



## Energy Price Formation Senior Task Force Monthly Progress Report

3/20/2023

### 1. ORDC & Transmission Constraint Penalty Factors

The Markets and Reliability Committee (MRC) approved this Issue Charge on 6/23/21 and assigned it to the Energy Price Formation Senior Task Force (EPFSTF) to evaluate three Key Work Activities (KWA)

KWA #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.

KWA #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.

KWA #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

#### **Issue Status (as of 12/21/2022 MRC Meeting)**

No updates.

**No future meetings are currently scheduled.**

#### **Target Completion**

KWA #1 and #2: 10/2022, FERC Order by 1/2023.

KWA #3: EPFSTF work begins when KWA #2 EPFSTF work is completed.

#### **Action Requested**

None.



## Historical Progress Update

### 8/9/21 Meeting:

Charter: As a charter already existed for the EPFSTF, a revision that included the ORDC & Transmission Constraint Penalty Factors issue charge was presented.

Education by PJM: Topics included current and pending PJM market rules for use of ORDCs and Transmission Constraint Penalty Factors in LMPs, pricing rules during emergency actions, triggers for Performance Assessment Intervals (PAI), and the automatic use of the maximum reserve penalty factors.

CBIR: Initial Interest Identification.

### 8/26/21 Meeting:

Charter: After the 8/9/21 meeting, another version of the charter was brought forward by Exelon, which included some amendments. To determine which version will be brought to the MRC for approval, a vote was held after the 8/23/21 meeting with results posted 9/8/21. The original revised charter will be the Main Motion at the 9/29/21 MRC and the Exelon revised charter will be the Alternate Motion.

Education by PJM: Simplified Operating Reserve Demand Curve (ORDC) examples, Energy And Reserve Price Capping logic implemented and under discussion in other ISOs, and Potential Circuit Breaker design components

CBIR: Completed Interest Identification and initial discussion on Design Components

### 9/23/21 Meeting:

CBIR: Three stakeholders shared detailed design components and options. As this issue is under a tight timeframe, an additional meeting was added on 10/13/21 and will be focused on obtaining additional design options and continue to develop solutions.

### 10/13/2021

CBIR: Reviewed updates to the Design Components offered by a group of stakeholders.

### 10/27/2021

Upcoming PJM FERC Filing: PJM plans to request a delay of the implementation date of the Reserve Market changes from May 1, 2022 until October 1, 2022. This may affect the KWA target completion deadlines.

Education: Topics included settlement education and implications to consider in the circuit breaker design, design objectives that should be considered in the circuit breaker design, and PJM's high-level circuit breaker design approaches.

CBIR: The Design Components of the matrix have been re-organized to eliminate confusion on which components are shared by all designs and which are specific to a particular type of design.



11/3/2021

Charter: Revisions to the Charter were discussed based on PJM filing to move the implementation date of the reserve market changes from May 1, 2022 to Oct 1, 2022. A group of stakeholders presented additional changes and agreed to incorporate additional feedback for the next meeting.

Survey: The upcoming survey questions were discussed which are meant to help develop additional Circuit Breaker design objectives. The Survey results will be available for the 11/16/2021 meeting.

11/16/2021

Charter: On 11/12/2021, PJM filed a Motion for Extension of Effective Date regarding the reserve price formation proceeding, requesting a new date of 10/1/2021. Additional changes to the Charter were discussed and the final draft will be available for the next meeting for a vote.

Survey: Common themes and verbatim text were pulled from the survey for discussion. PJM will bring a straw proposal to the next meeting for consideration.

12/10/2021

Charter: Proposed changes to the Charter were endorsed by acclamation with 0 objections and 0 abstentions.

CBIR: PJM and the IMM presented circuit breaker designs for consideration.

2/16/2022

The Order on Voluntary Remand was issued by FERC on December 22, 2021 and directed PJM to revert back to the current reserve penalty factors and two-step ORDC curves. Education was given on various approaches as FERC had indicated PJM may propose revisions to the existing reserve price caps to reflect the addition of the new 30-minute Reserve Product. The group discussed impacts of the directive to the circuit breaker design.

3/16/2022

Charter: The EPFSTF approved an update to the Charter to only change the due date of KWA #1 and #2 to 10/1/2022.

Education: PJM presented education on Energy and Reserves co-optimization the application of price capping in the Pricing Run.

CBIR: Interests and Components were revisited. PJM presented two new revised packages.

4/5/2022

Education (TCPF): PJM has provided education on the reason for the Transmission Constraint Penalty Factor (TCPF) work and also on the current the application of TCPF.



CBIR (TCPF): Interests were identified and discussed as well as Design Components and the Status Quo for each.

4/20/2022

Education (Circuit Breaker): A detailed narrative was posted about the Energy and Reserves co-optimization from the last meeting. In addition, an updated presentation was given on other ISO's Energy and Reserve Price Capping logic, as well as a Circuit Breaker Trigger analysis with revenue amounts based on various LMPs for 24 hours.

CBIR (Circuit Breaker): Additional Design Components and Solution Options were discussed as well as new and revised Packages.

5/6/2022

Education (TCPF): PJM presented education on how Transmission Constraint Penalty Factors can influence PJM generation dispatchers' ability to control ACE and reliability. In addition, a presentation was given on how other ISOs handle transmission shortages.

CBIR (TCPF): updates to the matrix since the last meeting were reviewed.

CBIR (Circuit Breaker): The timeline for completing the Circuit Breaker was discussed.

5/23/2022

CBIR (Circuit Breaker): Additional Design Components and Solution Options were discussed as well as new and revised Packages.

Survey (Circuit Breaker): Questions to gather feedback on design components and options preferred by stakeholders for an upcoming survey were discussed. The survey will go out on May 26th and close on June 10th. Results of the survey will be discussed at the June 30th EPFSTF meeting.

CBIR (TCPF): PJM reviewed the package and gathered feedback.

6/30/2022

CBIR (Circuit Breaker): Remarks were provided by Walter Graf, PJM, on capacity resource performance incentives and how they relate to energy market exposure. Results of the June 2022 Survey, which were aimed at determining preferences on potential Circuit Breaker design components, were discussed. Two new packages were presented by PJM. If no additional design components or packages are offered for consideration, PJM will seek to issue an endorsement vote following the next meeting.

CBIR (Transmission Constraint Penalty Factor (TCPF)): The PJM package was reviewed again. Because of the additional comments and input by members, the vote to see if there is consensus to move the package to the MRC for endorsement was deferred until the next meeting.



7/19/2022

CBIR (Circuit Breaker): The PJM reviewed their packages, the IMM reviewed their package and a Joint Stakeholder presentation gave details of a new package. The vote to see if there is consensus to move the package to the MRC for endorsement was deferred until the next meeting.

CBIR (Transmission Constraint Penalty Factor (TCPF)): The PJM package was reviewed and the IMM reviewed their package. The vote to see if there is consensus to move the package to the MRC for endorsement was deferred until the next meeting.

8/15/2022

CBIR (Circuit Breaker): Several packages have been submitted and revised, and PJM narrowed down their packages from five to two, leaving a total of six packages. Examples aimed at comparing the pricing outcomes of the different Circuit Breaker Methodologies have been developed and will be reviewed at the next meeting along with any package changes. PJM will seek to issue an endorsement vote following the meeting.

CBIR (Transmission Constraint Penalty Factor (TCPF)): The PJM package and IMM package reviews were deferred to the next meeting. PJM will seek to issue an endorsement vote following the meeting.

9/9/2022

CBIR (Circuit Breaker): Seven packages were reviewed along with examples aimed at comparing the pricing outcomes of the different Circuit Breaker Methodologies. With stakeholder agreement, PJM issued an endorsement vote following the meeting utilizing the Voting App. Voting results were posted on 9/19/2022. No packages received 50% simple majority support or greater than 50% preference over status quo. These results were part of an EPFSTF update presented at the 10/24/2022 MRC. The Joint Stakeholder package and an alternative from Calpine were presented as First Reads. The MRC will be asked to endorse a proposed solution package at its next meeting. PJM would be happy to facilitate any discussions before the next MRC that might lead to a compromise package.

CBIR (Transmission Constraint Penalty Factor (TCPF)): The PJM package and IMM package were reviewed. With stakeholder agreement, PJM issued an endorsement vote following the meeting utilizing the Voting App. Voting results were posted on 9/19/2022 with Package A becoming the Main Motion for MRC consideration. The package was reviewed at the 10/24/2022 MRC and the MRC will be asked to endorse a proposed solution package at its next meeting.

11/21/2022

CBIR (Circuit Breaker): The two packages on the voting agenda at the 11/16/2022 MRC were removed at stakeholder request with the understanding they could be brought back at the next MRC for a vote. There a brief discussion at the 11/21/2022 EPFSTF meeting regarding Circuit Breaker next steps. Offline between interested stakeholders were proposed to be held in early December 2022.



KWA #3: PJM provided background education on different inputs between the status quo and downward sloping Operating Reserve Demand Curve (ORDC) shapes. There was agreement that the first part of KWA #3 regarding potential enhancements to PJM's ORDC rules is no longer applicable given the status quo ORDC.

CBIR (Transmission Constraint Penalty Factor (TCPF)): The proposed solution package was endorsed at the 11/16/2022 MRC meeting.

#### 12/21/2022 MRC Meeting

CBIR (Circuit Breaker): Two packages were on the voting agenda at the 12/21/2022 MRC. Neither one passed