Energy Price Formation Senior Task Force Charter

Mission

The Markets and Reliability Committee (MRC) approved the creation of the Energy Price Formation Senior Task Force to evaluate proposals to enhance energy market and reserve market pricing.

Group Objectives

The EPFSTF stakeholder group will conduct the following key work activities and produce the stated deliverables as described in the two Issue Charges assigned to the group:

Issue Charge: Operating Reserve Demand Curve & Transmission Constraint Penalty Factors: *Approved at June 21, 2021 MRC, Work Initiated in August 2021*

Key Work Activities:

1. Education on the current and pending PJM market rules for use of ORDCs and Transmission Constraint Penalty Factors in LMPs including the input assumptions for the ORDCs. The education will also include pricing rules during emergency actions, triggers for Performance Assessment Intervals (PAI), and the automatic use of the maximum reserve penalty factors.

2. Explore potential "circuit breaker(s)" or other stop loss approach(es) that could limit extreme pricing whose cost likely far exceeds the value of any contribution to preserving grid reliability. The discussion would also include potential additional operational authorities needed by PJM to maintain grid reliability under such conditions. This work effort is intended to explore the introduction of a circuit breaker into the energy market design to be coincident with the implementation of PJM's reserve market reforms.

3. Explore potential enhancements to PJM's ORDC rules to address the impact of recent changes in PJM's dispatch protocols on forecast uncertainty embedded within the approved curve shape. Explore, and address as appropriate, the additional market and credit risks of the ORDC changes in light of recent events in ERCOT, SPP, and MISO.

The group will accomplish the scope of work identified above and only the work above. Approval from the parent Standing Committee will be sought before engaging in any activity outside this scope

Expected Deliverables

Revisions to PJM governing documents and conforming manual language to reflect any approved solution(s).

Expected Overall Duration of Work

Given the timing considerations of the potential October~~May~~ 2022 ORDC as well as the scope of the assignment and deliverables, the work of KWA#1 and KWA#2 is expected to conclude in eleven~~six~~ months. Every effort will be made to expedite voting in an effort to receive FERC action on any potential rule changes before October~~May~~ 2022.

It is expected that KWA #3 will begin after KWA #2 work is concluded or substantially concluded.

Voting at the Energy Price Formation Senior Task Force (EPFSTF) on deliverables associated with any KWAs will not occur before FERC issues a substantive order (i.e. not just a briefing order) on remand in the reserve price formation proceeding. However, if a substantive order is not received from the Commission by May 1, 2022 (or five months before expected implementation), stakeholders can proceed with voting on KWA #2 (circuit breaker) at the EPFSTF. (To support expected October 1st implementation timing, filing end of July, MC vote in July, MRC vote in June, Task Force Vote in May). If a substantive order on remand comes after May 1, 2022 but before the FERC filing, the circuit breaker proposals will be remanded back to the EPFSTF to ensure consideration of the proposals consistent with any changes required by the order. If a substantive order on remand is not received from the Commission before the circuit breaker proposal is filed at FERC, the circuit breaker must include a requirement to sunset 4 months after a substantive order on remand is issued.

Decision-Making Method

Tier 1 consensus (unanimity) on a single proposal as described in the PJM Stakeholder Process Manual (M-34).

Appendix

Original Issue Charge: Energy Price Formation: *Work Completed as of March 2019*

1. Provide education on topics including, but not limited to:
    a. How energy and reserve prices are currently determined in PJM.
    b. Scenarios that produce revenue deficiencies for generating resources in the energy market, and therefore require make whole payments. How much uplift is paid to resources, as well as how much of that uplift is produced by each driver, wherever possible.
    c. Factors that impact price formation such as resource eligibility, offer levels, operating parameters, operator actions, interchange, self-scheduling, congestion, losses, market power and others that are identified.
    d. Alternative energy pricing, reserve pricing and uplift frameworks that have been applied and/or discussed in other regions.

e. How the current and alternative pricing frameworks influence bid/offer behavior, including considerations of market participants' ability to make informed decision about future market conditions relative to the implementation timeline.

f. The current PJM shortage pricing mechanism and Operating Reserve Demand Curves (ORDC).

g. How hedging is used by participants to mitigate risk, the impact of energy pricing, shortage pricing, reserve products, and uplift on hedging, and how changes to PJM Energy and Ancillary Service Market rules impact forward and financial markets and existing bi-lateral contracts, including considerations of whether stakeholders have access to effective models and/or other tools to evaluate hedges and forward markets, relative to the implementation timeline.

h. How network models such as day-ahead, real-time, RAC run work, what they do, what are the sources of their inputs to better understand all known constraints and be more aligned with each network model.

2. Identify additional design criteria, if any, to guide the selection of energy market, reserves and shortage pricing design alternatives that should be considered in addition to the price formation goal of maximizing the social welfare objective (maximizing market surplus for consumers and suppliers).

3. Given the identified design criteria, evaluate gaps and opportunities to enhance PJM's current energy market, reserves and shortage pricing designs.

4. Given the identified gaps and opportunities, develop alternatives for enhancing PJM's energy market, reserves and shortage pricing designs (which enhancements may include new products).

5. Perform an impact analysis of PJM market rules given the recommended enhancements, especially considering areas such as but not limited to; market power mitigation, bid and offer rules, operating parameter rules, price transparency, dispatch following incentives, uplift credit calculation and charge allocation, FTRs and demand response.

6. Develop market rules as necessary to implement any recommended enhancements identified in key work activity items 4 and 5.

7. Develop a transition mechanism for the Energy & Ancillary Service offset for time periods for which capacity auctions have already cleared prior to any proposals being implemented and other applicable transition mechanisms as determined necessary by the group.

8. Provide an initial assessment of other changes to PJM market rules that while out of scope for this effort, may be relevant for further discussion in other forums if recommended market design alternatives will be implemented.

9. Where feasible, perform and review analyses (including independent analyses) evaluating the potential impact of proposals on PJM markets.

10. Identify any improvements to the related to the recommended enhancements to the day-ahead, real-time, RAC run network models (including inputs and outputs)

Expected Deliverables

As necessary, deliverables include the following:

1. A recommendation to the MRC on proposed market rule changes to enhance PJM's energy and reserve price formation and/or shortage pricing mechanism. This includes, but is not limited to revisions to rules on offers, offer limits, uplift and market power mitigation which are necessitated by the proposal.

2. Revisions to the Operating Agreement, Open Access Transmission Tariff, and manuals to implement the recommended enhancements.

Expected Overall Duration of Work

The activities of the group are expected to be completed by the end of the 3rd quarter 2018. This timeline will be reviewed and extended as necessary.

Decision-Making Method

This group will be using Tier 2 decision making method as described in the PJM Stakeholder Process Manual (M-34).

Administrative

1. The group will report to the Markets and Reliability Committee.

2. The group will be facilitated by:

   David Anders, Facilitator - David.Anders@pjm.com

   Vijay Shah, Secretary - Vijay.Shah@pjm.com

3. All PJM Stakeholders may appoint representatives to the task force.

4. The group will conduct its activities in accordance with the protocols found in the PJM Stakeholder Process Manual (M-34).

5. The group will accomplish the scope of work identified above and only the work above. Approval from the parent Standing Committee will be sought before engaging in any activity outside this scope. The following items are out-of-scope beyond an initial assessment of whether changes may be warranted if the recommended energy market, reserves and/or shortage pricing design enhancements will be implemented.

    i. The methodology used to determine the Energy and Ancillary Services offset used in the capacity market (excluding a transition mechanism and the potential inclusion of revenues from new products identified pursuant to Key Work Activity #4).

    ii. The methodology used to determine the Installed Reserve Margin.

    iii. The Regulation Market design, except for education and analysis on the impact of proposed changes to regulation pricing.

    iv. Discussion regarding changes to the determination of Fuel Cost and Variable Operating and Maintenance.

    v. Changes to capacity market design.

6. The group will periodically report progress on its chartered scope of work to the Markets & Reliability Committee.

7. Membership in the group is open and will be identified by volunteerism. Group members are not required to sign a confidentiality agreement or non-disclosure agreement.

8. Meeting minutes (notes) and all meeting materials will be published on the PJM web site.