

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Oversee the  
Resource Adequacy Program, Consider  
Program Refinements, and Establish Annual  
Local and Flexible Procurement Obligations  
for the 2019 and 2020 Compliance Years

Rulemaking 17-09-020  
(Filed September 28, 2017)

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
TRACK 3 PROPOSAL COMMENTS**

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**I. Introduction**

Pursuant to the January 29, 2019 Amended Scoping Memo and Ruling of Assigned Commissioner (Ruling), the California Independent System Operator Corporation (CAISO) submits these comments regarding Track 3 proposals submitted on March 4, 2019 and the Commissioner Energy Division Staff's effective load carrying capability (ELCC) analysis.

**II. Discussion**

The CAISO appreciates the opportunity to comment on proposals submitted by the Commission's Energy Division staff and the parties to this proceeding. After considering the comments and the dialogue at the Commission's March 12-13 Workshops, the CAISO provides the following recommendations:

- (1) The Commission should not adopt Energy Division Staff's updated ELCC methodology allocating the capacity benefits of storage resources to wind and/or solar resources. Instead, the Commission should utilize the same methodology adopted D.17-06-027,<sup>1</sup> rerun the ELCC study using updated wind and solar data, and use the calculated ELCC values for wind and solar from that study.
- (2) The Commission should not adopt Sunrun Inc.'s (Sunrun) proposal to provide resource adequacy credit to behind-the-meter solar and storage resources; but rather should pursue more dynamic, time-variant rates that signal grid needs, flatten the load curve, and help address distribution grid needs.

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<sup>1</sup> *Decision Adopting Local and Flexible Capacity Obligations for 2018 and Refining the Resource Adequacy Program*, D.17-06-027 (June 29, 2017) (D.17-06-027).

- (3) The Commission should explore options to improve the qualifying capacity calculations for hydro resources, such as the exceedance methodology proposed by Pacific Gas & Electric Company (PG&E), but it is premature to adopt any new methodology at this point.
- (4) The Commission should reject the effective flexible capacity calculation methodology proposed by the California Energy Storage Alliance (CESA) because it is not properly aligned with flexible capacity needs.
- (5) The Commission should work towards adopting updated qualifying capacity counting rules for hybrid resources, as proposed by Southern California Edison Company (SCE) and CESA, but the Commission should conduct additional analysis in the next resource adequacy cycle before adopting any new hybrid resource counting rules.
- (6) The Commission should reject PG&E's proposal to establish seasonal local resource adequacy requirements.
- (7) The CAISO does not support the Center for Energy Efficient and Renewable Technology's (CEERT's) portfolio net qualifying capacity (NQC) proposal because the focus on specific local needs may result in deficiencies in those resources' ability to also support system resource adequacy needs or create a need to have separate system and local capacity values.
- (8) The CAISO does not oppose SCE's and Energy Division staff's proposal to relax or remove the Path 26 procurement restraint, but notes that removal will likely result in increased use CAISO backstop procurement to maintain reliability.
- (9) The Commission should reject SCE's request to establish waivers for system and flexible resource adequacy procurement.
- (10) The Commission should adopt SCE's proposal to implement performance assessments for Demand Response Auction Mechanism resources.
- (11) The Commission should continue to work with the CAISO to ensure that slow response demand response resources meet local capacity requirements.

## A. Energy Division Staff's ELCC Methodology

### 1. *The Commission Should Defer Adopting Energy Division Staff's Updated ELCC Methodology.*

The CAISO recommends that the Commission defer adopting Energy Division staff's updated ELCC methodology and instead the Commission should utilize the same methodology adopted D.17-06-027, re-run with updated wind and solar resource data. The resulting ELCC should be used to establish 2020 qualifying capacity values.<sup>2</sup> In Track 3, Energy Division staff proposed additional modifications to the existing ELCC methodology to integrate storage capacity.<sup>3</sup> Energy Division staff's proposal requires additional vetting prior to adoption, especially the portion of the proposal that allocates storage-related ELCC benefits to wind and solar resources. The storage-related benefits that Energy Division's proposal allocates to wind and solar resources are produced by the entire portfolio of resources—including thermal and hydro resources—that are online during the daytime hours with high solar output. Therefore, Energy Division staff's proposed allocation to only wind and/or solar resources may not reflect an accurate attribution of the benefits. In short, based on the current results, there still numerous questions regarding how to best calculate an ELCC value for storage and then how best to allocate those benefits to wind, solar, storage, or other resources on the system.

The CAISO notes that the Commission initially adopted “transitional” ELCC values for wind and solar capacity in D.17-06-027 in June 2017.<sup>4</sup> The CAISO recommends the Commission make a final move to adopting calculated ELCC values using the study methodology adopted in that decision. The Commission recognized that the use of the transitional values would minimize the impact on procurement practices and did not necessarily reflect the true reliability contribution of wind and solar resources. Continuing to use transitional ELCC values inappropriately and problematically inflates the resource adequacy capacity provided by wind and solar resources and increases the risk that marginal resources retire because they are unable to secure resource adequacy contracts. The CAISO recommends that the Commission discontinue using the transitional values to avoid inefficient and potentially

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<sup>2</sup> *Id* at pp. A3 – A5.

<sup>3</sup> *Administrative Law Judge's Ruling on Proposals of Energy Division*, R.17-09-020 (March 4, 2019), *see Attachment A Energy Division Proposals for Proceeding 17-09-020: Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years*.

<sup>4</sup> D.17-036-027, *see* Appendix A.

harmful procurement practices that could jeopardize reliability.

**2. *The Commission Should Prioritize Fully Incorporating Behind-the-Meter Solar Resources into its ELCC analysis.***

Though the CAISO generally agrees that the Commission should integrate storage resources into the ELCC methodology, at this stage the CAISO recommends that the Commission prioritize fully incorporating behind-the-meter solar into its ELCC methodology. The CAISO system already includes a significant amount of behind-the-meter solar resources—especially compared to the amount of storage resources on the system—and, as a result, these resources can have a significant impact on ELCC values. The CAISO recommends that Energy Division staff first focus on fully incorporating these resources into the ELCC methodology prior to addressing storage resources.

**B. Sunrun’s Behind-the-Meter Solar and Battery Storage Proposal**

Sunrun petitions the Commission to extend the resource adequacy qualifying capacity of a demand response resource that can export energy to the grid using an Exporting Behind-the-Meter Solar and Storage (EBTMSS) system.<sup>5</sup> Sunrun wants the qualifying capacity value of this type of demand response to include the export capability of the solar and storage system, which, unlike traditional demand response, would extend the qualify capacity value of EBTMSS beyond the customer’s curtailable load.<sup>6</sup> Sunrun states that EBTMSS systems (1) are helpful to the grid and can beneficially shift excess, lower value, solar energy production mid-day to higher value periods later in the day when solar irradiance wanes, and (2) can perform this shift in grid responsive ways.

The growing interest in EBTMSS is largely responsive to new time-of-use (TOU) rates, which value energy consumption highest late in the day, between 4:00 p.m. to 9:00 p.m., and lower in the midday. This lower midday energy value negatively impacts the value of solar energy production. Customers and solution providers are responding to new TOU rates by investing in solar and storage systems, which store excess mid-day solar energy in a battery that later releases that energy during the higher value peak TOU period. This uptake in solar and storage systems demonstrates the power of time-variant retail rates to create business

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<sup>5</sup> Sunrun Proposal, pp. 2-3.

<sup>6</sup> *Id.*, p. 8.

opportunities that benefit consumers and shift energy use in ways favorable to the grid, while helping California achieve its energy policy goals.

Not all load management solutions are well-suited as supply-side resource adequacy resources, especially when retail rates can most easily and effectively direct load management actions in ways favorable to the grid and consumers, while avoiding resource adequacy complexities. The CAISO encourages the Commission to pursue more dynamic, time-variant rates that signal grid needs, flatten the load curve, and help address distribution grid needs.<sup>7</sup> More dynamic retail rates, including real-time pricing, could better leverage the full benefits of small EBTMSS systems, enabling such resources to respond with greater refinement and frequency to transmission and distribution grid conditions, while reducing peak demand and potentially lowering resource adequacy capacity needs.

In contrast, treating residential EBTMSS systems as supply-side resource adequacy resources is challenging and introduces significant complexities given potential interactions with Net Energy Metering (NEM) tariffs, the complexity of integrating and managing numerous small EBTMSS as supply-side resource adequacy resources in the CAISO market, the Commission's resource adequacy process, and unresolved metering and billing issues.<sup>8</sup>

Additionally, the CAISO is concerned that Sunrun proposes to treat EBTMSS as a demand response resource under the CAISO's proxy demand resource model. Proxy demand response is a resource that adjusts load consumption; it is not a resource that generates and exports physical energy onto the grid like a distribution connected generator. Given Sunrun wants to export energy onto the distribution grid, this may create potential interconnection issues with the distribution utility, and may require treating the exported energy as a sale for

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<sup>7</sup> Distribution grid needs can also be reflected in the time-variant price signal so that transmission-level grid needs do not harm or impact the distribution system when the needs of the transmission system are incongruent with the needs of the distribution system.

<sup>8</sup> *Decision Granting Petition for Modification of Decision 14-05-033 Regarding Storage Devices Paired with Net Energy Metering Generating Facilities*, D.19-01-030, (January 31, 2019), p. 6, Section 1.2.2

[t]he Petition contains several requests beyond the primary request described above (Section 1.2.1). First, the Petition requests the Commission to "leave the door open" for a use case in which NEM-PS systems can also participate in demand response programs, but does not propose a specific metering or billing solution for distinguishing renewable (NEM-eligible) exports from non-renewable (i.e., for demand response) exports for such a use case

and at p. 21, Section 3.3 - Other Issues Denied Without Prejudice- states "[t]he electric IOUs raise valid concerns with the use of third party-owned meters, which we encourage solar and storage industry stakeholders to work with the electric IOUs to address."

resale under the Federal Power Act, especially if the exported energy is settled in the wholesale electricity market. These are non-trivial issues that require further vetting prior to any determination about resource adequacy treatment.

### **C. Proposals to Modify Capacity Counting Rules**

#### **1. *PG&E's Proposal to Use an Exceedance Methodology to Establish Qualifying Capacity Values for Hydro Resources***

The CAISO supports PG&E's proposal to explore updating the methodology to determine qualifying capacity values for hydro resources but does not believe there is sufficient record in this proceeding to adopt an updated methodology at this point. PG&E proposes to modify the methodology to a "comprehensive approach for hydro resources that balances hydrological conditions, weather patterns, FERC licensing, storage levels and upstream and downstream powerhouses to develop respective [qualifying capacity] values."<sup>9</sup> At the Commission's March 13-12, 2019 workshop, PG&E provided additional details regarding a potential exceedance methodology to establish qualifying capacity values.<sup>10</sup> The CAISO agrees that the Commission should explore updated options for calculating qualifying capacity value for hydro resources—including the exceedance methodology proposed by PG&E. However, the CAISO does not believe there is sufficient evidence on the record at this time to modify the existing methodology.

#### **2. *CESA's Proposal to Establish Effective Flexible Capacity Values Based on 15-Minute Ramping Capability***

The CAISO recommends that the Commission reject CESA's proposal to modify the EFC counting methodology. CESA proposes that the Commission determine EFC values based on fifteen-minute ramping capability and that flexible resource adequacy requirements should remain unchanged (*i.e.*, requirements should continue to be set based on the CAISO's largest three-hour net load ramp).<sup>11</sup> Rather than adopting CESA's proposal, the CAISO recommends that the Commission continue coordinating with the CAISO in the resource adequacy proceeding, the CAISO's Resource Adequacy Enhancements Initiative, and Annual Flexible

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<sup>9</sup> Track 3 Proposals of PG&E (PG&E Proposal), pp. 9-11.

<sup>10</sup> See PG&E's Resource Adequacy Program Track 3 Proposals Presentation, slides 6-8 (presented on March 13, 2019)

<sup>11</sup> Track 3 Proposal of the CESA in Response to the Amended Scoping Memo and Ruling of Assigned Commissioner (CESA Proposal), pp. 2-3.

Capacity Needs Assessment process. Continued coordination between the CAISO and the Commission is the best way to ensure that flexible capacity procurement is fully aligned with CAISO operational needs and properly values different types of flexible capacity. For example, contrary to CESA's assertion, the CAISO studies show flexibility benefits from resources that can ramp in three hours in addition to resources that can ramp in fifteen- and five-minute timeframes. The CAISO has not identified the need for 15,000 MW of capacity that can ramp within fifteen-minutes.

**3. *SCE and CESA's Proposals to Update Qualifying Capacity Counting Rules for Hybrid Resources***

The CAISO supports efforts to develop updated Qualifying Capacity determinations for hybrid storage and generation resources, but recommends that the Commission continue analyzing such proposals in a subsequent resource adequacy proceeding. SCE and CESA separately recommend developing resource adequacy counting rules for generation resources combined with storage. SCE made specific proposals for determining Qualifying Capacity for three different storage combinations, including combinations with 1) a dispatchable resource, 2) a non-dispatchable resource, and 3) a demand response resource and CESA requested a series of workshops to address specific questions related to combined resource Qualifying Capacity values. There is merit both to considering SCE's specific proposals and conducting additional workshops to address combined resource Qualifying Capacity values in the next resource adequacy cycle, but there has not been sufficient opportunity to develop fully the necessary assessment and counting tools in Track 3 of this proceeding. Therefore, the CAISO recommends that the Commission defer this matter to a subsequent resource adequacy cycle.

**D. *Proposals Addressing Local Resource Adequacy Requirements***

**1. *PG&E's Proposal to Adopt Seasonal Local Resource Adequacy Requirements***

The CAISO opposes PG&E's proposal to seasonally adjust local resource adequacy requirement. PG&E does not present sufficient reasons or rigorous analysis to justify establishing seasonal local requirements. PG&E's proposal does not take into account local system topology and relative load density (*i.e.*, the proportion of non-summer load in load pockets relative to overall system load). Instead, the PG&E proposal simply recommends that

the Commission make proportional adjustments to local requirements based on forecasted transmission access charge area peak for the non-summer season. PG&E's proposal oversimplifies local capacity requirement study process and lacks analytical rigor. The Commission and the CAISO expended significant effort and undertook robust and extensive analysis to develop the existing local requirements.

PG&E proposes that the Commission set local resource adequacy requirements on a seasonal, rather than annual basis.<sup>12</sup> As described below, adopting seasonal local resource adequacy requirements would present serious implementation challenges, and would radically affect the local resource adequacy process, while providing, at best, only minimal benefits. The CAISO has previously noted that PG&E's seasonal local resource adequacy proposal will not necessarily lower costs, but will definitively impact reliability. The CAISO provides additional comments below regarding how an off-peak seasonal local resource adequacy study would affect NQC value of resources located in local area.

**a. Deliverability Impacts**

If the Commission establishes seasonal local resource adequacy requirements, the CAISO would need to conduct additional local capacity studies to determine the new seasonal local requirements. The CAISO would need to study the ability of resources within the load pocket to be deliverable to the aggregate of load, *i.e.*, all load inside and outside the local capacity area, under lower load scenarios. Resources that are not deliverable to the aggregate of load—because the energy produced by resources within the load pocket exceeds the transmission capacity available to export that energy out of the load pocket—would have their NQC value reduced. As load levels decrease throughout the system and within the local capacity areas in non-summer months, there could be significant reductions in the NQC values.

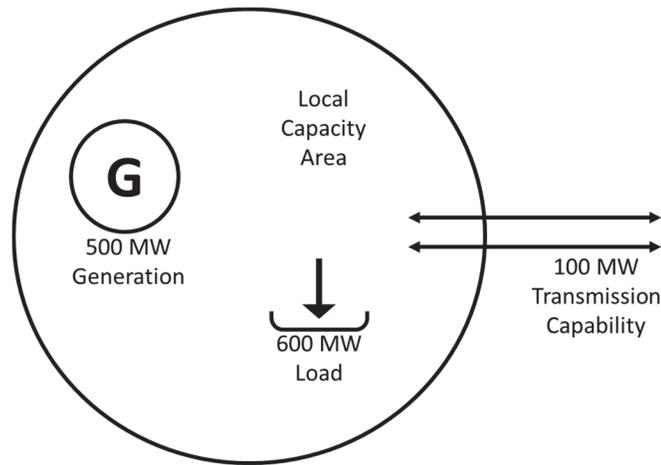
During the summer season load levels reach their maximum and, as a result, much or all of the energy from the resources in the local areas are consumed within the local area. Any additional energy produced and not consumed within the local area could be exported out of the local area and into the system using the transfer capability of the transmission lines serving that local area. During non-summer months, when local area load is low, far less energy is needed to serve the local capacity area load, meaning that more resource production must be exported out

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<sup>12</sup> PG&E Proposals, pp. 6-8.

of the local area and into the system for the local area resources to be deliverable. However, the transfer capability out of the local areas during non-summer months can be less than or equal to the transfer capacity during summer months.<sup>13</sup> As a result, the total energy that is deliverable from within the local area to the aggregate of load during these non-summer months can be less in the summer season. This means that resources in the local area will have their NQC reduced if the energy they produce cannot be fully exported out of the local area. Figure 1 and 2 describe this constraint below graphically as follows:

**Figure 1. Summer LCA NQC Example**

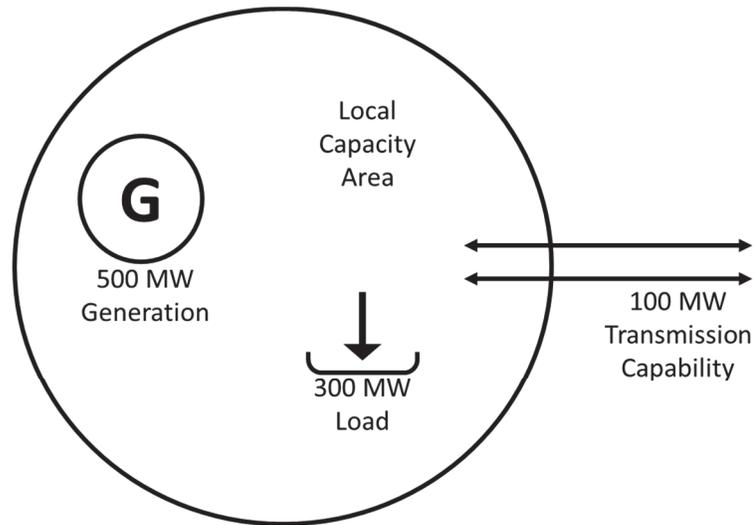


Summer Example

- Peak internal load conditions
- Internal generation fully deliverable to aggregate of load
- $QC_G (500MW) = NQC_G (500 MW)$

<sup>13</sup> Transfer capacity can be reduced due to factors such as planned maintenance line outages or reduced energy counterflows.

**Figure 2. Non-Summer LCA NQC Example**



**Non-Summer Example**

- Internal generation no longer fully deliverable to aggregate of load due to reduced internal load conditions
- $QC_G (500MW) > NQC_G (400 MW)$

**b. Off-Peak Seasonal Local Resource Adequacy Studies**

In 2013, the CAISO conducted an off-peak local capacity analysis for the San Diego-Imperial Valley area and the San Diego sub-area. This analysis is instructive in understanding the limitations of any such study. In this study, the CAISO and stakeholders agreed on the following study assumptions:

- One transmission element out of service under maintenance conditions;
- Two resources out of service under maintenance conditions; and
- A 1-in-10 peak load for the month of October.

The CAISO’s analysis indicated that the non-summer local resource adequacy need in the San Diego sub-area was “200-300 MW lower than the summer peak need” whereas the overall San Diego-Imperial Valley area need was estimated to be “200-300 MW higher than summer peak need.”<sup>14</sup> However, these results were highly contingent on which resources were assumed to be on a maintenance outage. The CAISO used an average resource maintenance outage figure

<sup>14</sup> 2013 Final LCR Study Results: San Diego-Imperial Valley Local Area, slides 19-20. [http://www.caiso.com/Documents/Presentation\\_Final2013LocalCapacityRequirements\\_SanDiegoImperialValleyArea\\_Apr12\\_2012.pdf](http://www.caiso.com/Documents/Presentation_Final2013LocalCapacityRequirements_SanDiegoImperialValleyArea_Apr12_2012.pdf).

(500-600 MW) to determine local capacity requirements, but the “two units out on maintenance” could have made up anywhere from 30 to 1169 MW, depending on the actual units on outage. If the CAISO had assumed different resources to be on maintenance outage, the local capacity requirements would increase or decrease accordingly. Without actual knowledge regarding planned maintenance, it is difficult to set a local capacity requirement that adequately ensures local reliability.

The CAISO’s 2013 off-peak local capacity study illustrates that calculating a seasonal local capacity requirement is both complex and subject to significant error. In any event, instituting a seasonal local requirement limits the ability of resource adequacy resources to take maintenance outages.

For the foregoing reasons, the CAISO continues to believe that the unproven potential benefits of a seasonal local resource adequacy requirement are significantly outweighed by the cost, complexity, and reliability reduction of such a requirement. The CAISO recommends that the Commission reject PG&E’s request to institute a seasonal local requirement.

## ***2. CEERT’s Proposal to Adopt a Local Capacity Portfolio Assessment***

CEERT proposes a local capacity portfolio assessment that seeks to address some of the issues identified in the CAISO’s availability-limited resources discussion. The CAISO notes that in contrast with CEERT’s previous proposal on this matter, the current proposal correctly identifies the load-serving entity (and, by implication, the related CAISO scheduling coordinator) as the entity responsible for optimizing multiple resources under a single resource ID to meet minimum local resource adequacy requirements.<sup>15</sup> The CAISO’s is properly confined to optimally dispatching the aggregated resource. However, as CEERT’s proposal notes, the proposed solution is targeted at local resource adequacy issues.<sup>16</sup> The CAISO is concerned that such a locally focused solution may only work for that local area and might not extend to system level resource adequacy needs. This would require unbundling the system and local attributes for resources where those local area resources would either not count towards system needs or count differently for system and local purposes.

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<sup>15</sup> Track 3 Proposals of the Center for Energy Efficiency and Renewable Technology (CEERT Proposals), p. 5.

<sup>16</sup> *Id.*

**E. SCE’s and Energy Division’s Staff’s Proposal to Relax the Path 26 Procurement Constraint**

SCE and the Commission’s Energy Division staff recommend that the Commission remove the Path 26 procurement constraint.<sup>17</sup> Both SCE and the Energy Division staff argue that the constraint does little to improve reliability and may impede the ability for LSEs to procure the least cost resource adequacy portfolio possible to meet obligations because of requirements to procure from one side or the other of Path 26. Energy Division staff provides analysis that shows that physical violations of the Path 26 constraint may be unlikely and dependent on certain very specific procurement outcomes. SCE also argues that the Path 26 requirements add complexity to the resource adequacy process by introducing the need for swaps between LSEs.

The CAISO does not oppose removing the Path 26 constraint in the annual resource adequacy process. The CAISO is primarily concerned with reliably operating the grid. The CAISO supports changes to simplify the resource adequacy rules so long as the resources necessary to reliably operate the grid are procured. To facilitate such procurement, the CAISO will continue to show the minimum resource requirement north and south of Path 26 (by assuming full use of resource adequacy Maximum Import Capability within the respective zone) in the year ahead LCR report. Furthermore, in operating the grid, the CAISO enforces the Path 26 constraint, and it may be a reliability concern if resources required to manage the constraint are not available in the operational timeframe. Thus, removing the Path 26 constraint from the Commission’s resource adequacy procurement requirements increases the probability that the CAISO will exercise backstop procurement authority to the extent necessary to maintain reliability.

**F. SCE’s Proposal to Adopt Performance Assessments for Demand Response Auction Mechanism Resources**

The CAISO supports SCE’s proposal to implement an after the fact assessment and penalty structure to assess Demand Response Auction Mechanism (DRAM) resource performance. Because the after the fact assessment relies on actual data instead of historical data

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<sup>17</sup> *Energy Division Proposals for Proceeding 17-09-020: Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years*, (March 4, 2019), pp. 26-36, <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M270/K475/270475467.PDF>.  
Southern California Edison Company’s Track 3 Proposals (SCE Proposals), March 4, 2019, pp. 10-13.

it can be applied to all new and existing resources comparably providing a more robust and non-discriminatory solution.

### **G. Joint DR Parties Proposals Regarding Slow Response Demand Response**

The CAISO seeks to clarify comments submitted with the Joint DR Party Proposals. In their proposals, the Joint DR parties misquote CAISO's Track 2 comments, leading to inaccurate and misleading statements regarding the CAISO's study results and local capacity needs.<sup>18</sup> The CAISO clarifies that its study found that based on current local area resource portfolios and current local area load profiles, it appears that most existing slow response demand response resources can be dispatched with sufficient frequency (*i.e.*, dispatches per month) to meet local area requirements if they can be dispatched pre-contingency, but it also found that these programs "may not have sufficient duration (in consecutive hours) to reliably serve load...given the studied contingency."<sup>19</sup>

Although the CAISO study found that most slow demand response resources in local areas can be dispatched with sufficient *frequency* to be effective, the lack of sufficient run-time duration in certain local areas and sub-areas led the CAISO to conclude that "to maintain a sufficient amount of energy (megawatt-hours) to serve area load, either additional megawatts of capacity or resources with longer durations and more hours of availability must be procured to maintain reliability in the local area."<sup>20</sup> These studies inform the CAISO's availability-limited resource proposal discussed in the Resource Adequacy Enhancements stakeholder initiative. It is important to note that in some local areas, slow response demand response and all other availability-limited resources may not provide sufficient energy over the course of the studied contingency event to meet local area reliability needs. The CAISO is addressing run-time duration limitations in the Resource Adequacy Enhancements stakeholder process through its

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<sup>18</sup> Joint Track 3 Proposals of CPower, Enel X North America, Inc., and EnergyHub, (Joint DR Party Proposals), March 4, 2019, at p.8. The Joint DR Party Proposals state that "CAISO concluded that, in general, 'use limited resources could be pre-dispatched and could meet local RA requirements.'" The Joint DR Party Proposal's internal quotation cites the CAISO's February 16, 2018 comments. This quoted language is both incorrect and quoted out of context. The full quote from the CAISO's February 16, 2018 comments is reproduced below, with the emphasis in the original:

In general, the existing slow response resources were able to meet reliability standards based on *existing* program annual and monthly event hours and event days. However, the analysis showed that existing programs may not have sufficient duration (in hours) to reliably serve load in the local area given the studied contingency.

<sup>19</sup> See CAISO's Track 2 Resource Adequacy Proposals, p. 13 (filed February 16, 2018).

<sup>20</sup> *Id.* at p. 15.

hourly load and resource analysis.

In addition to clarifying the CAISO's transmission studies, CAISO responds to the specific questions posed in the Joint DR Parties' proposals. The CAISO reproduces the Joint DR Parties four questions and provides its answers below:

***Joint DR Parties Question 1: If the CAISO's own study shows that speed of dispatch may not be determinative of meeting the local RA need, why is the 20-minute threshold still being used as determinative as to whether, or not, use limited resources can meet local RA?***

As noted above, their interpretation of the study is misleading. The CAISO has explained multiple times that for any resource to meet local resource adequacy requirements, it must either (1) be capable of responding quickly enough such that the CAISO can rebalance the system within 30 minutes after a contingency event, or (2) have sufficient availability such that the resource can be dispatched frequently on a pre-contingency basis.<sup>21</sup> Because slow demand response cannot satisfy the requirement through option 1, they must be dispatched on a pre-contingency basis in order to meet local resource adequacy needs. However, there is no existing mechanism to dispatch slow demand response prior to contingency events in local areas. The CAISO is exploring operational enhancements that will facilitate the dispatch of slow response demand response on a pre-contingency basis so such slow response resources with limited availability can serve local area needs.

The speed of dispatch continues to be an important characteristic for local resource adequacy resources, particularly those with significant availability limitations. As the NERC registered Transmission Operator for the CAISO Balancing Authority Area, CAISO must meet real-time operational requirements in the NERC transmission operating standards. Additionally, the CAISO tariff specifically states that the CAISO Reliability Criteria used in the Local Capacity Technical Study must include time allowed for manual readjustment, defined as the amount of time required for the operator to take all action necessary to prepare for the next Contingency. The tariff states this time should not be more than thirty (30) minutes.<sup>22</sup> CAISO has stated on numerous occasions that for the CAISO to reposition the system within the NERC-

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<sup>21</sup> See, for example, BPM Appeals Committee Decision on Appeal of PRR 854, at p. 1. <http://www.caiso.com/Documents/BPMChangeManagementAppealsCommitteeDecision-PRR854.pdf#search=pr%20854>

<sup>22</sup> CAISO Tariff Section 40.3.1.1 Local Capacity Technical Study Criteria.

mandated 30-minute window, a reasonable amount of time must be reserved for operator action and re-dispatch.<sup>23</sup> The CAISO has determined that for planning purposes, a 10 minute window for the CAISO operator to identify the contingency, assess the situation and re-dispatch the system is a reasonable and prudent planning assumption. The CAISO based this determination on actual operating experience as the NERC designated Transmission Operator. As the Transmission Operator, the CAISO bears the responsibility for meeting NERC standards and complying with the CAISO tariff.

***Joint DR Parties Question 2: The Joint DR Parties have asked, but have not received any empirical information as to what constitutes a pre-contingency event and with what frequency those conditions occur.***

The Joint DR Parties' question implies a misunderstanding of the Local Capacity Technical Study and NERC transmission planning standards. The Local Capacity Technical Study process is designed to ensure that the CAISO has sufficient resources available to meet NERC criteria regarding transmission system performance during certain contingency scenarios. NERC defines a "contingency" as the "unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element."<sup>24</sup> Local capacity resources must provide the CAISO the capability to manually re-dispatch the system within 30 minutes (consistent with the CAISO tariff) to be effective at mitigating the contingency. It is unclear what the Joint DR Parties mean by a "pre-contingency event" in this context. Rather, for the purpose of local capacity requirements, a slow response demand response resource that cannot be dispatched post-contingency must be dispatched pre-contingency (*i.e.*, before a contingency event actually occurs) so the transmission system is prepared and load levels in the local area are lowered to maintain reliability in the event the contingency occurs.

The CAISO has been transparent in its Resource Adequacy Enhancements initiative and Supply Side Working Group that dispatching slow response demand response for local areas needs prior to a contingency will result in those resources being dispatched more frequently. Several parties have requested the CAISO perform analysis to estimate how frequently demand response resources would be dispatched under the frameworks being proposed in the resource

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<sup>23</sup> See, for example, Business Practice Manual Change Management CAISO Response to Appeals, at p. 2.

<sup>24</sup> NERC Glossary of Terms, p. 9. [https://www.nerc.com/files/glossary\\_of\\_terms.pdf](https://www.nerc.com/files/glossary_of_terms.pdf).

adequacy Enhancements initiative.<sup>25</sup> The CAISO has provided some availability requirements for slow response demand response from the planning perspective in its Slow Response Local Capacity Resource Assessment.<sup>26</sup> However, the CAISO cannot provide specific information regarding how often slow response demand response resources would be dispatched on a pre-contingency basis using historical operating conditions because future dispatch will depend on many factors that are difficult to determine, including which resources are available in the local area at a given time, individual local area load profiles, actual contingency events, and whether the resource was dispatched for a local reliability issue or other grid needs.

***Joint DR Parties Question 3: It is still unclear to the Joint DR Parties why the speed of dispatch is being imposed upon use-limited resources and not all resources. As a point of comparison, PJM has a requirement for all resources to be available to respond to dispatch signals with 30-minutes notice, unless they can demonstrate an operational reasons why they cannot meet that requirement, in which case, PJM grants a waiver. The process is the same for all resources, irrespective of use limitation.***

As mentioned above, local capacity resources, regardless of technology type, use-limited status, or availability limitations, can meet local capacity requirements in two ways: (1) be capable of responding quickly enough such that the CAISO can rebalance the system within 30 minutes, or (2) have sufficient availability such that the resource can be dispatched frequently on a pre-contingency basis. The CAISO is unique in that California has significant amounts of load located in transmission constrained “load pockets.” This requires sufficient resources located within the local area be available to meet load and satisfy reliability requirements in these load pockets.

All slow response resources are distinct from other resources in that they cannot respond to a contingency within 20 minutes; however, slow demand response has significant availability limitations that require careful consideration when using it as local RA, because it must be dispatched on a pre-contingency basis. The CAISO is developing the slow response demand response proposal in its Resource Adequacy Enhancements initiative<sup>27</sup> to accommodate

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<sup>25</sup> See Resource Adequacy Enhancements Straw Proposal Part One Comments for CPUC, CLECA, Joint DR Parties. <http://www.caiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx>

<sup>26</sup> Joint ISO CPUC Workshop on Slow Response Local Capacity Resource Assessment, October 4, 2017. [http://www.caiso.com/Documents/Presentation\\_JointISO\\_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment\\_Oct42017.pdf](http://www.caiso.com/Documents/Presentation_JointISO_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment_Oct42017.pdf)

<sup>27</sup> RA Enhancements Stakeholder Initiative Webpage.

<http://www.caiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx>

resources with these unique characteristics by developing a method for determining when to dispatch these very availability-limited resources in the pre-contingency timeframe for local needs.

***Joint DR Parties Question 4: The Joint DR Parties appreciate the opportunity to participate in a stakeholder process to discuss RA Enhancements; however, any significant recommended modifications to RA must come back to the CPUC for implementation. Once again, the Joint DR Parties are concerned about two sets of resource requirements between the CPUC and the CAISO.***

The CAISO agrees that coordination with the Commission is important to ensure consistency between CAISO and Commission resource adequacy requirements and processes. The CAISO has hosted multiple joint workshops with the Commission to review the study results and discuss potential solutions for how demand response resources can help the CAISO address NERC and CAISO reliability standards for local area reliability.<sup>28</sup> Additionally, the CAISO has committed to conducting a stakeholder process to address implementation issues with facilitating the pre-contingency dispatch of slow response demand response resources such that they can meet local reliability needs.<sup>29</sup> The CAISO is currently exploring the slow demand response resource issue under the Resource Adequacy Enhancements stakeholder initiative and looks forward to further collaboration with the Commission and other stakeholders to vet a workable solution.<sup>30</sup> Upon completion of the Resource Adequacy Enhancements stakeholder process, the CAISO will bring this issue back to the Commission for their review and adoption into the RA program.

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<sup>28</sup> Slow Response Local Capacity Resource Study CAISO-CPUC Joint Workshop, October 3, 2016.

[http://www.aiso.com/Documents/Presentation\\_JointISO-CPUCWorkshopSlowResponseLocalCapacityResourceAssessment\\_Oct32016.pdf](http://www.aiso.com/Documents/Presentation_JointISO-CPUCWorkshopSlowResponseLocalCapacityResourceAssessment_Oct32016.pdf) and, Joint ISO CPUC Workshop on Slow Response Local Capacity Resource Assessment, October 4, 2017.  
[http://www.aiso.com/Documents/Presentation\\_JointISO\\_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment\\_Oct42017.pdf](http://www.aiso.com/Documents/Presentation_JointISO_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment_Oct42017.pdf)

<sup>29</sup> BPM Appeals Committee Decision on Appeal of PRR 854, May 13, 2016.

<http://www.aiso.com/Documents/BPMChangeManagementAppealsCommitteeDecision-PRR854.pdf#search=pr%20854> Page 2

<sup>30</sup> RA Enhancements Stakeholder Initiative Webpage.

<http://www.aiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx>

### III. Conclusion

The CAISO appreciates this opportunity to provide comments on Track 3 proposals and looks forward to working cooperatively with the Commission to continue to refine and improve the resource adequacy program.

Respectfully submitted,

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