



California ISO

Proxy Demand Resource – Resource Adequacy Clarifications

Effective Flexible Capacity Value for PDR – Tariff Clarifications
Slow Demand Response – Final Proposal

Stakeholder Conference Call

April 28, 2020

ISO Public

Agenda

| Time | Item | Speaker |
|-------------|-------------------------------------|---------------|
| 1:00 – 1:05 | Welcome & Stakeholder Process | James Bishara |
| 1:05 – 1:45 | EFC for PDR clarifications | Jill Powers |
| 1:45 – 2:30 | Slow Demand Response Final Proposal | Lauren Carr |
| 2:30 – 3:45 | Q&A | All |
| 3:45 – 4:00 | Next Steps | James Bishara |

New online stakeholder commenting tool coming this Spring

- Ability to view all comments with a single click.
- Ability to filter comments by question or by entity.
- Login, add your comments directly into the template and submit.
 - You can save and return to your entry anytime during the open comment period.

NOTE

Submitting comments in the new tool will require a one-time registration.

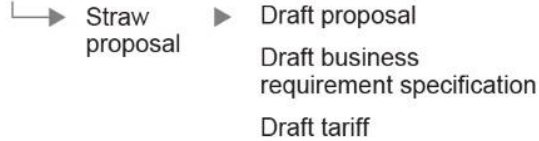
ISO Policy Combined Initiative Stakeholder Process

Proxy Demand Resource (PDR) – Resource Adequacy Clarifications

Stakeholder Initiative Process

PROPOSAL DEVELOPMENT

Issue paper



} Final proposal

DECISION

Board
EIM Governing
Body

> Final tariff

▶ FERC

IMPLEMENTATION

Business practice
manual revisions
Market simulation

- when applicable

> Go Live

Stakeholder input

This represents the typical process, and often stages of the process run in parallel.

Slow DR
We are here

EFC for PDR
We are here



California ISO

Effective Flexible Capacity For Proxy Demand Resources

-Tariff Clarifications

Why the Initiative for Setting an Effective Flexible Capacity (EFC) Value For PDRs?

- The CAISO has not developed testing procedures contemplated under tariff section 40.10.4.1(c) to determine a PDR's EFC
- The CAISO has instead calculated PDR EFCs using the general formula in section 40.10.4.1(a)
 - Based on start-up time, average ramp rate and net qualifying capacity (NQC)
- The FERC granted the CAISO's petition for a limited waiver of the tariff provisions until August 1, 2020 to allow the CAISO to “to explore potential alternatives and any appropriate tariff amendments”

Issue Paper/Straw Proposal

- Identified changes to eligibility and requirement elements of a proxy demand resources provision of flexible resource adequacy capacity:
 - Setting of effective flexible capacity (EFC) values
 - Unannounced testing at CAISO discretion
 - Five-minute bidding and dispatch requirement
 - Clarification of its must offer obligation (MOO)

Stakeholder Comments

- Stakeholder comments generally support the removal of the requirement to conduct tests to establish the EFC for each Proxy Demand Resource (PDR)
 - Recognize reasonableness for retention of testing at CAISO discretion
 - Request for clarification as to when testing might be warranted
- Support clarification of the 5-minute dispatch requirement and MOO for PDRs providing flexible RA

Tariff Revisions and Clarifications Defined in Paper

The CAISO proposes changes to the following elements of a proxy demand resources provision of flexible resource adequacy capacity:

- Setting of effective flexible capacity (EFC) values*
- Testing for CAISO validation of Masterfile characteristics**
- Five-minute bidding and dispatch requirement*
- Clarification of its must offer obligation (MOO)

*Tariff revisions within approved Policy

**Modified from 3/27 proposal

Setting of Effective Flexible Capacity (EFC) Values

Continue Calculating PDR EFCs Using General Formula:

Section 40.10.4.1 (a)

Flexible Resources. The CAISO will calculate the Effective Flexible Capacity value of a resource, for use (i) if a Local Regulatory Authority has not established criteria for calculating the Effective Flexible Capacity value for eligible resource types, and (ii) for determining if a cumulative deficiency exists under Sections 43A.2.7(a) and (b), as follows, except as provided in Sections 40.10.4.1 (b) through (f) –

- (1) If the Start-Up Time of the resource is greater than 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from PMin to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not exceed the difference between the PMin and PMax of the resource.
- (2) If the Start-Up Time of the resource is less than or equal to 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from zero to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not exceed the Net Qualifying Capacity of the resource.

Setting of Effective Flexible Capacity (EFC) Values

– Tariff Clarifications

- Proposing to **remove subsection 40.10.4.1 (c)** tariff language establishing the existing test-based EFC for PDR.
- With text removed, PDR EFCs would be set using the general formula outlined in subsection 40.10.4.1(a).
 - Administrable and reasonable alternative for setting EFC values for PDRs versus requiring test based valuation.
 - PDR offers extremely limited amounts of flexible capacity.
 - Demonstrated minimal overall impact of change on the Flex RA program (currently .01%).

Testing for CAISO Validation of Masterfile Characteristics

- PDRs continue to be subject to existing CAISO tariff provisions that permit tests.
 - Testing to confirm capability to provide ancillary services
 - 8.9 Verification , Compliance Testing, and Auditing
 - Self-test results to validate resource characteristics when a PDR's performance does not align with its registered master file values
 - 4.6.4 Masterfile Characteristics (*i.e.* ramp rate, Pmax)
 - provision requires PDRs to offer and provide service consistent with capabilities they've registered
 - CAISO may request further information to validate the existing master file information
 - Self-test with Operating Procedure 5330 Resource Testing Guidelines

Five-Minute Bidding and Dispatch Requirement

- The FRACMOO revised draft final proposal identified that “Flexible capacity must be able to respond to five-minute dispatch instructions”.
- In 2019, the ESDER3 initiative enhanced the PDR participation model providing PDRs hourly (60-minute), 15-minute, or 5-minute dispatch options.
 - PDRs qualify for the provision of flexible resource adequacy **only when they choose the 5-minute bidding option** providing the CAISO with the ability to dispatch them in real-time in the five-minute market.

Five-Minute Bidding and Dispatch Requirement – Tariff Clarifications

- Tariff section 40.10.3.6 reflects the initial FRACMOO policy for resources providing flexible RA.
 - states that imports other than pseudo-ties and dynamic resources are **ineligible** to provide flexible RA capacity
 - these resources **were not** 5 minute dispatchable

ISO propose that section 40.10.3.6 would state (additions in red):

Intertie resources and imports, other than Pseudo-Ties and Dynamic Scheduled resources, and Proxy Demand Resources that have elected, per Section 4.13.3, to bid and be dispatched in the Real Time Market in Hourly Blocks or fifteen (15) minute intervals are not eligible to provide Flexible RA Capacity.

Last Element to Ensure PDR Flexible Capacity RA Must Offer Obligations are Clearly Understood

- BPM for Reliability Requirement Section 7.4.3 Table 1: summarizes the MOO for each Flexible RA Capacity resources
 - In accordance with CAISO tariff section 40.10.6
- Review and provide clarifications as needed
- Include clarifications, or reference to MOO, in the BPM for DR

Accelerated Stakeholder Initiative Schedule

| Date | Milestone |
|-----------------|--|
| March 27 | Posted combined Issue Paper/Straw Proposal |
| April 3 | Stakeholder call completed |
| April 15 | FERC Briefing |
| April 17 | Comments Received |
| <i>April 22</i> | Publish Tariff Clarifications |
| <i>April 28</i> | Stakeholder call on <i>clarifications</i> |
| <i>May 8</i> | Comments due |

- File tariff changes no later than June 1, 2020 to meet August 1, 2020 waiver deadline

SLOW DEMAND RESPONSE

-FINAL PROPOSAL

Slow demand response initiative background

- NERC standards and the CAISO tariff specify a maximum time of 30 minutes after a first Contingency to prepare the system for a subsequent Contingency
- To meet local RA needs, resources must either:
 - Be capable of responding quickly enough such that the CAISO can rebalance the system within 30 minutes of a contingency event, or;
 - Have sufficient availability such that the resource can be dispatched frequently on a pre-contingency basis
- In recent years, the CAISO and the Commission worked to ensure both “fast” and “slow” demand response resources can meet local capacity requirements
 - Stakeholdered slow demand response solutions in Supply Side Working Group and CAISO’s Resource Adequacy Enhancements initiative

Definitions

- “Fast” demand response resources can fully respond within 20 minutes post-contingency
 - Can be dispatched post-contingency for the CAISO to meet NERC readjustment time standard
- “Slow” demand response resources are those that cannot fully respond within 20 minutes post-contingency
 - May be able to quickly reduce load at a scheduled time, but require longer lead times to know specifically when to reduce load
 - To meet NERC readjustment time standard, the CAISO must dispatch slow demand response resources prior to a contingency, i.e. pre-contingency
 - Implementation of Slow DR definition for PDRs
 - Start-up and ramp > 20 minutes
 - Registered as hourly or 15 minute dispatchable bid option

Stakeholder Comments

- Stakeholders continue to be supportive of the CAISO's efforts to integrate "slow" DR as a local capacity resource.
- Some commenters were supportive of the CAISO's proposal for slow DR resources to be included on supply plans; others in opposition maintain that demand response availability for market dispatch should preclude the need for this additional requirement.

CAISO Reiterates Prior Statements to Comments

- In order to dispatch slow DR using the proposed methodology, CAISO Systems;
 - identify specific resource IDs with resource adequacy capacity through supply plans
 - recognize these resources as eligible for exceptional dispatch
 - will only consider slow PDR shown for RA to avoid exceptionally dispatching non-RA resources, triggering a capacity procurement mechanism payment
 - need the resource detail even if other methods are employed to show demand response availability
- Ensures RA resources are subject to the same tariff provisions, including must offer obligations and RAAIM treatment
 - Ensures equal treatment of RA resources and creates level playing field between utility and third party DR

Slow Demand Response Final Proposal Employs a Pre-Contingency Dispatch Methodology

- 1) The CAISO Day Ahead Market will assess whether there are sufficient resources and import capability in a local area to meet forecasted load and potential contingencies without using slow demand response
- 2) If there is a shortfall, the CAISO will exceptionally dispatch slow demand response RA resources after the conclusion of the day-ahead market

Slow demand response pre-contingency dispatch process

Pre-Day-Ahead Market

CAISO defines constraints and reliability needs in local areas

Day-Ahead Market

DAM runs (with local area constraints and reliability needs)

Post-DAM/Prior to the Operating Day

If shortfall in meeting needs w/o slow DR, exceptionally dispatch slow DR

Operating Day

Slow DR drops load during hours of ED

Tariff Change Required for Settlement of post day-ahead exceptional dispatch

- Current tariff authority addresses real-time energy settlement
- CAISO proposes to specify that NONTMODEL will be used for slow DR, define slow DR and explain that settlements will be based on day-ahead market bid price and resource specific, real-time fifteen minute LMP
- CAISO tariff section 11.5.6.2.4 outlines exceptional dispatch settlement for NONTMODEL
 - This section would have to be adapted for Slow DR exceptional dispatch

Next steps

- CAISO previously stakeholdered methodology to exceptionally dispatch slow DR pre-contingency within the RA Enhancements Initiative
- Staff plans to take the slow DR Final Proposal to the CAISO Board of Governors in July for approval

Schedule:

| Date | Milestone |
|-----------------|----------------------------|
| <i>April 22</i> | Publish Final Proposal |
| <i>April 28</i> | Stakeholder call |
| <i>May 8</i> | Comments due |
| July | Board of Governors Meeting |

Slow Demand Response Implementation Schedule

Upon CAISO Board approval of Tariff changes,

- Plan for fall of 2020 implementation of the slow demand response pre-contingency dispatch proposal for proxy demand response resources
- Utilize starting in the 2021 resource adequacy year
- Project development in progress

Comments due

- Please use the comments template to submit comments over today's discussion by end of day, May 8, which will be available on the initiative webpage at:
<http://www.caiso.com/StakeholderProcesses/Proxy-demand-resource-resource-adequacy-clarification>