prices in the current context are out of touch with and contrary to larger policy efforts to protect customers from higher rates due to data center load growth.**

What is the purpose of the RCSTF?

- Various goals of the RCSTF have been asserted:
- To raise prices
  - Shift focus from capacity market to energy market
  - Reduce uplift
- To incorporate operator actions into the market
  - RAC (after DA market) commitments
  - Conservative ops (before DA market) commitments
- To ensure that reserves are adequate for handling greater uncertainty created by a higher penetration of intermittent resources

Stated Goals Are Not Clear

- **Reducing Uplift**
  - **This is not a clear goal. The reasons for the goal have not been stated.**
  - **There is no target dollar amount or target percent of uplift defined for reduction.**
  - **No desired tradeoff between higher energy and reserves costs and reduced uplift has been identified.**
  - **The ability of PJM to reduce uplift with higher reserve requirements has not been quantified.**
- **Short term increases in uplift have resulted from conservative operations, which is being addressed directly in another stakeholder group.**

Stated Goals Are Not Clear

- **Incorporating operator actions in the market**
  - **PJM has identified RAC commitments as operator actions that can be addressed by including reserves for the asserted "energy gap" in the day-ahead market.**
  - **PJM has not identified the historic quantity of RAC commitments due to the asserted energy gap problem.**
  - **PJM has not compared the quantity of RAC commitments to the proposed reserve requirements.**
  - **PJM has not quantified other out of market actions that line up with other new reserve products to demonstrate the need or to show how success would be measured.**

Addressing Net Load Forecast Uncertainty

- **A clear, achievable goal**
- **Common goal in both PJM and IMM proposals, although details differ**
- **The IMM's position is that addressing net load forecast uncertainty due to increased penetration of renewable energy is the only clear and achievable market design goal of the RCSTF.**

IMM PROPOSAL

Overview of IMM Proposal

- Net load uncertainty included in primary and 30 minute reserve requirements
- Reserve eligibility changes
  - Add a four hour duration requirement to address PJM's concern about batteries not being sustainable as energy
  - Include pre-emergency and emergency DR in reserves
- Performance consequences
  - Recommendations for synchronized reserve penalties
  - Create consistency in rules for nonsynch and secondary
  - Address reasons for chronic under performers
- Status quo: ORDCs, reserve products

Include Demand Response in Reserves

- Currently only Economic DR is included in synchronized and secondary reserves.
- IMM proposes to include 30 minute lead time pre-emergency and emergency DR in secondary reserves.
- Triggers for eligibility as reserves:
  - Pre-emergency DR: Hot/Cold Weather Alert
  - Emergency DR: EEA2
- Reserve capability: Load Reduction Capability MW that is provided in DR Hub
- Payment: based on MCP like any resource
- Nonperformance: consequences like any resources

Synchronized Reserve Penalties

- **The MMU recommends that, for calculating the penalty for a synchronized reserve resource failing to meet its scheduled obligation during a spinning event, the unit repay all credits back to the last time that the unit successfully responded to an event 10 minutes or longer.**
- **The MMU recommends that, for calculating the penalty for a synchronized reserve resource failing to meet its scheduled obligation during a spinning event, the synchronized reserve shortfall penalty should include LOC payments as well as SRMCP and MW of shortfall.**
- **The MMU recommends that aggregation not be permitted to offset unit specific penalties for failure to respond to a synchronized reserve event.**

Synchronized Reserve Event Performance

- **Resources that chronically underperform overstate their supply availability through incorrect parameters.**
- **The IMM is developing a proposal to reduce payment of reserves to resources that underperform.**
- **Resources could be tested to demonstrate performance improvements.**
- **This is in contrast to PJM's current approach that increases reserve requirements to compensate for under performance of individual resources.**
- **The underperformers should bear the cost of their poor performance, not customers.**

DISCUSSION OF PJM PROPOSAL

PJM's Day-Ahead Reserves Proposal

- **PJM proposes to clear additional reserves in the day-ahead market that it does not expect to need in real time.**
- **This approach is costly.**
  - **Creates a modelling difference between the day-ahead and real-time markets, which is a common source of costly payments to virtual traders.**
  - **Ignores underlying issues, like the reasons some loads underbid day ahead and the reasons some generation withholds day ahead. These should be addressed directly.**

Offers for Reserves

- The reserve markets are highly concentrated. The markets are cost based to mitigate market power.
- Cost-based offers require fuel cost policies.
- The gas availability costs discussed in the RCSTF are not workable as reserve costs.
- Gas pipeline storage services
  - Park and loan services are interruptible, not reliable when they are needed.
  - Pipeline storage is a fixed cost, not applicable to the reserve market.

Conservative Operations

- PJM and some stakeholders have as a goal to reflect operator actions taken during conservative operations in energy and reserve market prices.
- PJM's proposed day-ahead reserve product appears to be the proposal that is intended to do this.
- The overall impacts on pricing are misunderstood.
- The IMM has called for a detailed quantification of the effect of PJM's proposal to increase reserves during conservative operations, like Winter Storm Fern, on energy prices, reserve market costs, and uplift.
- These issues are also being addressed in advanced scheduling stakeholder process.

Ramp and Uncertainty Products

- Uncertainty vs Ramp
  - Uncertainty reserves are based on forecast error.
  - Ramp requirements are based on the forecast itself.
- Uncertainty needs to be managed by making reserves available. The IMM proposal addresses uncertainty.
- Ramp is predictable and can be managed by software.
  - Current IT SCED software can see ramp needs.
  - Look ahead RT SCED software could optimally manage ramp needs over multiple intervals. This software is considered key to managing renewable and storage resources in other RTOs.
  - The IMM proposal is a software approach to addressing ramping needs.

Unnesting Reserve Products and ORDCs

- The separation of reserves supply into unnested products in the PJM proposal adds market constraints and limits supply available for each product.
- More constraints and more limited supplies lead to more costly market solutions, by definition.
- The unnesting also requires higher ORDC penalty factors to order the economic value of each product in the market clearing.
- Reductions in price due to eliminating additive penalty factors is offset by higher penalty factors.

Locational Reserves

- Accurate location of reserves requires knowledge of where supply will be lost.
- PJM's proposal makes assumptions about where the loss of supply will occur.
  - For wind and solar, the proposal estimates uncertainty location based on history.
  - For loss of generation, the proposal makes worst case scenario assumptions that will increase congestion.
- Satisfying nodal reserve congestion constraints would require redispatching expensive resources resulting in higher costs and prices.
- The PJM proposal does not have identified benefits that outweigh the costs.

IMM NEXT STEPS

Future Presentations

- Details for reserve requirement calculations
- Details of reserve nonperformance consequences
- Synchronized reserve penalty recommendations
- Demand response as reserves

Cost Estimates and Simulations

- **Simple cost estimates until simulations can be done.**
  - **Cost estimate of IMM proposal due to changes in reserve requirements**
  - **Considering a similar simple estimate using PJM's proposed reserve requirements**
- **Simulations**
  - **The magnitude of the reserve requirement increases and complexity of products in PJM's model require new software to simulate prices.**
- **More time should be allocated for simulations and cost estimates prior to voting.**

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