



New Initiative: Effective Flexible Capacity For Proxy Demand Resources

Stakeholder Conference Call

April 3, 2020

ISO Public

Agenda

Time	Item	Speaker
9:00 – 10:05	Welcome & Stakeholder Process	James Bishara
10:05 – 10:25	Issue & Background	Jill Powers
10:25 – 11:25	General EFC Formula Proposal	Jill Powers
11:25 – 11:55	Policy Update: Slow Demand Response	Lauren Carr
11:55 – 12:00	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 Initiative Stakeholder Process

Stakeholder Initiative Process

PROPOSAL DEVELOPMENT

Issue paper

→ Straw proposal

▶ Draft proposal

Draft business requirement specification
Draft tariff

} Final proposal

DECISION

▶ Board
EIM Governing
Body



▶ Final tariff

▶ FERC



IMPLEMENTATION

▶ Business practice
manual revisions
Market simulation

▶ Go Live



Stakeholder input

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

We are here

CAISO identified a gap in its implementation of section 40.10.4.1 regarding PDRs

- Testing called for under section 40.10.4.1(c) to determine a PDR's EFC have never been developed

Proxy Demand Resource. *The Effective Flexible Capacity of a Proxy Demand Resource will be based on the resource's actual MWs of load modification in response to a dispatch by the CAISO during a test event. In determining the Effective Flexible Capacity of a Proxy Demand Resource, the CAISO will –*

- (1) conduct the test at a random time during the flexible capacity must-offer obligation period for the resource;*
- (2) use the applicable baseline load data, as described in the CAISO Tariff or Business Practice Manual, to measure the load modification of the Proxy Demand Resource being tested; and*
- (3) pay the resource's bid price for the testing period.*

New initiative to propose methodology for setting an EFC for PDRs

Issue:

- The CAISO has been calculating 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)
- Stakeholder initiative needed to resolve the discrepancy between the tariff and business practice for setting a PDR's effective flexible capacity value (EFC)

Background

- Initial Waiver
 - 4/26/2019 CAISO files request for limited waiver
 - 5/31/2019 FERC grants waiver until 12/31/2019
- During waiver, internal team evaluated EFC testing impact
 - Significant number of PDRs would have to be tested annually
 - As of 3/17/2020 808 PDR resources are active and could result in request for testing. This number was as high as 1,003 in May 2019.
 - Minimal effective flexible capacity would be shown for PDRs
 - PDRs only showed 35.5 MWs (maximum) of EFC in 2019, less than 3% of requested EFC from PDRs
 - Direct impact limited to a difference in EFC values established under general formula versus those under a random test by the CAISO
 - 35.5 MW maximum is a fractional percent of the average total flex capacity requirement, approx. 12,000 MW, for months in which it was shown in 2019

Background

- Internal impact assessment concluded that performing the tests required under tariff subsection 40.10.4.1(c) could not be reasonably implemented
 - Difficult to manage requests in the timelines required.
 - Require costly investments in system upgrades to administer the tests and avoid unduly distracting operational staff.
- Subsequent Waiver
 - 12/31/2019 CAISO files request for extension of waiver
 - Extension of the previous limited tariff waiver requested through August 1, 2020

Second waiver, granted by FERC on February 28, 2020

- FERC allows the CAISO to take the time afforded by this extension to “confer with stakeholders to explore potential alternatives and any appropriate Tariff amendments.”
 - Provides opportunity to factor in recent demand response policy changes on need for CAISO random test events to set EFC for PDRs
 - California Public Utilities Commission decision refining its demand response auction mechanism (DRAM) to “improve reliability and performance of procured resources”
 - Qualifying capacity guidelines with new minimum performance requirements for demonstration of shown qualifying capacity.
 - Requirement for testing of PDRs shown QC values submitted in a supply plan.

Straw Proposal lays out changes and clarifications for PDRs providing flexible resource adequacy

- 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)

Setting of effective flexible capacity (EFC) values

Proposing to remove subsection 40.10.4.1 (c) and amend section 40.10.4.1 so that PDRs use the general EFC formula.

- Administrable and reasonable alternative for setting EFC values for PDRs versus requiring test based valuation.
- Minimal overall impact on the Flex RA program.

RA Month	Flex RA from PDRs (MW)	EFC from PDRs (MW)	% of PDR EFC Shown	Total Flex RA Requirement	% of Flex RA from PDRs
May-19	35.50	1323.58	2.68%	12,983.55	0.27%
Jun-19	35.00	1968.29	1.78%	11,391.90	0.31%
Jul-19	35.00	1984.51	1.76%	10,614.09	0.33%
Aug-19	5.00	1986.46	0.25%	11,180.30	0.04%
Sep-19	5.00	1986.46	0.25%	14,272.75	0.04%
Oct-19	5.00	1986.35	0.25%	13,912.77	0.04%
Nov-19	5.00	1986.55	0.25%	14,361.57	0.03%
Dec-19	5.00	1986.55	0.25%	15,372.96	0.03%
Jan-20	0	1007.98	0.00%	18,492.98	0.00%
Feb-20	0	1009.50	0.00%	18,622.60	0.00%
Mar-20	0	1009.50	0.00%	17,702.41	0.00%
Apr-20	0	1009.60	0.00%	17,384.37	0.00%
May-20	0	1028.66	0.00%	16,444.77	0.00%

- Requires stakeholder review and board approval of tariff changes.

Continuation of 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.

Provision for Unannounced Testing at CAISO Discretion

- Preference to utilize PDR's market dispatch performance to evaluate EFC
- Extend ability to perform unannounced test to PDR resources with an established EFC value
 - Tariff provisions for testing of demand response resources
 - 34.11.2 Other Exceptional Dispatches
 - 34.22 Real-Time Dispatch of RDRRs, 34.22.1 Testing of RDRRs
 - Use of test results to validate resource Masterfile characteristics
 - 4.6.4 Masterfile Characteristics (*i.e.* ramp rate, Pmax)
 - Details included in the appropriate business practice manual (BPM) or operating procedure (OP)
 - *i.e.* Operating Procedure 5370 Resource Performance Verification

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.

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
- Initiative to review and propose clarifications if needed

Accelerated Stakeholder Initiative Schedule

Date	Milestone
March 27	Post combined Issue Paper/Straw Proposal
April 3	Stakeholder call
April 17	Comments due
<i>April 21</i>	Publish <i>Draft</i> Final Proposal/Tariff Language
<i>April 28</i>	Stakeholder call on <i>DFP</i>
<i>May 8 (or sooner)</i>	Comments due
May 13, 14	Board

- Initiative timeline abbreviated to target May board approval to meet FERC waiver deadline
- File tariff changes no later than June 1, 2020 to meet August 1, 2020 waiver deadline

OTHER DR POLICY UPDATE: SLOW DEMAND RESPONSE

Background

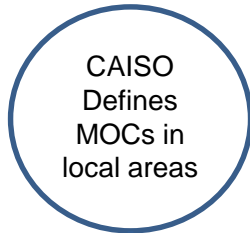
- NERC standards and the CAISO tariff specify a maximum time of 30 minutes after a first Contingency to prepare the system for a subsequent Contingency
- To meet local RA needs, resources must either:
 - Be capable of responding quickly enough such that the CAISO can rebalance the system within 30 minutes 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 CPUC 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

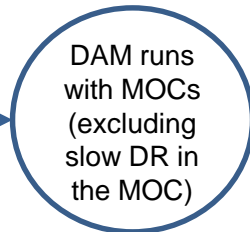
- “Fast” demand response resources can fully respond within 20 minutes post-contingency
 - Can be dispatched post-contingency for the CAISO to meet NERC readjustment time standard
- “Slow” demand response resources are those that cannot fully respond within 20 minutes post-contingency
 - May be able 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

Slow demand response pre-contingency dispatch process

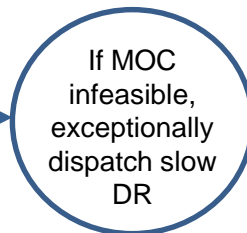
Pre-Day-Ahead Market



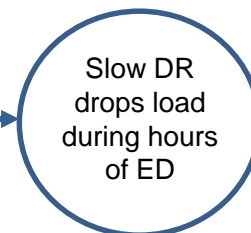
Day-Ahead Market



Post-DAM/Prior to the Operating Day



Operating Day



In the RA proceeding, CAISO has petitioned the CPUC discontinue the practice of “crediting” DR and require them to be on supply plans

- In order to dispatch slow DR using the proposed methodology, CAISO systems must be able to identify specific resource IDs that count towards the resource adequacy requirement
 - Without including all DR in on RA supply plans, the CAISO does not have visibility into which individual resource IDs are resource adequacy capacity eligible for exceptional dispatch
- CAISO’s methodology will only consider slow PDR shown for RA to avoid exceptionally dispatching non-RA resources, which would trigger a capacity procurement mechanism payment
- Ensures RA resources are subject to the same tariff provisions, including must offer obligations and RAIM treatment
 - Ensures equal treatment of RA resources and creates level playing field between utility and third party DR

Next steps for slow demand response effort

- CAISO previously stakeholdered methodology to exceptionally dispatch slow DR pre-contingency
 - Will allow slow response PDR to be used as local RA
 - Stakeholdered in RA Enhancements
- Tariff clarifications identified during project development related to settlement of exceptional dispatch that occurs in the post day-ahead timeframe
- **Schedule:**

Date	Milestone
<i>April 21</i>	Publish Final Proposal/Tariff Language
<i>April 28</i>	Stakeholder call
<i>May 8 (or sooner)</i>	Comments due
May 13, 14	Board of Governors Meeting

Initiatives Combined Into Single Topic Item

Combined Initiative Title:

PDR Resource Adequacy Clarifications

- Staff plans to present the requested tariff changes and clarifications resulting from the two initiatives to the CAISO Board of Governors as one Topic Item in May
- Initiative will be combined under this title on the Stakeholder Processes webpage with sub-initiatives identified
 - links to pertinent documents and notices for each distinct sub-initiatives will be provided

Comments due

- Please use the comments template to submit comments over today's discussion by end of day April 17, which will be available on the initiative webpage
- All initiative webpages may be found on the Stakeholder Processes landing page at <http://www.caiso.com/StakeholderProcesses/>