



# California ISO

**Local Resource Adequacy with  
Availability-Limited Resources and Slow  
Demand Response  
Draft Final Proposal**

**October 3, 2019**

Table of Contents

- 1. Executive Summary ..... 3
- 2. Plan for Stakeholder Engagement ..... 3
- 3. Local Assessments with Availability Limited Resources ..... 3
  - 3.1. Summary of Stakeholder Comments..... 5
  - 3.2. Local Capacity Technical Studies ..... 6
- 4. Slow Demand Response ..... 9
  - 4.1. Summary of Stakeholder Comments..... 12
  - 4.2. Post-Day-Ahead Market Dispatch Notification ..... 12
  - 4.3. Qualifications for Local RA Eligibility ..... 14
  - 4.4. Next Steps..... 15

## 1. Executive Summary

As a part of California’s RA program, CAISO performs studies to ensure adequate capacity is procured in local areas to mitigate potential local reliability issues in those areas. As California transitions to a decarbonized grid, CAISO will depend more heavily on clean, variable and distributed energy resources that have certain availability limitations, such as limitations on fuel availability, run-time duration, and or event calls. It is important CAISO enhance its processes to ensure the RA program considers these limitations when determining the amount of procurement required in local capacity areas.

Additionally, CAISO must be able to use the availability-limited resources procured for local RA to mitigate local reliability concerns within the appropriate time constraints under real-time operating conditions. This concern specifically relates to slow demand response resources. These resources are unique and require an extended “notification period” between an ISO dispatch instruction and resource performance. To enable slow demand response resources to qualify for local RA, CAISO must develop a pre-contingency dispatch solution that allows these resources to mitigate local reliability concerns within acceptable timeframes.

## 2. Plan for Stakeholder Engagement

The CAISO has developed the two proposals in this document through the RA Enhancements stakeholder process.<sup>1</sup> Moving forward, the CAISO is separating out these items from the rest of the RA Enhancements items and into this separate draft final proposal. The CAISO will continue to develop the rest of the RA Enhancements items in further iterations of the straw proposal.

**Table 1: Stakeholder Engagement Plan**

Date	Milestone
Oct 3	Draft Final Proposal posted
Oct 9	Stakeholder meeting (Resource Adequacy Enhancements)
Oct 23	Stakeholder comments on Draft Final Proposal

## 3. Local Assessments with Availability Limited Resources

CAISO defines availability-limited resources as those that have significant dispatch limitations such as limited duration hours (e.g., per year, season, month, or day) or event calls (e.g., per year, season, month or consecutive days) that would limit the resources’ ability to respond to a contingency event within a local capacity area. This definition is limited to resources that count

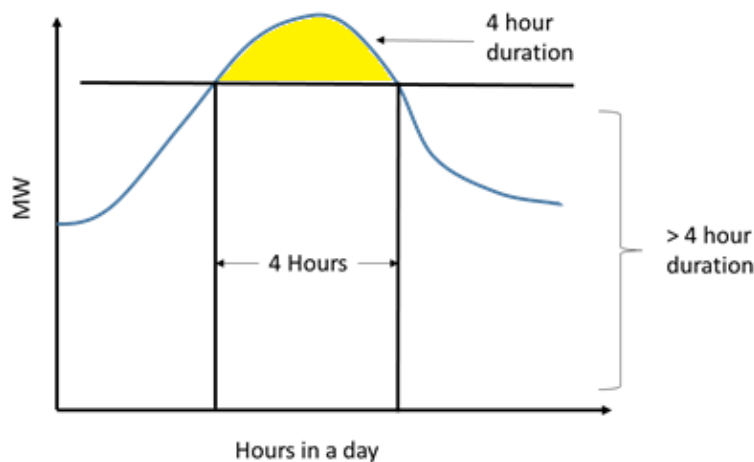
<sup>1</sup> RA Enhancements Stakeholder Initiative Webpage:  
<http://www.caiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx>

towards meeting a local capacity area or sub-area need.<sup>2</sup> As these resources make up an increasingly greater portion of CAISO’s resource mix, CAISO believes it is important to evaluate local capacity needs considering these resources’ availability limitations to help guide the effective procurement of local resource adequacy resources.

The local RA program is currently based on meeting a peak capacity requirement in a locally constrained area defined in MWs without full consideration of resource availability needs, like resource duration or event calls. For example, today, availability-limited resources have a minimum duration requirement of four hours to qualify for resource adequacy. Under the current RA program, a 10 MW resource that is capable of producing for 4 hours, or 40 MWhs has the same resource adequacy capacity value as a 10 MW resource capable of producing for 8 hours, or 80 MWhs. However, if a local capacity area requires 10 MW of capacity for an eight-hour period during a contingency event, only the latter is capable meeting this reliability need. Yet, from an RA perspective, these hypothetical resources are valued the same because the current RA program does not consider the availability limitations of the resources when determining RA capacity values. This has the potential for CAISO to be sufficient in MWs to meet peak demand needs in a local capacity area, but insufficient in MWhs to meet energy needs across all hours of the day and year.

Figure 1 demonstrates how CAISO can use availability-limited resources to meet the peak, but may need resources with a longer duration to meet energy needs in other hours of the day. The black vertical lines reflect a four-hour minimum availability threshold. Below the black horizontal line is load that will need to be served with resources with greater than four hours of availability.

**Figure 1: Hourly Load Shape with Four-Hour Minimum Availability Threshold**



<sup>2</sup> See CAISO Track 2 Testimony Chapter 6: Availability Limited Resources: [http://www.aiso.com/Documents/Jul10\\_2018\\_RAProceedingTrack2Testimon-Chapter6-AvailabilityLimitedResources\\_ProposalNo5\\_R17-09-020.pdf](http://www.aiso.com/Documents/Jul10_2018_RAProceedingTrack2Testimon-Chapter6-AvailabilityLimitedResources_ProposalNo5_R17-09-020.pdf)

Each year, CAISO conducts its local capacity technical study to determine the minimum amount of local capacity area resources needed to address local area contingencies. In performing the study and setting local capacity requirements, the current process does not consider hourly load and resource analysis. However, in recent transmission planning studies, specifically the Moorpark and Santa Clara studies, CAISO developed and performed detailed hourly load and resource analyses to determine whether there were binding availability limits in the local capacity sub-areas.<sup>3</sup> This allowed CAISO to determine local capacity procurement needs more precisely by evaluating both the capacity and energy needs in those local areas. These studies show that availability-limited resources with a four-hour minimum duration were insufficient in meeting the energy (*i.e.*, total MWhs) required to fully address the contingency events identified in the local capacity criteria.

### 3.1. Summary of Stakeholder Comments

The CAISO received several stakeholder comments on the previous iteration of the proposal. In this section, the CAISO provides a summary of stakeholder comments and CAISO responses.

Stakeholders are supportive of the CAISO providing hourly load shapes and available resource data in the Local Capacity Technical Studies to inform stakeholders of duration needs up front and allow LSEs to tailor procurement to meet these shapes. Many stakeholders recognize the importance of considering availability limitations of local area resources to ensure assessments consider energy needs as well as peak capacity needs.

The California Public Utilities Commission (CPUC) suggests as a next step, the CAISO and stakeholders should consider ways to limit the over-reliance on availability-limited resources and ensure LSEs procure their fair share of resources to meet local needs through the modification of the existing Maximum Cumulative Capacity buckets. The CAISO believes the information provided in the local capacity technical studies could inform the definition of such buckets in local areas if the CPUC and stakeholders identify this method as a reasonable path forward.

SDG&E suggests that, while the four-hour requirement may be insufficient to meet reliability needs for certain local areas, because local needs vary by area, the requirement should be kept at four-hours. The CAISO could then backstop as necessary if the final portfolio of resources in a particular local area prove to be insufficient. The CAISO is not directly proposing a change in the minimum four-hour requirement in this proposal. However, ignoring the problem of over-reliance on duration and energy-limited resources for resource adequacy capacity is not a solution; the concern must be proactively addressed. It is not appropriate to defer procurement to the CAISO when identified resource adequacy deficiencies and shortcomings are known and

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<sup>3</sup> CAISO, Moorpark Sub-Area Local Capacity Alternative Study, August 16, 2017, [http://www.caiso.com/Documents/Aug16\\_2017\\_MoorparkSub-AreaLocalCapacityRequirementStudy-PuentePowerProject\\_15-AFC-01.pdf](http://www.caiso.com/Documents/Aug16_2017_MoorparkSub-AreaLocalCapacityRequirementStudy-PuentePowerProject_15-AFC-01.pdf); and Santa Clara Sub-Area Local Capacity Technical Analysis, June 18, 2018, <http://www.caiso.com/Documents/2023LocalCapacityTechnicalAnalysisfortheSantaClaraSub-Area.pdf>

solvable. Furthermore, the legislature has specifically directed the Commission to minimize CAISO backstop procurement.<sup>4</sup>

SDG&E also requested additional detailed information about local areas with needs beyond four-hours, including the MW and duration need. The CAISO's latest local capacity technical studies now provide this information.

CDWR requests the CAISO confirm their understanding that participating load is not an availability-limited resource. The CAISO's definition of availability-limited resources does not apply to or exclude specific technology or resource types but rather resource characteristics.<sup>5</sup>

Several stakeholders request additional information regarding how this proposal relates to the proposal to apply a forced outage rate to resources' NQC value. Additional information regarding how the forced outage rate proposal applies for local RA is described in Section 5.3 of the Resource Adequacy Enhancements Second Revised Straw Proposal.

### 3.2. Local Capacity Technical Studies

Each year, CAISO conducts its Local Capacity Technical Study (LCT Study), to determine the minimum amount of capacity needed in each local capacity area to ensure compliance with the LCT criteria. As part of this study process, CAISO reviews the study criteria, methodology, assumptions, and study results with stakeholders and receives stakeholder input. CAISO's LCT studies look out one and five years forward each year, and ten years forward every other year. The study results for year one determine the local RA requirements as required by ISO Tariff section 40.3. The long-term studies aide local regulatory authorities and LSEs in long-term procurement decisions.

The current study process determines the amount of local capacity in MW, based on a 1-in-10 peak local load forecast, required to mitigate local reliability problems. Beginning with the 2020 LCT study, the CAISO has enhanced its study process to include consideration of availability limitations such that CAISO can ensure sufficient energy (MWh) is available in addition to MW of capacity in the local areas.<sup>6</sup> CAISO will continue to include hourly load and available resource data within its existing Local Capacity Technical Study reports going forward to guide resource procurement.

After load serving entities procure local capacity resources, CAISO will continue to validate the annual RA showings to ensure compliance with LCT criteria. Furthermore, the CAISO will also validate that the RA resources provided have enough energy to meet the needs for each individual area and sub-area. If provided RA resources do not have enough energy or otherwise

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<sup>4</sup> Public Utilities Code section 380(h)(7) says "the Commission shall determine and authorize the most efficient and equitable means for achieving all of the following:... (7) minimizing the need for backstop procurement by the Independent System Operator.

<sup>5</sup> Resources that would like to receive use-limited status for qualifying use-limitations can refer to the Use Limited Resources Guide Book: <http://www.caiso.com/Documents/UseLimitedResourceGuideBook-CommitmentCostEnhancementsPhase3.pdf>

<sup>6</sup> 2020 Local Capacity Technical Study: <http://www.caiso.com/Documents/Final2020LocalCapacityTechnicalReport.pdf>

fail to meet the reliability needs in the local areas, CAISO will use the existing process to allow load serving entities to cure any deficiencies.

Enhancements the CAISO has made to its LCT study process to determine availability needs in each local area and sub-area is described below. CAISO will continue to conduct its annual LCT study to determine the capacity requirements (in MW) for each local capacity area and sub-area, but the hourly load and available resource data will provide additional information regarding energy availability needs in each local capacity area and sub-area. CAISO has incorporated such enhancements to the study into the 2020 Local Capacity Technical Study.<sup>7</sup>

### ***Additional Inputs for Hourly Load and Available Resource Data***

Additional inputs that are included in the LCT study include:

- A. **Projected hourly load data** for each local capacity area and sub-area for each year of analysis. The projected load data should include the impact of behind-the-meter PV to determine the net-load shape. It should exclude the impact of supply-side demand response resources.
- B. **Voltage stability or thermal area load limit** for the critical contingency for each local capacity area and sub-area, for each year of analysis. In the determination of the limit, CAISO will assume all resources that have not announced retirement will be available throughout the resource adequacy horizon. Voltage collapse or thermal overloads for contingency events are typically the most limiting condition and often set the local area requirements.
- C. **Actual resource output at the time of the area or sub-area net peak** is required to evaluate if a resource is effective in mitigating the reliability needs.

### ***Steps in Providing Hourly Load and Available Resource Data***

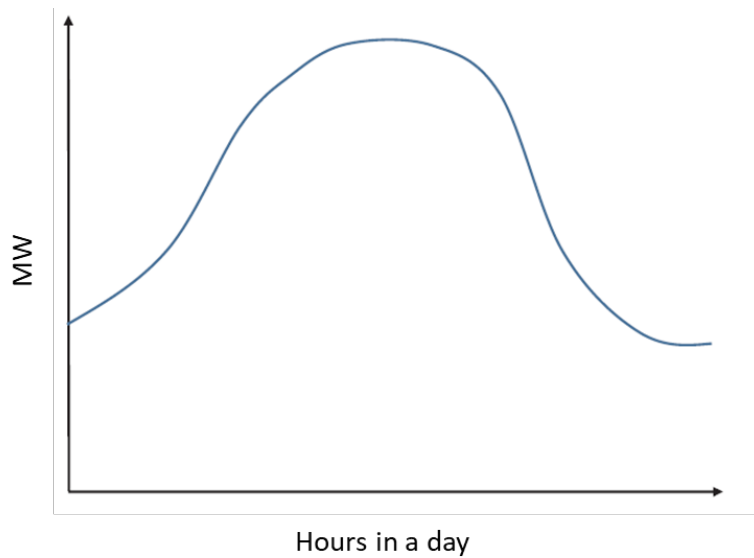
Using the additional inputs and other information available from the LCT study (such as existing and expected online resources in each local area and sub-area), CAISO provides hourly load and available resource data for each local capacity area and sub-area. CAISO performs the following steps as part of the hourly load and available resource data process.

1. **Determine the hourly net load shape for each year of analysis** based on the hourly load forecast and output data from behind the meter solar PV within the local area or sub-area.

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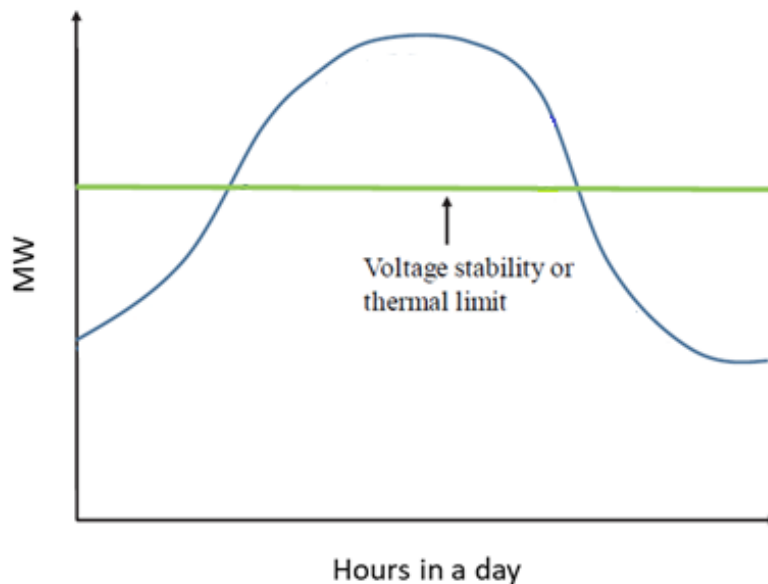
<sup>7</sup> 2020 Local Capacity Technical Study:  
<http://www.caiso.com/Documents/Final2020LocalCapacityTechnicalReport.pdf>

Figure 2: Illustrative Hourly Net Load Shape



2. **Subtract the voltage stability or thermal area limit (from input analysis) to derive the remaining load that may be served by local capacity area resources.** In Figure 3, this area is bounded by the voltage stability or thermal area load limit (green horizontal line) and the hourly net load. The area below the voltage stability or thermal area load limit represents load that can be served by generation outside the local area. The area above the voltage stability or thermal area load limit represents load that must be served from resources within the local area.

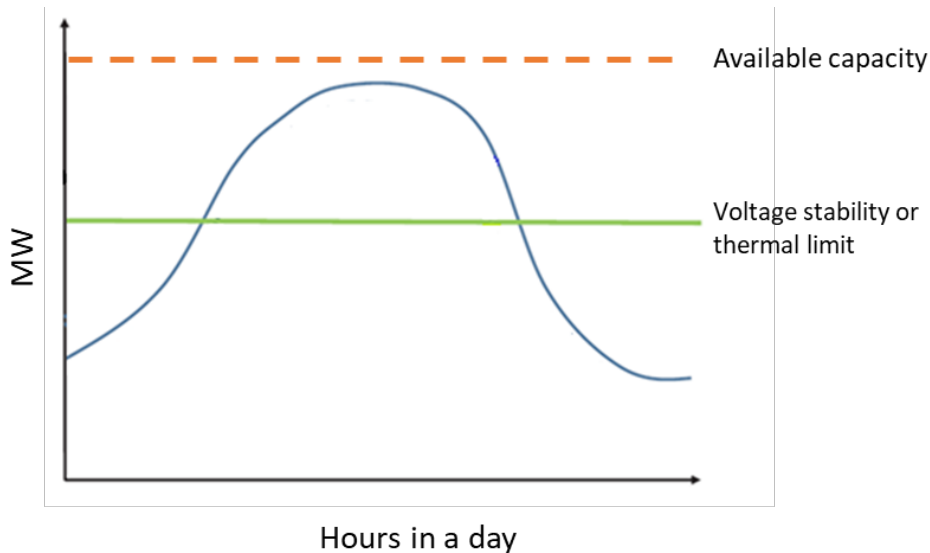
Figure 3: Voltage Stability or Thermal Area Limit





3. Determine the available MWs of capacity from all resources in the local area using generation expected to be online during the study period.

Figure 4: Available Capacity in the Local Area



This analysis enhances the RA program by allowing load serving entities to make procurement decisions for the upcoming year based on the quantity of capacity (in MW) and energy (in MWhs) that will need to be served by generation located within the local capacity area. Additionally, CAISO can inform longer-term procurement and investment decisions by providing greater transparency into CAISO's duration needs multiple years out. Starting with the 2020 process, CAISO has incorporated this analysis into the Local Capacity Technical Study process to guide resource procurement that aligns with operational needs.

CAISO will continue to coordinate with stakeholders when setting local RA requirements to ensure procurement of resources with sufficient availability. CAISO will provide this data in its local capacity technical study when setting local resource adequacy requirements, and will enforce them during the RA showings validation process. Additional detail is provided in the Resource Adequacy Enhancements proposal in Section 5.4.1.– *Capacity Procurement Mechanism Modifications*– regarding procurement actions CAISO may take if the resources procured in a local area do not meet the local capacity area energy and reliability needs as identified through the CAISO's hourly load and resource analysis. These enhancements to the local capacity technical study process will help inform resource procurement that better aligns with local capacity area needs by including the duration resources must be available to ensure local capacity area reliability. In providing this data, CAISO can ensure that LSEs procure sufficient resources to meet local capacity area operational needs in all hours of the year.

#### 4. Slow Demand Response

For reliable operation of the grid, CAISO depends on adequate supply from resources in local areas to meet demand. Demand response resources can help support the system in local areas by reducing load, thus requiring less electricity supply when the local area is supply constrained.

Certain demand response resources have limiting characteristics that challenge their usefulness as local capacity resources and how quickly and effectively the CAISO can use them to address contingencies. Specifically, “slow” demand response cannot be “started” like a generator and be ready to respond to a CAISO dispatch instruction within 20 minutes so that the CAISO can reposition the system within 30 minutes of a contingency occurring. Slow demand response resources are unique from other resources and require additional “notification time” before they can respond to a CAISO dispatch instruction.<sup>8</sup>

While many demand response resources can quickly deliver energy at a scheduled time, demand response resource operators may require longer lead times to know specifically when to deliver that energy. CAISO’s market system issues instructions to each resource to operate at specific operating levels every five minutes. Resource operators must increase or decrease their resources’ output to match these five-minute instructions. Once started and online, conventional resources are prepared and ready to follow five-minute dispatches issued by the CAISO. However, some demand response resource operators require longer notification times before they can reduce load, and their demand response resource may not be able to follow varying five-minute dispatch instructions. To address this need, CAISO introduced block-scheduling options within the Energy Storage and Distributed Energy Resources Phase 3 (ESDER 3) initiative to provide longer notification times and extended real-time dispatch intervals.

CAISO and the California Public Utilities Commission (CPUC) have been working to ensure both “fast” and “slow” demand response resources are capable of meeting local reliability requirements.<sup>9</sup> For the purposes of this paper, CAISO defines slow demand response as demand response resources that cannot respond to a CAISO dispatch instruction within 20 minutes after a contingency occurs, or when the system enters an N-1 insecure state (loss of a single critical element). CAISO must dispatch resources to return the system to an N-1 secure state within 30 minutes to minimize the risk the next contingency poses on the reliability of the system. This response time accounts for a minimal amount of time the CAISO operators have to perform their real-time assessment and react to the contingency condition. After the contingency and real-time assessment occurs, CAISO is left with approximately 20 minutes for resources to provide generation or load drop within the overall 30-minute timeframe to reposition the system.

Based on the need to reposition the system within 30 minutes, CAISO generally has three options:

1. Post-Contingency Dispatch: By assessing the system after a contingency, issuing dispatch instructions to address the contingency, and having a response within 20 minutes to get the system repositioned;

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<sup>8</sup> Notification time refers to the time required for a resource to go from its Pmin (often zero for demand response) to responding to a dispatch instruction. This differs from startup time, which is the time period required for a resource to go from offline to its Pmin.

<sup>9</sup> <https://www.caiso.com/Documents/BPMChangeManagementAppealsCommitteeDecision-PRR854.pdf>

2. Pre-Contingency Dispatch: By dispatching resources pre-contingency to have sufficient energy (or load reduction) available before the contingency occurs to keep the system in a secure state should a potential contingency occur;
3. Pre-Contingency and Post-Contingency Dispatch: Using a combination of pre- and post-contingency dispatch.

In 2017, CAISO performed a study to assess the availability requirements of slow-response resources, such as demand response, to count for local resource adequacy.<sup>10</sup> The study found that at current levels of availability-limited resources on the system, most existing slow DR resources appear to have the required availability characteristics needed for local RA if dispatched pre-contingency as a last resort, with the exception of minimum run time duration limitations. As discussed in the prior section, CAISO will address duration limitations through the annual Local Capacity Requirements stakeholder process through hourly load and resource analysis. As the resource adequacy landscape transitions to one that relies more heavily on availability limited resources to meet its local RA needs, resources such as DR that count for local RA may be relied on more frequently than they have been historically. This concept is described in further detail in Section 4.3.

CAISO initiated the Slow DR effort to operationalize slow demand response resources so they can be eligible to provide local resource adequacy capacity and be used by CAISO when needed for local reliability. Slow demand response resources that cannot respond within appropriate timeframes following a system event, due to the need for longer notification times, can still be useful in maintaining system reliability in local areas. In this draft final proposal, CAISO presents a methodology for dispatching slow demand response resources after the completion of the day-ahead market as a preventive measure in preparing for a possible contingency. This solution will provide the CAISO the ability to utilize these local RA resources for local area reliability concerns when and where needed. As detailed below, CAISO will develop a tool to dispatch slow DR post-day-ahead (after the completion of the day-ahead market) as a way to dispatch slow demand response on a pre-contingency basis.

In previous versions of the proposal, the CAISO also put forth a method for utilizing slow DR on a pre-contingency basis leveraging the policy frameworks proposed in the CAISO's ESDER 3 and Contingency Modeling Enhancements (CME) initiatives. ESDER 3 will provide PDRs hourly and 15-minute block scheduling options. The CME proposal will introduce a preventive-corrective constraint into the market optimization such that it produces a pre-contingency dispatch that keeps the post-contingency system conditions within safe operating limits. Under these proposals, the market could economically consider slow PDRs and dispatch them within a timeframe that will help resolve reliability issues when the preventive-corrective constraint is enforced. However, the CAISO has determined that to ensure accessibility of slow DR for each local area reliability concern, the post-day-ahead tool is necessary as opposed to relying solely on the block scheduling options and preventive-corrective constraint.

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<sup>10</sup> CAISO-CPUC Joint Workshop, Slow Response Local Capacity Resource Assessment: [https://www.caiso.com/Documents/Presentation\\_JointISO\\_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment\\_Oct42017.pdf](https://www.caiso.com/Documents/Presentation_JointISO_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment_Oct42017.pdf).

Finally, this document introduces proposed qualifiers for resources to qualify for local RA, such that CAISO can ensure these resources are used and useful for meeting local area reliability needs.

#### 4.1. Summary of Stakeholder Comments

CAISO received several stakeholder comments on the revised straw proposal summarized here.

The Six Cities support the CAISO's proposal. Calpine commented that if a local resource cannot respond within the required time period, the resource should either not count towards meeting local requirements or be dispatched before the limiting contingency occurs. These comments align with the CAISO's draft final proposal, and the sections below outline how the CAISO plans to dispatch slow DR resources before a potential contingency occurs, such that they can be used to meet local RA requirements.

The CAISO has stated that slow RDRR (RDRR that cannot respond to CAISO dispatches within 20 minutes) should not count for local RA, as the CAISO cannot dispatch them on a pre-contingency basis. Instead, the CAISO can only dispatch RDRR after declaring a warning or emergency. CLECA and SCE both suggest RDRR that can provide partial response within 20 minutes should be able to count the portion that can respond in 20 minutes as local RA. The CAISO's slow DR solution relies on a tool that dispatches resources pre-contingency. Because RDRR cannot be dispatched on a pre-contingency basis, slow RDRR cannot count under this solution. However, the CAISO has provided alternatives for slow RDRR resource adequacy capacity. These methods are described in Section 4.3 below.

#### 4.2. Post-Day-Ahead Market Dispatch Notification

To dispatch slow DR on a pre-contingency basis, CAISO proposes a post-day-ahead market solution to dispatch slow DR after the day-ahead market runs, by assessing local area load and available resources in local areas where operators identify potential reliability needs.

Along with the study on slow response local capacity resources and the real-time block bidding options, CAISO introduced the Minimum Online Commitment (MOC) Constraint as a mechanism for pre-contingency dispatching slow DR.<sup>11</sup> MOC constraints are market mechanisms enforced in the day-ahead market used to ensure sufficient unit commitment is available that is effective in addressing specified contingencies. The MOC ensures real-time reliability by committing resources in the day-ahead market to ensure system reliability following a contingency in real-time. Currently, CAISO engineers define MOC constraints through engineering analysis to identify the minimum generation capacity requirements within local areas. MOCs then commit resources to their Pmin to meet these requirements.

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<sup>11</sup> CAISO-CPUC Joint Workshop, Slow Response Local Capacity Resource Assessment: [https://www.caiso.com/Documents/Presentation\\_JointISO\\_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment\\_Oct42017.pdf](https://www.caiso.com/Documents/Presentation_JointISO_CPUCWorkshopSlowResponseLocalCapacityResourceAssessment_Oct42017.pdf).

CAISO believes the MOC, as it currently exists, is insufficient to operationalize slow DR for two reasons. First, the MOC would commit DR resources to their Pmin, which is often zero for DR resources. Once committed, the DR resource must submit bids into the real-time market, and the market may dispatch the resource above their Pmin without the notification time they require. Second, if committed above Pmin, there is currently no constraint in the real-time market to enforce the pre-contingency dispatch of slow DR. While the MOC on its own cannot operationalize slow DR for local needs, its logic can still be useful in identifying when slow DR is needed. Therefore, CAISO proposes a tool that can commit resources above their Pmin and maintain their schedule from day-ahead through real-time.

As a mechanism to dispatch slow DR for local needs, CAISO proposes to use the MOCs to define the amount of slow DR that is needed. CAISO plans to maintain existing day-ahead market processes and then dispatch slow DR after the completion of these day-ahead market processes if a need is identified through the MOC. CAISO will define MOCs in local areas with slow demand response. The MOC requirement will determine when to commit long start units that cannot be committed in real-time. The MOC requirement will be determined as follows:

MOC Requirement = Local Area Load – Import Capability – Available Generation, where:

- MOC Requirement = A MW value of slow DR the 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

If CAISO cannot meet the entire MOC requirement by committing available long start resources in the local area, CAISO will exceptionally dispatch local slow DR RA resources to meet the MOC insufficiency. CAISO will dispatch resources for energy, rather than committing them to Pmin, based on their bids into the day-ahead market and their ability to resolve the local area need. This process will occur after the conclusion of the day-ahead market and prior to the operating day. CAISO explored the potential for performing this assessment on the operating day closer to hours of reliability need to better reflect real-time conditions. However, at this time, this approach would introduce significant manual work by operators that is not feasible. It would also potentially exclude resources that require day-ahead notice of load reduction.

Because CAISO will dispatch slow DR before a contingency occurs, as a preventive measure, the dispatches provided to slow DR must be maintained through real-time to preserve the pre-contingency dispatch. This allows slow DR resources to know prior to the operating day the hours and the amount they are required to reduce load. Some stakeholders asked if day-ahead dispatches of slow DR would be cancelled in real-time if a contingency does not occur. These dispatches will not necessarily be “cancelled” if no contingencies occur in real-time because CAISO does not have the ability to predict for certain whether or not a contingency will occur and the load reduction of a slow DR resource may prevent a contingency from occurring in the first place. As such, slow responding resources must be positioned ahead of time (i.e., dispatched on a pre-contingency basis) to prepare the system for a potential contingency.

### 4.3. Qualifications for Local RA Eligibility

The CAISO provides the following proposals on slow DR eligibility for local RA. The CAISO recognizes some of these proposals will require future coordination with the California Public Utilities Commission to assure alignment between CPUC counting rules and CAISO local RA requirements. This includes how demand response resources providing local RA are demonstrated to the CAISO, such that the appropriate resources can be identified in CAISO systems as a slow demand response resource providing local resource adequacy.

#### **Notification Period**

CAISO has assessed the most appropriate tool to dispatch slow DR pre-contingency, and has determined that a post-day-ahead market tool is appropriate. With this tool, CAISO will provide dispatches to slow demand response resources prior to the beginning of the operating day. Therefore, CAISO will have the ability to utilize resources that require day-ahead notice as local RA.

#### **Slow Reliability Demand Response Resources**

As discussed in previous comments submitted to the CPUC's RA proceeding, slow Reliability Demand Response Resources (RDRR unable to respond within 20 minutes) are not able to be dispatched on a pre-contingency basis due to their unique dispatch limitations, and as such, should not qualify as local RA.<sup>12</sup> While PDRs participate in CAISO market and offer their services when they are economic, RDRR resources are not eligible for dispatch in real-time unless CAISO declares a Warning or Emergency. Upon this declaration, CAISO operator may choose to activate the software flag that allows these resources to be dispatched.<sup>13</sup>

Because RDRR is a reliability resource and only dispatched after CAISO calls a Warning or Emergency, CAISO must exclude slow responding RDRR (*i.e.*, those resources that cannot respond to contingencies within 20 minutes) from the pre-contingency dispatch option and from utilization by the post-day-ahead market tool. CAISO cannot declare Warnings or Emergencies pre-contingency in anticipation of an emergency to access RDRR. Therefore, CAISO cannot depend on the pre-contingency dispatch of slow RDRR to address local contingencies.

While slow RDRR should not be able to provide local RA, fast responding RDRR, or RDRR that can respond within 20 minutes post-contingency, can be used as local area capacity because it can receive a dispatch and perform in the appropriate time after a contingency occurs, given CAISO declares a warning or emergency in response to the contingency.

The CAISO has received comments from CLECA and SCE opposing CAISO's proposal to exclude slow RDRR from providing local RA, particularly if resources can respond with a portion of their full capability within 20 minutes. While the CAISO cannot utilize slow RDRR for local RA using a pre-contingency dispatch method, the CAISO has suggested several options for utilizing

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<sup>12</sup> CAISO Comments on Resource Adequacy Proposals, September 28, 2017. Page 4:  
[http://www.caiso.com/Documents/Mar7\\_2018\\_Comments-ResourceAdequacyProposals\\_R17-09-020.pdf](http://www.caiso.com/Documents/Mar7_2018_Comments-ResourceAdequacyProposals_R17-09-020.pdf)

<sup>13</sup> CAISO BPM for Market Operations Section 7.1



these resources for resource adequacy purposes in other ways. These include showing the resource for the amount they can respond within 20 minutes for both local and system or counting their full capability for system only. Such a solution remains consistent with existing CPUC RA counting rules that allow local capacity to count for system capacity.

### **Resource Availability**

CAISO urges the Commission and other stakeholders to consider the impacts on resource availability given changing resource adequacy landscape. Eligibility for local RA is subject to requirements determined by CAISO and the CPUC for availability-limited resources. CAISO is refining local capacity assessments to include an assessment of the impact of availability-limited resources on local capacity needs within the Local Capacity Requirements stakeholder process.<sup>14</sup> As identified in Section 4, CAISO planning studies have indicated that, at current levels of availability-limited resources, slow demand response resources possess adequate availability such that they can meet certain local capacity area needs given the ability to utilize them within the defined time horizons. However, given the changing landscape of the resource adequacy fleet, it is reasonable to assume slow DR will be dispatched more frequently than it has been dispatched historically for two reasons. First, because slow DR must be used to pre-position the system, not just curtail after a contingency occurs, CAISO must make certain assumptions regarding real-time conditions that may or may not materialize. Second, local capacity requirements are set based on the minimum quantity of local capacity necessary to meet the LCR criteria. When slow DR is relied upon as a local capacity resource, it may need to be used more frequently, especially if other local resources go on outage or local resources without availability limitations are displaced by new resources and retire. If these resources are utilized such that their availability limitations are reached, CAISO may be required to take alternative actions to ensure reliability in local areas.

#### 4.4. Next Steps

CAISO will brief stakeholders on the draft final proposal during the RA Enhancements stakeholder meeting on October 9, 2019. Stakeholders are asked to submit written comments by October 23, 2019 to [initiativecomments@caiso.com](mailto:initiativecomments@caiso.com). A comment template will be posted on the CAISO's initiative webpage here:

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

The CAISO is targeting Fall 2020 implementation of the operational tool to utilize slow DR resource adequacy resources in local areas.

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<sup>14</sup> Local Capacity Requirements Stakeholder Initiative Webpage:  
<http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx>