



California ISO

**Effective Flexible Capacity
Value for Proxy Demand
Resources
Issue Paper/Straw Proposal**

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Market & Infrastructure Policy

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1 Issue, Background and Context

In 2019, the CAISO identified a gap in its implementation of section 40.10.4.1 regarding PDRs. Section 40.10, which includes the CAISO tariff provisions covering flexible resource adequacy capacity, became effective in November 2014 as part of the CAISO's Flexible Resource Adequacy Criteria and Must Offer Obligations (FRACMOO) initiative.¹ The FERC-approved FRACMOO tariff includes the requirement, under Section 40.10.4.1(c), for the CAISO to conduct random tests to set a Proxy Demand Resource's (PDR) effective flexible capacity (EFC) based on its performance to that test.

Section 40.10.4.1(a) provides a general formula for setting EFC values. The formula accounts for a resource's start-up time, ramp rate, and NQC. Subsections (b) through (f) of section 40.10.4.1 provide technology-specific EFC methodologies, including subsection 40.10.4.1(c) which provides the following requirement for PDRs:

“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.”²

¹ *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,042 (2014); *Cal. Indep. Sys. Operator Corp.*, Transmittal Letter, FERC Docket No. ER14-2574 (Aug. 1, 2014) (FRACMOO Filing). http://www.aiso.com/Documents/Aug1_2014_TariffAmendment-FlexibleResourceAdequacyCapacityRequirement_ER14-2574-000.pdf

² *Cal. Indep. Sys. Operator Corp.*, Fifth Replacement Electronic Tariff section 40.10.4.1 subsection (c) <http://www.aiso.com/Documents/Section40-ResourceAdequacyDemonstration-SCs-CAISOBAA-asof-Dec31-2019.pdf>

When the CAISO implemented FRACMOO in 2014, there were no PDRs registered and actively participating in the CAISO markets. In the absence of any PDRs with a flexible RA obligation, the CAISO did not develop the test procedures called for under section 40.10.4.1(c). The CAISO had still not developed a test procedure when the first PDRs came into the CAISO system under a resource adequacy must offer obligation. Without consideration of section 40.10.4.1(c), the CAISO erroneously established a business practice of calculating PDR EFCs using the general formula in section 40.10.4.1(a).

The CAISO has determined that the direct impact of the discrepancy is limited to the potential difference between EFC values established under the currently used general formula versus those that would have been established under a random dispatch test by the CAISO. The impact was further diminished by the fact that, while a significant number PDRs requested to establish an EFC value, very few PDRs offered flexible capacity on resource adequacy supply plans. CAISO data review of 2018 and 2019 resource adequacy supply plans found this amounted to less than 3% of the qualified EFC values set for PDRs. Further highlighting that, even with a significant overstatement of PDR EFC, the overall impact of such a minimal amount of flexible capacity is fractional when compared with the resource adequacy program's total flexible capacity requirement average greater than 14,800 MWs.

1.1 Waivers Requested and Granted

In 2019, the CAISO petitioned for and received a limited tariff waiver of section 40.10.4.1 from the FERC on May 31, 2019³ allowing the CAISO to continue calculating the EFC values for PDRs based on the general formula instead of the random testing and performance evaluation requirement under subsection (c). As asserted in the petition, the CAISO needed time for “successful development and implementation of the needed test procedures”⁴ without adversely affecting demand response market participants, noting that the CAISO had “not yet

³ 167 FERC ¶ 61,199 FEDERAL ENERGY REGULATORY COMMISSION
<http://www.aiso.com/Documents/May31-2019-LetterOrderAcceptingPetition-LimitedTariffWaiver-Calculation-EFCValues-PDRs-ER19-1690.pdf>

⁴ Cal. Indep. Sys. Operator Corp Petition for Limited tariff Waiver – Calculation of Effective Flexible Capacity Values for Proxy Demand Resources (ER19-1690), (April 26, 2019)
<http://www.aiso.com/Documents/Apr26-2019-Petition-LimitedTariffWaiver-Calculation-EFCValues-PDRs-ER19-1690.pdf>

finalized the testing procedures and is still determining how best to implement them once they are finalized.”

During the waiver period, the CAISO performed an impact assessment on the processes and systems needed to implement an effective random testing and performance evaluation for use in a test-based calculated EFC for PDRs. It was determined that this could not be accomplished without costly system enhancements, which would provide system operators the ability to issue test instructions without relying on manual processing of a large number of PDR resources required to test. Without the updated system functionality, operators could be distracted, potentially significantly, from their primary real time operational responsibilities. Additionally, the CAISO found it difficult to justify such costs based on no firm rationale within the FRACMOO initiative for imposing the unique testing requirements for PDRs.

On December 31, 2019, the CAISO petitioned for an extension of the May 31, 2019 limited waiver request granted by the Commission. In this filing, the CAISO considered whether the system enhancement costs were justified “in light of the rationale for setting test-based EFC values for PDRs.”⁵ The rationale for setting test-based EFC values for PDRs was not discussed at length in the FRACMOO initiative, with the only plausible issue being concern for PDRs being a “new resource type whose performance capabilities were uncertain.”⁶ While acknowledging this initial concern, the CAISO points out that this testing requirement “does not align neatly with how NQC for these same resources is established... As with all resource types, the CAISO defers to the local regulatory authorities in setting the QC value, which is the starting point of the NQC value. This includes the QC values for PDRs. This raises the question about why the flex capacity values for PDR should be set in such a drastically different way from their NQC values. The CAISO has not found an answer to that question, which suggests that the costs to comply with the current tariff are not justified.”⁷

⁵ *Cal. Indep. Sys. Operator Corp* Petition for Limited tariff Waiver – Effective Flexible Capacity for Proxy Demand Resources (ER20-725), (December 31, 2019) p7
<http://www.caiso.com/Documents/Dec31-2019-Petition-LimitedTariffWaiver-EffectiveFlexibleCapacity-ProxyDemandResources-ER20-725.pdf>

⁶ *Cal. Indep. Sys. Operator Corp* Petition for Limited tariff Waiver – Effective Flexible Capacity for Proxy Demand Resources (ER20-725), (December 31, 2019) p7

⁷ *Cal. Indep. Sys. Operator Corp* Petition for Limited tariff Waiver – Effective Flexible Capacity for Proxy Demand Resources (ER20-725), (December 31, 2019) p 7

This second waiver, granted by the FERC on February 28, 2020, extended the previous limited tariff waiver through August 1, 2020. In part, the waiver allows the CAISO to take the time afforded by this extension to “confer with stakeholders to explore potential alternatives and any appropriate Tariff amendments.”⁸ Further, the waiver notes that the CAISO would factor into its proposed alternative the recent “California Public Utilities Commission decision refining its demand response auction mechanism, which, among other things, created new minimum performance requirements backed by a penalty structure to demonstrate a resource’s ability to provide its qualifying capacity.”⁹

2 Straw proposal

The CAISO’s proposes changes to the following 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)

The CAISO has concluded that performing the tests required under tariff subsection 40.10.4.1(c) would be difficult to manage and would require costly investments in system upgrades to administer the tests and avoid undue distraction of operational staff. Therefore, the CAISO is proposing to remove subsection 40.10.4.1 (c) and amend section 40.10.4.1 to reflect the continuation of calculating PDR EFCs using the general formula under 40.10.4.1(a). The CAISO believes this is the appropriate methodology, having demonstrated it as an administrable and reasonable alternative for setting EFC values for PDRs along with nearly all other resource types. The CAISO has also considered this

⁸ 170 FERC ¶ 61,173 UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION, Order Granting Waiver (Issued February 28, 2020) p 3
<http://www.aiso.com/Documents/Feb28-2020-OrderGrantingWaiver-EffectiveFlexibleCapacityEFCforProxyDemandResourcePDR-ER20-725.pdf>

⁹ 170 FERC ¶ 61,173 UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION, Order Granting Waiver (Issued February 28, 2020) p 5

as an alternative that will have minimal overall impact on the flexible resource adequacy program.¹⁰

To further the reasonable assurance of a PDRs availability and capability of performance to the EFC values set using the general formula under 40.10.4.1(a), the CAISO is proposing to establish or extend currently available unannounced testing provisions to PDR resources with an established EFC value.¹¹

The CAISO's preference will be to rely on a PDR's dispatch in the market to evaluate its established EFC value based on the performance in response to that dispatch to avoid the burden of a test event on the underlying end-use customers. However, if the resource has not performed to a dispatch, then a test event may be warranted to evaluate its EFC availability and performance. The proposal will ensure the CAISO continues to maintain the ability to perform an unannounced test event through appropriate tariff provisions with procedure details included in the appropriate business practice manual (BPM) or operating procedure.

Test events will be instructed through a CAISO exceptional dispatch and the energy settlement for test energy as described in tariff section 11.5.6.4 Settlement of Instructed Imbalance Energy from Exceptional Dispatches for Testing. The CAISO will reserve the right to share unannounced test dispatch results with the PDR resource's applicable Local Regulatory Authority (LRA).

The FRACMOO revised draft final proposal identified that "Flexible capacity must be able to respond to five-minute dispatch instructions".¹² In 2014, when the FRACMOO initiative was stakeholdered and tariff language filed, the CAISO modeled all PDRs as resources with an ability to respond to 5-minute dispatches. In 2019, the ESDER3 initiative enhanced the PDR participation model providing PDRs the ability to specify in the Master File how they will bid and be dispatched in the real-time market. These bidding options allowed PDRs to be dispatched in hourly (60-minute) blocks, 15-minute intervals, or 5-minute intervals. With the

¹⁰ See table 1 in Appendix

¹¹Tariff provisions for testing of demand response resources: Section 34.8 Dispatch Instructions to Units, Participating Loads, PDRs, and RDRRs, Section 34.11.2 Other Exceptional Dispatches, Section 34.22 Real-Time Dispatch of RDRRs, 34.22.1 Testing of RDRRs

¹²FRACMOO Revised Draft Final Proposal March 7, 2014, Section 6 p 36

<http://www.caiso.com/Documents/RevisedDraftFinalProposal-FlexibleRACriteriaMustOfferObligation-Clean.pdf>

November 13, 2019 implementation of ESDER3, it is now necessary to clarify that 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.

Stakeholders should take note that the Flexible Ramping Product (FRP) Refinements initiative proposes changes to the tariff to reflect that a PDR will no longer be defaulted to being 5-minute dispatchable and instead defaulted to the hourly bid option. Additionally, those PDRs' operators that want a five-minute bidding option will be required to attest to the capability of the resource to respond to either 15 or 5- minute dispatches if desiring to change their defaulted designation.¹³ This is to ensure the PDR Master File designation appropriately reflects their capabilities with the ability to respond at the appropriate dispatch interval.

The last element of the proposal is to ensure that the appropriate business practice manuals clearly identify that the PDR must meet the must offer obligation required for provision of flexible RA under each of the categories for which it is qualified.¹⁴

3 Next Steps

In this paper, the CAISO has identified an issue with current requirements for EFC testing of Proxy Demand Resources and set out a straw proposal on how to address the issue. The CAISO began the process of informing demand response stakeholders to this initiative by introducing its scope at the March 1, 2020 ESDER4 workshop. This paper will serve as the initial step for stakeholder engagement in the development of a final proposal that will require submission to the CAISO board for approval of resulting tariff changes proposed. The CAISO does not believe it is necessary for an extended stakeholder engagement on the initiative suggesting an abbreviated schedule that provides opportunity for stakeholders to submit comments for this Issue Paper/Straw Proposal and subsequent Final Proposal.

¹³For additional information on the Flexible Ramping Product Refinements initiative, see the stakeholder initiative webpage: <http://www.caiso.com/StakeholderProcesses/Flexible-ramping-product-refinements>

¹⁴ Reliability Requirements BPM <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability> Requirements, Section 7.4.3 outlines the must offer obligations for flexible capacity in accordance with ISO tariff section 40.10.6.

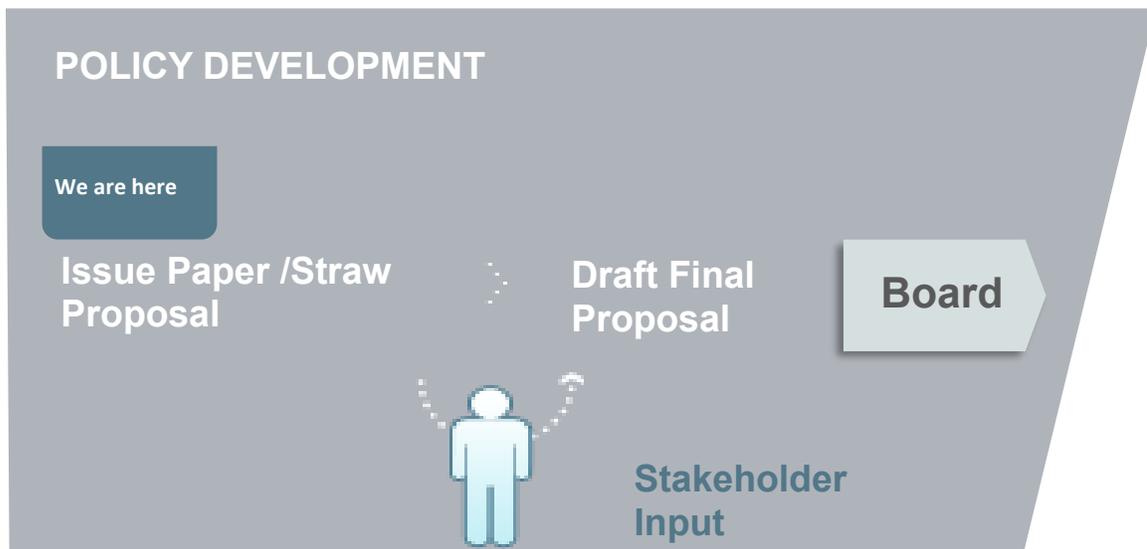
4 Stakeholder Process

The CAISO is submitting this document as a joint “Issue Paper/Straw Proposal” combining the first stage(s) of the overall stakeholder process due to the narrow issue that the straw proposal will be addressing. Figure 1 below shows the status of this paper within the overall abbreviated stakeholder process.

The purpose of the paper is to alert stakeholders to the issue, inform stakeholders on steps taken by the CAISO upon its identification, and to propose a resolution to the issue including tariff changes needed to rectify it.

After publication of the combined issue paper/straw proposal, the CAISO will hold an initial stakeholder call to review the proposal and solicit stakeholder comments. The CAISO’s intent is to follow up this paper with a final proposal, with consideration of stakeholder feedback, providing tariff and business practice clarification on how Effective Flexible Capacity (EFC) values for Proxy Demand Resources will be set going forward.

Figure 1: Process combining Issue Paper and Straw Proposal for Accelerated Stakeholder Initiative Engagement



5 Process for Approval – Decisional Classification

For this initiative, the CAISO plans to seek approval of the proposed tariff changes from the CAISO Board only. We believe this initiative falls outside the scope of the EIM Governing Body's advisory role because the initiative does not propose changes to either real-time market rules or rules that govern all CAISO markets. Rather, this initiative proposes changes to the tariff that would affect resources only in the CAISO balancing authority area. Specifically, the initiative would change how the CAISO sets an effective flexible capacity value for proxy demand resources, with the aim of clarifying these for demand response participants. The setting of these values apply only to proxy demand resources providing flexible resource adequacy to load serving entities (LSEs) serving load in CAISO's Balancing Area Authority (BAA) as a supply side resource procured to serve that load. They do not apply to LSEs outside CAISO's BAA. The CAISO welcomes stakeholder comments on this proposed decisional classification for the initiative.

Appendix

Table 1 indicates that PDR's amount of CAISO's flexible capacity contribution, shown to meet the CAISO's overall needs, is dropping and continues to be a minimal contributor.

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%