

Comments on Proxy Demand Resource Resource Adequacy Clarifications Initiative

Department of Market Monitoring

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The Department of Market Monitoring (DMM) appreciates the opportunity to comment on the *Proxy Demand Resource – Resource Adequacy Clarifications Initiative*.

I. Background

This new initiative combines selected elements of the Effective Flexible Capacity (EFC) Value for Proxy Demand Resources (PDRs) initiative and the Slow Demand Response (DR) initiative. The ISO's joint issue paper/straw proposal issued March 27, 2020 explains that the ISO is seeking to move forward with this initiative through an abbreviated stakeholder process due to the narrow issues being addressed.¹ The ISO also notes that the portion of flexible capacity requirements met by proxy demand resources overall is very small and dropping.²

As explained in these comments, DMM believes it is important that numerous key details and questions concerning the proposal be resolved prior to moving forward for approval and implementation of the proposed tariff changes and policies. Although the proposal may apply to a relatively small amount of overall flexible and local capacity requirements, these provisions and policies could have significant implementation, monitoring and compliance implications for ISO staff and individual participants.

In addition, while the proposal may be directly applicable to a relatively small amount of capacity, these resources are part of a more general category of energy-limited or availability-limited resources which are being relied upon to meet an increasing portion of resource adequacy requirements. As noted in recent comments by DMM in the CPUC long-term integrated resource planning proceedings, DMM is concerned about the cumulative effect of these resources:

These energy-limited or availability-limited resources include renewables, import capacity, demand-side resources and energy storage. Unlike gas and nuclear capacity, these resource types may have limited availability to meet both peak demand and demand across all multiple hours in an operating day. When available, these resources could also be very expensive to dispatch. If increased reliance is placed on these resources to meet RA requirements, DMM is concerned that the RA fleet could have

¹ *Effective Flexible Capacity Value for Proxy Demand Resources Issue Paper/Straw Proposal*, March 27, 2020, p.9. <http://www.caiso.com/InitiativeDocuments/IssuePaper-StrawProposal-EffectiveFlexibleCapacityValue-ProxyDemandResources.pdf>

² *Issue Paper/Straw Proposal*, Appendix Table 1, p. 11.

limited output during hours when net loads – and the potential for uncompetitive supply conditions – are highest.³

Thus, DMM urges the ISO to fully consider and resolve these key details and questions in a manner that is consistent with the broader issue of how to count and manage energy-limited or availability-limited resources being relied upon to meet an increasing share of resource adequacy requirements.

II. Effective Flexible Capacity (EFC) Values for Proxy Demand Resources

The ISO has concluded that performing the tests required under tariff subsection 40.10.4.1(c) to establish *effective flexible capacity* values (EFCs) for *proxy demand response* (PDR) resources would be “difficult to manage and would require costly investments in system upgrades to administer the tests and avoid unduly distraction of operational staff.”⁴ Therefore, the ISO proposes instead to calculate EFCs for proxy demand resources using the general formula under the ISO tariff section 40.10.4.1(a) and to extend unannounced testing provisions to assess the validity of EFC values *ex post*.

While DMM supports the ISO’s proposed approach, it is imperative that the ISO ensure that scheduling coordinators submit accurate proxy demand resource characteristics to the ISO’s master file. The ISO must also make a commitment to assess the actual performance and capabilities of proxy demand resources based on actual market dispatches, operational data, and unannounced testing as necessary.

Operating characteristics submitted to master file

Under the ISO’s proposal, the start-up times, ramp rates, and Pmin values submitted by scheduling coordinators for proxy demand resources will determine the EFC calculation and how much flexible capacity that demand response resources can sell or be counted for. If resources submit inaccurate operating characteristics in the ISO master file, demand response resources which are not actually flexible or dispatchable may receive EFC values and may be counted towards meeting flexible resource adequacy requirements.

Validating master file inputs for resources submitted by scheduling coordinators has been problematic in the past in many cases. DMM has recommended that the ISO be more proactive at reviewing master file inputs and providing clear guidance regarding master file input to scheduling coordinators. The ISO has in some cases taken the position that it is not possible for the ISO to validate master file inputs, and that scheduling coordinators bear the obligation to ensure that inputs to the master file they submit are accurate. In some cases, scheduling

³ *Reply Comments of the Department of Market Monitoring*, R.16-02-007, August 12, 2019. p. 2. Also see discussion and analysis of demand side resources on pp.8-11. <http://www.aiso.com/Documents/CPUC-DMMReplyCommentsonRulingInitiatingProcurementTrackandSeekingCommentonPotentialReliabilityIssues-Aug122019.pdf>

⁴ *Issue Paper/Straw Proposal*, p, 6

coordinators have expressed concerns that guidelines for determining resource characteristics that must be submitted are unclear.

DMM has observed that numerous demand response resources which have been registered by scheduling coordinators in the master file as fast-responding have not responded to real-time dispatches and may be incapable of responding to 5-minute and 15-minute dispatches. Many of these resources have submitted start-up times of 0 minutes and high ramp rates indicating that resources can reach their maximum capacity value (Pmax) in less than 5 minutes. Additionally, many demand response resources are registered with 0 MW minimum operating level (Pmin) while these resources may not actually be fully dispatchable above this level.

Under the ISO's proposal, it will be very important for the ISO and demand response providers to ensure resource characteristics are reflected accurately in master file. It will be important for the ISO to verify the reasonableness of submitted master file changes, especially changes to parameters that could result in increased capacity sales. While the ISO is responsible for reviewing master file submissions, the ISO should also make clear to scheduling coordinators that submission of inaccurate master file parameters constitutes provision of false information and could be subject to referral.

New demand response dispatch options

As noted in DMM's 2016 and 2017 annual reports, for the last several years proxy demand response resources have been getting dispatched and setting prices in the 5-minute real-time market with a relatively high degree of frequency even though most of these resources are not responding to these dispatches and are often not capable of responding to these dispatches.⁵ Proxy demand response resources are not subject to bid mitigation and most bid at or near the \$1,000/MW bid cap.

The ISO's 15-minute and hourly dispatch options established under the ISO's ESDER initiative are designed to help ensure that demand response resources that cannot actually respond to 5-minute or 15-minute dispatches are dispatched according to their actual capabilities. The ISO proposes to clarify that proxy demand response resources will only qualify to provide flexible resource adequacy if they are 5-minute dispatchable. The issue paper/straw proposal states that:

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,

⁵ 2016 Annual Report on Market Issues and Performance, Department of Market Monitoring, May 2017, pp. 259-262. <http://www.caiso.com/Documents/2016AnnualReportonMarketIssuesandPerformance.pdf>
2017 Annual Report on Market Issues and Performance, Department of Market Monitoring, May 2017, p. 260. <http://www.caiso.com/Documents/2017AnnualReportonMarketIssuesandPerformance.pdf>

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.⁶

DMM recommends that the ISO expand this provision to clarify that if an operator wants a 15-minute bidding option, then they will be required to attest that the resource is capable of responding to 15-minute dispatches.

It will be important for the ISO to ensure that resources which are registered as 5-minute dispatchable are actually capable of such response to begin with, since this parameter will allow resources to qualify to provide flexible resource adequacy and validation of actual response may only be determined *ex post*.

DMM also notes that ISO and scheduling coordinators should not wait until the default value for proxy demand resources is changed from 5-minute to hourly dispatchable to ensure that resource characteristics for proxy demand resources submitted by scheduling coordinators are accurate. This process should be ongoing.

Monitoring and review of reported performance data

The issue paper/straw proposal indicates that “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.”⁷

DMM agrees that the ISO should place priority on using actual market dispatches to assess the performance of demand response resources and should resort to testing only if a resource has not been dispatched in the market. However, under current rules, the “demand response energy measurement” used to measure demand response performance (representing the difference between a counterfactual load baseline if demand response actions were not taken, and actual load) is calculated and self-reported by scheduling coordinators.⁸ Although scheduling coordinators are required to submit the underlying data used to calculate performance values, validating performance value accuracy requires an assessment of both underlying load data and the statistical methodologies used to calculate baseline load values.

Thus, DMM recommends that the ISO be prepared to review and audit data on demand response performance that is self-reported by scheduling coordinators as described in tariff sections 11.6.1 and 4.13.4.

⁶ *Issue Paper/Straw Proposal*, p. 8

⁷ *Issue Paper/Straw Proposal*, p. 7

⁸ ISO Tariff section 11.6.1

Unannounced testing of demand response

The ISO's proposal to extend unannounced testing provisions to assess EFCs is also critical to ensure proxy demand resources can actually provide the flexible capacity which they are being relied upon under the state's resource adequacy program. This is important because proxy demand resources can avoid being dispatched by simply submitting high commitment cost and energy bids in the ISO markets.

However, under the testing provisions of section 40.10.4.1 (c), proxy demand resources will be paid the resource's bid price. As previously noted, most proxy demand resources bid at or near the \$1,000/MWh bid cap. Although other resources are supposed to be subject to bid mitigation when exceptionally dispatched for testing, proxy demand resources are currently exempt from bid mitigation and do not have cost-based commitment cost bid caps or default energy bids for use in mitigation.

Thus, the ISO should place priority on using actual market dispatches to assess the performance of demand response resources and should resort to testing only if a resource has not been dispatched in the market.

III. Slow Demand Response Resources

As part of this initiative, the ISO is proposing to allow "slow" demand response to count toward local area resource adequacy requirements. To qualify to provide local resource adequacy capacity, resources must be able to respond at their full capacity within 20 minutes after a contingency. To ensure "slow" demand response can be dispatched to meet local needs and thus qualify to provide local resource adequacy capacity, the ISO proposes to develop a process to exceptionally dispatch slow demand response resources in the day-ahead timeframe.

As explained below, DMM has several questions about the ISO's proposal for dispatching these resources and believes that issues regarding how demand response resources are modeled in the market should be resolved before moving forward with the proposed dispatch process, to avoid potentially inefficient market outcomes.

Minimum on-line constraints

The ISO's *Local RA with Availability-Limited Resources and Slow Demand Response Draft Final Proposal* indicates that *minimum online constraints* (MOCs) will be defined in local areas with slow demand response. The ISO describes local minimum on-line constraint requirements as follows:⁹

⁹ *Local Resource Adequacy with Availability-Limited Resources and Slow Demand Response Draft Final Proposal*, California ISO, October 3, 2019, p. 13:

<http://www.caiso.com/InitiativeDocuments/DraftFinalProposal-LocalResourceAdequacy-AvailabilityLimitedResources-SlowDemandResponse.pdf>

$$\text{MOC Requirement} = \text{Local Area Load} - \text{Import Capability} - \text{Available Generation}$$

Where:

MOC Requirement = A MW value of slow demand response that needs to be dispatched prior to a contingency occurring as a preventive measure

Local Area Load = Day-ahead load forecast of local capacity area load

Import Capability = Import capability into the local capacity area

Available Generation = MWs bid into the day-ahead market from generation within the local capacity area

Based on the definition above, it seems the day-ahead market processes (IFM and RUC) would already ensure that Import Capability plus Available Generation bid into the market is sufficient to meet Local Area Load. It is unclear what additional constraints the ISO will model that are not modeled or do not exist today. It is also unclear if the ISO will use an updated load forecast (rather than the day-ahead load forecast) in its assessment of the need to exceptionally dispatch slow demand response capacity.

Thus, DMM asks that the ISO provide additional detail on what minimum on-line constraints will be defined in local areas that could potentially result in the commitment of slow demand response capacity.

Process for dispatching slow demand response

During the stakeholder call on April 3, the ISO presented a new process to dispatch slow demand response.¹⁰ The ISO explained that it will define minimum on-line constraints in local areas, and then run the day-ahead market processes excluding slow demand response from being effective towards resolving the minimum on-line constraints. The ISO will then commit slow demand response resources via exceptional dispatch only if minimum on-line constraints are “infeasible” (i.e. cannot be met) based on capacity considered in the day-ahead market.

DMM understands that the reason the ISO will not model slow demand response as being effective towards meeting minimum on-line constraints in the day-ahead market is that many of these resources are modeled with 0 MW Pmin and reflect no commitment costs. Therefore, these resources may appear inexpensive to commit in day-ahead market processes and may be committed at Pmin, when resources in fact, may not be fully dispatchable and must be “committed” in advance of real-time to some higher operating level.

DMM has some concerns that the proposed approach could unnecessarily restrict the supply of capacity considered in the day-ahead market in order to accommodate modeling limitations for

¹⁰ *New Initiative: Effective Flexible Capacity for Proxy Demand Resources*, California ISO, April 3, 2020, Slide 20: <http://www.caiso.com/InitiativeDocuments/Presentation-EffectiveFlexibleCapacityValue-ProxyDemandResources-Apr3-2020.pdf>

certain demand response resources. If the ISO does not consider slow demand response capacity as effective toward the minimum on-line constraints in the day-ahead market, this will inaccurately limit the supply available to meet minimum on-line constraints in the day-ahead market. This is likely to result in inefficiencies which may drive up the cost of meeting minimum on-line constraints and may cause additional gas units to be committed which are not actually needed to meet reliability constraints.

Thus, DMM suggests that demand response capacity should not be excluded from resolving constraints in the day-ahead market because of perceived modeling limitations, if these resources are in fact effective towards meeting those constraints.

Modeling limitations

The proposed dispatch process for slow demand response resources appears to be the result of accommodating modeling limitations for demand response. DMM believes that the ISO should address demand response modeling before developing a new dispatch process that may result in inefficient market outcomes.

For example, if resources are not actually dispatchable above 0 MW, resources' Pmin presumably should be set at a higher value in the master file. While DMM understands that demand response resources' Pmin values may vary across a month, scheduling coordinators should be able to set Pmin for non-dispatchable resources at the level of load reduction they have with a high degree of certainty throughout a month during the hours which the demand response resource is available to the market. For resources used to meet resource adequacy requirements, this capacity value should be at least equal to the amount of resource adequacy capacity being claimed for the resource.

If resources are modeled with non-zero Pmin but reflect no commitment costs, resources will continue to appear inexpensive and will likely be picked up frequently by the market. However, resources have the ability to reflect non-zero minimum load costs or start-up costs. The ISO has previously discussed demand response modeling and commitment cost issues in the ESDER 4 stakeholder initiative. However, the ISO and stakeholders have yet to clarify expectations for modeling demand response resources under existing master file parameters and what might constitute appropriate commitment costs for demand response resources. The ISO should clarify demand response modeling and commitment cost policies prior to moving forward with these two proposals, as demand response modeling issues impact the effectiveness of both.