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 2016 and 2017 Compliance Years	Rulemaking 14-10-010 (Filed October 16, 2014)

RESPONSE TO ADMINISTRATIVE LAW JUDGE'S FEBRUARY 17, 2016 RULING BY THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

In response to Administrative Law Judge Dudney's February 17, 2016 email Ruling, the California Independent System Operator Corporation (CAISO) provides responses to the questions regarding how the CAISO assesses resources in local capacity areas to ensure that planned-for resources effectively resolve identified constraints in satisfaction of all applicable reliability standards and criteria.

I. Background

The CAISO has a duty to plan and operate the transmission system safely and reliably. The CAISO's roles and responsibilities are formally recognized by North American Electricity Reliability Corporation (NERC), where the CAISO is registered as a Balancing Authority, Planning Authority, and a Transmission Operator. NERC defines these roles as follows:

- **Transmission Operator**: The entity responsible for the reliability of its "local" transmission system, and that operates or directs the operations of the transmission facilities;
- **Planning Authority**: The responsible entity that coordinates and integrates transmission Facilities and service plans, resource plans, and Protection Systems; and
- **Balancing Authority**: The responsible entity that integrates resource plans ahead of time, maintains Demand and resource balance within a Balancing Authority Area, and supports Interconnection frequency in real time. [1]

[1] http://www.nerc.com/files/glossary_of_terms.pdf

The CAISO assesses resources in its Local Capacity Technical Study based on applicable NERC and Western Electricity Coordinating Council (WECC) reliability criteria and the CAISO's planning standards. The CAISO tariff expressly requires the CAISO to follow NERC and WECC requirements and specifically requires the Local Capacity Technical Study to incorporate a maximum time for the operator to manually readjust the system within 30 minutes after a first contingency event.

For clarification, the CAISO has not presented a proposal regarding how it will assess Local Capacity Area Resources in the Local Capacity Technical Study; rather, the CAISO has clarified its responsibilities and obligations as a Planning Authority and Transmission Operator to ensure that all available resources can satisfy applicable reliability criteria and the CAISO planning standards. Regardless of the outcome in this proceeding, the CAISO will still be required to continue studying only those local resources that allow it to comply with applicable NERC, WECC and CAISO planning standards. For the CAISO to meet these requirements and ensure that operators can manually reposition the system within 30 minutes after a first contingency event, local capacity resources must either be able to respond within 20 minutes post-contingency (after a first contingency) or have sufficient energy to be dispatched pre-contingency to ensure the system can operate within system operating limits. The CAISO is required to plan the system in this manner to ensure compliance with NERC, WECC, and CAISO reliability requirements, and Commission action cannot modify or eliminate this requirement. In this proceeding, the CAISO is merely recommending that the Commission modify its resource adequacy program to better align with NERC and WECC standards, and CAISO tariff requirements (that incorporate NERC and WECC standards). Alignment is prudent because it will decrease the risk that the CAISO will identify local capacity deficiencies due to differing assessments of local capacity resources between the Commission and the CAISO.

In responding to the ALJ's questions, the CAISO has identified certain actions and directives the Commission should consider:

1. Directing the IOUs to actively participate in the CAISO's assessment of long-start local capacity resource characteristics and timely provide the CAISO with detailed local area load profiles and needed resource characteristics so the CAISO can timely study this issue and convey what long-start resource attributes are needed for each local capacity area;

2. Requiring the IOUs, with input from third-party demand response providers, to study and specify what types of customers, applications, and technologies are best suited (or not suited) for long-start, pre-contingency dispatches, and detail and assess the range of hours of availability different types of long-start demand response (technology/customer configurations) provide. This analysis by the IOUs would help inform the assessment of how different types of demand response resources can be operated, how often, and for what duration; and
3. Modifying its resource adequacy rules to treat supply-side demand response resources on a level playing field with all other supply resources. This means ensuring all demand response resources that qualify for resource adequacy capacity be modelled and integrated into the CAISO market and provide the CAISO information regarding long-start resources' availability, response times and duration of availability, location by busbar, available starts, ramp rates, megawatt quantities, and other resource attributes generally included in the CAISO's Masterfile.

II. Responses to ALJ Questions

1. Why was 20 minutes selected as the response time requirement?

The 20-minute local capacity resource response time is the result of setting prudent planning assumptions and recognizing operational realities to meet the NERC and CAISO tariff 30-minute system readjustment requirement. NERC rules and the CAISO tariff require the system to be manually repositioned within 30 minutes. In other words, all needed resources must be identified, available, and able to perform by the 30-minute deadline. The 30-minute requirement is comprised of a 10-minute manual readjustment period for the system operator and 20 minutes for local capacity resources to respond and fully deploy to a CAISO dispatch instruction in a post-contingency situation.[2] To plan the system in this manner, the CAISO requires 10 minutes to undertake the activities identified below in the response to question #2 so it can manually reposition the system within the 30-minute timeline:

[2] For clarification, to satisfy this planning requirement, fast-responding supply resources must be able to receive and fully deploy to their local RA capacity amount within 20 minutes. If a demand response provider needs 5 minutes of preparation time after receiving a CAISO dispatch instruction, then that demand response provider's resources must be able to respond and fully deploy in 15 minutes to satisfy the 20 minute response time. In other words, a demand response provider's preparation time is part of the 20 minutes.

2. **Please describe the other actions (assess the situation, determine necessary resources, and (re)dispatch), that occur during the remaining 10 minutes between contingency and restablization. How much time does each action take? Please describe the sequence of actions. Do some actions occur concurrently? Please clarify the relation between DR dispatch timing and the other actions.**

Post-contingency, system operators must perform several tasks and make various decisions to best assess and redispatch the system to within system operating limits. Those tasks may include identifying and implementing specific operating procedures, consulting with the shift supervisor, running power flow studies, consulting with the real-time operating engineer with expertise on a certain part of the system, determining which specific resources are needed, running market tools and sending exceptional dispatch instructions. Every contingency is unique and requires its own set of solutions and appropriate "next steps" in real-time. The real-time actions discussed above are illustrative and do not constitute an exhaustive list of actions that system operators may need to take to return to system operating limits. The fundamental point, however, is that the CAISO must translate the mandatory planning standards into reasonable and prudent planning assumptions that allow the operator to dispatch the system reliably. Question 3 below addresses the distinction between real-time actions and reasonable planning assumptions in greater detail.

3. **Is there a response time between 20 and 30 minutes that would allow additional DR resources to qualify? If so, is this longer response time adequate for the CAISO to be able to mitigate contingencies?**

For planning purposes, a 20-minute response time is the maximum reasonable planning assumption to ensure that CAISO operators can dispatch resources and return the system to operating limits within 30 minutes of a contingency event, while allowing system operators a 10-minute assessment period to undertake the requisite activities described above. Planning requirements differ from day-to-day operating needs, though the two are interrelated. In real-time, the actual time for system repositioning may vary, but in any event, the system operator must fully assess a situation post-contingency and then reposition the system within 30 minutes depending on the complexity and depth of the emergency and the nature of the resources available at the time. However, from a planning perspective, the CAISO must follow clear planning standards and study reasonable resource requirements to ensure the system operator can meet all applicable reliability criteria during real world emergencies. Based on operator

experience, ten minutes provides a reasonable and prudent amount of time for the operator to take the necessary actions required to successfully readjust the system.

As part of the local capacity planning process, the CAISO tariff requires the planner to "apply those methods for resolving Contingencies considered appropriate for the performance level that corresponds to a particular Contingency" and allocate sufficient time for manual readjustment period, i.e. an amount of time for the system operator to assess and reposition the system within system operating limits taking no more than 30 minutes. Planning for a 10-minute assessment and redispatch provides 20 minutes for fast-responding local capacity resources to respond to a CAISO dispatch instruction and fully deploy to their qualified resource adequacy capacity amount. Because the Commission's resource adequacy program and the CAISO's local capacity technical analysis are planning exercises, they must ensure that reliability criteria are met and allow operators reasonable time to react and resolve problems. A system operator must manage actual emergencies within the constraints imposed by the mandatory planning standards. Thus, affording the system operator a 10-minute manual readjustment period gives the system operator a reasonable and prudent amount of time under a variety of real-world emergency situations to assess and begin repositioning the system to within system operating limits.

From a planning perspective, the exact nature of the real-time response to a given system contingency is less important than the need to adopt prudent timelines and resource expectations so that in the system operator is effectively positioned to maintain system reliability in real world situations.

4. Would any other changes to RA rules or DR procurement rules be needed (i.e. is there anything that the CPUC must do) to enable DR programs with a longer response time to be useful to CAISO in mitigating a contingency?

As a part of the CAISO 2016-2017 transmission planning process (TPP), the CAISO is conducting an assessment to develop the required characteristics for slow response local capacity resources. This will include, but is not limited to, determining how often the slow response resource could be called upon, the duration of the call, and how much energy the slow response resource would have to make available. Ideally there would be one requirement for the entire CAISO footprint; however these resource requirements will vary from one local area to the next based on the specific topology and unique needs and constraints of each local capacity area.

To assess resource characteristics for each of the local capacity areas, the CAISO will require significant input and detailed information from the IOUs regarding their current and proposed long-start local capacity resources, including information about their resources' availability, response times and duration, location by busbar, number of call downs, ramp rates, megawatt quantities, and other resource attributes generally included in the CAISO's masterfile. The CAISO requests the Commission to direct the investor owned utilities to actively participate in the CAISO's assessment of long-start local capacity resource characteristics and timely provide the CAISO with detailed local area load profiles and resource characteristics so the CAISO can timely study this issue and convey what long-start resource attributes are needed by local capacity area.

5. Are there required changes that do not rely on CPUC action (e.g. DR program operation, or CAISO operating practices) needed to enable DR programs with a longer response time to be useful to CAISO in mitigating a contingency?

The CAISO dispatches long-start local capacity resources, setting them at particular operating points in real-time to ensure a local capacity area is capable of operating within system operating limits and has sufficient ramping capability should a contingency occur. The CAISO can dispatch demand response in a similar manner. Like a long-start generator, the CAISO can dispatch long-start demand response in advance of a first contingency, thereby ensuring the associated load is offline during the high risk hours and enabling the local capacity area to operate at a lower load level and within system operating limits in the event a contingency occurs.

Assuming a long-start demand response resource is shown as a local capacity resource, the resource will be subject to a must offer obligation, and the CAISO will commit and operate the resource in a manner similar to how it commits and operates all other resources. If the resource's annual hours of availability are consumed before the end of a resource adequacy cycle in which the resource is counted as local resource adequacy capacity, the CAISO would require the LSE to provide substitute local resource adequacy capacity for that resource.

Although it is possible to dispatch demand response in this manner, the CAISO has significant concerns whether this constitutes an optimal use of demand response resources. Under such a framework, long-start demand response resources counting as local capacity resources would likely be dispatched more frequently than they currently are, thereby consuming

the resource's limited energy availability. In addition, these resources are likely to be dispatched and "called-off" in conditions that may not appear to be critical or overly stressed from a customer perspective. Planning and dispatching resources to ensure the system can operate within system operating limits if a contingency occurs is an essential operating practice even though real-time contingencies occur infrequently. For instance, even in circumstances when the weather is not extreme, outages on transmission lines or other local resources can cause the CAISO to dispatch resources pre-contingency and position those resources to ensure sufficient ramping capability is available if a contingency occurs. Frequent pre-contingency dispatches of demand response resources could cause a "cry wolf" perception with customers if they are called more often to reduce load for no externally apparent reason. Customers that are asked to interrupt critical loads, industrial processes, or comfort systems could be especially sensitive to such pre-contingency/preparatory dispatches.

With that caution, the CAISO is prepared and able to dispatch long-start demand response resources to meet local capacity needs. The CAISO has the technical capability and the resource adequacy policies to dispatch demand response resources in this manner. However, the CAISO encourages the Commission to carefully consider the impacts of long-start, local capacity demand response. The Commission should direct the IOUs, with input from third-party demand response providers, to study and specify what types of customers, applications, and technologies are best suited for long-start, pre-contingency dispatches, what types are not, and provide a detailed and rigorous assessment of the range of hours of availability different types of long-start demand response (technology/customer configurations) can have. A more rigorous analysis by the IOUs would help inform this issue and provide more fact-based analysis regarding how different types of demand response resources can be operated, how often, and for how long.

6. Are there foreseeable factors that may change the appropriate response time in the future? If so, please describe these factors and when such changes may occur.

The CAISO does not anticipate that NERC or WECC will relax mandated response times in the foreseeable future. The standards that require redispatching flows on the transmission system to within system operating limits in 30 minutes after a first contingency are well vetted

operating practices. However, these standards are not the most stringent standards a balancing authority must follow.

For instance, NERC Standard BAL-002-1 (Disturbance Control Performance) requires the CAISO, as a Balancing Authority, to use its Contingency Reserves to balance supply and demand and return interconnection frequency to within defined limits following a reportable disturbance. At minimum, the CAISO must carry sufficient contingency reserves to cover the most severe single contingency. The default disturbance recovery period is 15 minutes. Thus, contingency reserves (aka ancillary services) standards require resources to respond within 10 minutes so that the Balancing Authority has a reasonable chance of satisfying the Disturbance Control Performance standard within 15 minutes.

Just as the CAISO, as a balancing authority, must meet this stringent Disturbance Control Standard, the CAISO as a NERC designated planning authority and transmission operator must meet applicable transmission operations and transmission planning standards. To fulfill these standards, local capacity resources must assist the CAISO in meeting the various response times, *e.g.*, the 30-minute standard, that apply to planning and maintaining the reliable operation of the transmission system. Thus, as described in these responses, the CAISO requires fast-responding resources that are only available post-contingency to respond within 20 minutes because the CAISO must plan for a 10 minute manual readjustment period to effectively assess the situation and take the necessary steps to reposition the system within the allotted 30 minutes.

7. Is any CPUC action necessary or appropriate to ensure that all DR resources that meet any adopted response time requirement are useful to the CAISO, and used accordingly? Would any other changes to RA rules or DR procurement rules be needed (i.e. is there anything that the CPUC must do) to enable DR programs with a longer response time to be useful to CAISO in mitigating a contingency?

Yes. The CAISO recommends the Commission update its local capacity resource adequacy rules for demand response. In light of the Commission's demand response bifurcation decision (D.14-03-026), the CAISO encourages the Commission to modify its process of taking demand response "off-the-top" of year-ahead local and flexible resource adequacy requirements, and, instead, instruct LSEs to list their CAISO integrated supply demand resources (either proxy demand resources and reliability demand response resources) on their supply plans. This

important next step will help level the playing field further between demand response and other supply resources—a long-standing Commission goal.[3]

Additionally, the existing Commission rule that all demand response programs qualify as local capacity if they can be dispatched in the local capacity area is insufficient and lacks critical detail necessary for the CAISO to properly and effectively plan the system. As the CAISO argued in 2011 in the resource adequacy proceeding, and as noted in D.11-10-003"

> [t]he CAISO proposes that the Commission modify the RA counting rules such that a demand response resource may receive local RA credit only if it is capable of being dispatched by the CAISO in a defined RA local area. The CAISO argues that '(a)llowing demand response programs to count for local RA when they are not 'dispatchable' like other RA resources 'where needed' is inconsistent with the central tenet of the [Commission]'s RA program.[4]

The Commission had not required CAISO integration of supply-side demand response resources at the time of D.11-10-003, but did require retail demand response resources "to be dispatchable locally in order to receive local Resource Adequacy credits starting in the 2013 Resource Adequacy year."[5] D.11-10-003 ended the practice of counting demand response that could not be affirmatively dispatched in a local capacity area as local resource adequacy capacity. However, simply requiring a resource to be dispatchable within a local capacity area does not satisfy the basic resource adequacy tenet that capacity be available "when and where needed." If capacity in a local capacity cannot be manually repositioned by the CAISO within the required 30-minute time frame, it is not "available when and where needed"

To exemplify this shortcoming, consider the consequences if all local capacity area resources received the same resource adequacy treatment the Commission affords demand response resources. For example, the only resource information conveyed to the CAISO would

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[3] In 2011, the CAISO petitioned the Commission through the RA proceeding to create or incorporate demand response into a Maximum Cumulative Capacity bucket, like other supply resources. In D.11-10-003, the Commission acknowledged that "Demand response resources that qualify for RA credit are not accounted for in the MCC buckets, but instead are recognized as a credit that reduces an LSE's total RA requirement (also known as 'taking off the top')." Demand response resources thus reduce the amount of conventional RA resources that an LSE would need to procure to meet its RA requirement. (D.11-10-003, at p. 13)

The Commission adopted the CAISO proposal to create a new MCC bucket for demand response. The Commission reasoned that "As with locational dispatchability [of demand response], we will make this change to the current RA policy so that demand response can be treated comparably with supply side resources. The new MCC bucket will help with integration of retail demand response programs with the wholesale market and should significantly increase use of the demand response resources." (D.11-10-003, at p. 15)

[4] D.11-10-003, at pg. 5.

[5] Id. p. 34, Ordering Paragraph 1.

be that resources are dispatchable somewhere in the local capacity area (without knowing their exact location), and they are not directly dispatched by the CAISO (done through a third-party), and they are not directly optimized by the CAISO (they are outside the market and the view of the full network model). With this limited amount of information and control, the CAISO could not reliably plan or manage the transmission system. The CAISO must know the location and specific characteristics of local resources to properly assess the effectiveness of those resources to resolve the contingencies identified in its planning studies. For example, if a contingency is due to a voltage concern, only resources in close proximity to the voltage problem can effectively resolve the problem. Resources located in other parts of a local capacity area less effective than those located close to the problem. Knowing specifically where resources are located matters.

Additionally, like other local capacity resources, demand resources must be integrated into the market and full network model for the CAISO to properly assess the impact and effectiveness of such resources in real-time, particularly in the local capacity areas where the resources located within the local area are essential to maintaining reliability. Dispatching resources outside market processes and security constrained unit commitment and economic dispatch processes is sub-optimal because, at minimum, it can lead to non-market and non-optimized dispatches that are ineffective and lead to re-dispatching the system to regain system balance, or worse, harm reliability through unmanaged and unaccounted for resource movements.

For these reasons, the Commission should modify its resource adequacy rules and strive to treat supply demand response resources on a level playing field like all other supply resources so that they are effective and can demonstrably prove they are effective at offsetting traditional generation capacity.

III. Conclusion

The CAISO appreciates this opportunity to address the Commission's questions regarding the 20-minute local response requirement. The CAISO also points out that similar issues are concurrently being addressed in the CAISO's stakeholder process for Business Practice Manual (BPM) amendments. In that process, the CAISO recently posted a response to stakeholder appeals of proposed revision request 854, which is also related to the 20-minute

response requirement. The CAISO has included the response to appeals as an attachment to this filing.

The CAISO looks forward to collaborating with the Commission in this effort to align and clarify the CAISO's reliability needs for local capacity area resources and the Commission's rules for local resource adequacy capacity.

Respectfully submitted,

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ATTACHMENT A

BUSINESS PRACTICE MANUAL CHANGE MANAGEMENT
CAISO RESPONSE TO APPEALS

I. Introduction

The CAISO followed its business practice manual change management process[1] and submitted proposed revision request (PRR) 854 to its Reliability Requirements BPM on July 30, 2015 to clarify how the CAISO planners analyze resources in the CAISO's Local Capacity Technical Study.[2] After considering stakeholder comments, the CAISO added the following language to the Business Process Manual (BPM) for Reliability Requirements:

> Tariff Section 40.3.1.1, requires the CAISO, in performing the Local Capacity Technical Study, to apply the following reliability criterion:
>
> > Time Allowed for Manual Adjustment: This is the amount of time required for the Operator to take all actions necessary to prepare the system for the next Contingency. The time should not be more than thirty (30) minutes.
>
> The CAISO Planning Standards also impose this manual readjustment requirement. As a parameter of the Local Capacity Technical Study, the CAISO must assume that as the system operator the CAISO will have sufficient time to: (1) make an informed assessment of system conditions after a contingency has occurred; (2) identify available resources and make prudent decisions about the most effective system redispatch; (3) manually readjust the system within safe operating limits after a first contingency to be prepared for the next contingency; and (4) allow sufficient time for resources to ramp and respond according to the operator's redispatch instructions. This all must be accomplished within 30 minutes.
>
> Local capacity resources can meet this requirement by either (1) responding with sufficient speed, allowing the operator the necessary time to assess and redispatch resources to effectively reposition the system within 30 minutes after the first contingency, or (2) have sufficient energy available for frequent dispatch on a pre-contingency basis to ensure the operator can meet minimum online commitment constraints or reposition the system within 30 minutes after the first contingency occurs. Accordingly, when evaluating resources that satisfy the requirements of the CAISO Local Capacity Technical Study, the CAISO assumes that local capacity resources need to be available in no longer than 20 minutes so the CAISO and scheduling

[1] The CAISO follows a systematic and publicly transparent BPM Change Management process that ensures consideration of all relevant information when modifying BPMs. The change management process uses a system available through the ISO public website that provides a way for stakeholders or the CAISO to propose BPM changes, comment on open change requests, and track proposed change requests. The change management process begins when the CAISO or a stakeholder submits a web-based Proposed Revision Request (PRR). After an ISO review for completeness, PRRs are posted to the website, triggering a formal stakeholder review and comment period.

[2] Terms not otherwise defined herein are used as defined in the CAISO tariff.

coordinators have a reasonable opportunity to perform their respective and necessary tasks and enable the CAISO to reposition the system within the 30 minutes in accordance with applicable reliability criteria.

Several stakeholders appealed the adoption of the PRR.[3] The CAISO responds to these appeals below.

II. Background

The CAISO is the NERC-registered Transmission Operator and Planning Authority for its balancing authority area. As a result, the CAISO bears the compliance obligation to meet the real-time operational requirements in the NERC transmission operating standards. To meet these obligations, the CAISO must make reasonable planning assumptions regarding how it can effectively reposition system within the 30-minute time period after a contingency. The CAISO conducts its Local Capacity Technical Study[4] to ensure that the system is planned such that real-time operational constraints are met.

CAISO Tariff Section 40.3 provides that the CAISO will conduct an annual Local Capacity Technical Study to determine the amount of Local Capacity Area Resources needed to meet identified Contingencies.[5] The CAISO applies methods for resolving Contingencies consistent with NERC Reliability Standards and the CAISO Reliability Criteria.[6] NERC Standards TOP-004-2 and TOP-007-0 and the CAISO tariff specify a maximum manual adjustment time of 30 minutes after a first Contingency event occurs for the CAISO to prepare the system for a subsequent Contingency.[7] The CAISO has stated on numerous occasions that in order for the CAISO to reposition the system within the NERC-mandated 30-minute window, a reasonable amount of time must be reserved for operator action and re-dispatch.[8] Based on operational experience, it is reasonable and prudent to plan for CAISO operators to have a 10 minute readjustment

[3] Appeals were filed by the Cities of Anaheim, Azusa, Banning, Colton, Pasadena and Riverside (Six Cities), the California Large Energy Consumers Association (CLECA), the Energy Division of the California Public Utilities Commission (CPUC), EnerNoc, Inc., Johnson Controls Inc., EnergyHub, Comverge, Inc., and CPower (Joint Demand Response Parties), and jointly by Pacific Gas & Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E). Six Cities, CLECA, Energy Division, the Joint Demand Response Parties, PG&E and SDG&E are jointly referred to herein as the Appellants.

[4] Terms not otherwise defined herein are used as defined in the CAISO tariff.

[5] CAISO Tariff Sections 40.3.1 and 40.3.1.1.

[6] CAISO Tariff Section 40.3.1.1

[7] CAISO Tariff Section 40.3.1.1(1).

[8] *See*, *for example*, CAISO 2014-2015 Transmission Plan, p. 90 (http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf); *See also*, Rulemaking 13-09-011, CPUC Order Instituting Rulemaking to Enhance the Role of Demand Response in Meeting the State's Resource Planning Needs and Operational Requirements, Testimony of Neil Millar (served May 6, 2014), p. 6, lines 1-9 ("After a contingency, system operators have 30 minutes total elapsed time to ready the system for the next contingency. There are two ways to address this requirement. The first way is to have resources that can respond sufficiently fast that the need for the dispatch is determined, the dispatch is communicated, and resources respond, all within 30 minutes. The other way is to develop demand response resources that have a slower response time, but that can be dispatched any time the ISO forecasts system conditions that would require the load reduction if the contingency were to occur.")

period to identify the nature of the Contingency, assess system conditions, re-dispatch the necessary resources and allow them sufficient time to ramp to address the Contingency and maintain reliability in accordance with the reliability standards within 30 minutes.

The CAISO sought to clarify for stakeholders its requirements under NERC standards and CAISO Reliability Criteria and the need to account for these requirements in the Local Capacity Technical Study, as required by the CAISO tariff. The CAISO issued PRR 854 to provide the necessary clarification.

III. Discussion

Appellants raise a variety of procedural, substantive, and miscellaneous issues regarding the proposed clarification. Section III of this response addresses all issues raised by Appellants.

A. Procedural Issues

Appellants argue that the 20-minute local response requirement should be addressed through a stakeholder process and/or a tariff amendment, not a BPM process. Several appellants also suggest that the CAISO's adoption of the PRR "undermines" or "infringes upon" the CPUC's authority to set resource adequacy requirements.

1. Neither a Stakeholder Process nor Tariff Amendment Is Required.

Appellants ignore the express language of the CAISO tariff, which contemplates that assumptions in the Local Capacity Technical Study, such as a 20-minute response requirement, are to be included in the BPM. In that regard, tariff section 40.3.1 provides that

> [t]he CAISO shall collaborate with the CPUC, Local Regulatory Authorities within the CAISO Balancing Authority Area, federal agencies, and Market Participants to ensure that the Local Capacity Technical Study is performed in accordance with this Section 40.3 *and* ***to establish for inclusion in the Business Practice Manual other parameters and assumptions applicable to the Local Capacity Technical Study***. (emphasis added)

The CAISO addressed the need for a 20-minute local response time in several forums, including its transmission planning process, CPUC proceedings and this PRR process. In the 2013-2014 transmission plan the CAISO noted that in determining the effectiveness of demand response in meeting local area needs the only resources considered were those with "fast response curtailment (20 minutes) and curtailment durations of 4 hours."[9] In the 2014-2015 transmission plan, the CAISO more explicitly addressed the resource characteristic needs for fast responding resources. The CAISO stated that to be locally dispatchable, demand response resources would need to "have the necessary characteristics to be applicable as transmission

[9] CAISO 2013-2014 Transmission Plan, p. 94 (http://www.caiso.com/Documents/Board-Approved2013-2014TransmissionPlan_July162014.pdf).

mitigation resources – ***in particular, a fast-enough response to dispatch instructions from the ISO (not exceeding 20 minutes).***"[10]

In response stakeholder comments in the 2014-2015 transmission planning process, the CAISO specifically discussed the ongoing efforts to consider preferred resources, including demand response, in meeting local capacity requirements. The CAISO stated:

> The experience to date has highlighted the broader range of issues that need to be considered in applying preferred resources – especially use-limited resources such as energy storage and demand response – in order to provide effective alternatives to conventional solutions. These include, for example, consideration of the various uses preferred resources may be put to, and to what extent, if any, those uses conflict with the preferred resources also functioning as a local capacity resource.[11]

This PRR process provided another stakeholder forum for Appellants to provide input regarding the application of NERC reliability requirements to CAISO planning studies. The CAISO originally introduced this PRR on July 30, 2015. The CAISO received initial stakeholder comments on August 8, 2015. The CAISO responded to these comments on August 31, 2015. The CAISO held a stakeholder meeting on its PRR recommendation on September 22, 2015. The CAISO then temporarily suspended the PRR process to further consider stakeholder comments. On October 28, 2015, the CAISO re-started the stakeholder process and significantly amended the PRR to address stakeholder concerns. Stakeholders submitted a second round of comments on November 13, 2015. The CAISO held another stakeholder call on the PRR on November 17, 2015. The CAISO again responded in detail to stakeholder comments on November 23, 2015. This thorough stakeholder process resulted in significant improvements to the final PRR.

FERC's adoption of the CAISO tariff sections outlining the Local Capacity Technical Study further reinforce the CAISO's position that a tariff amendment is not required. In approving the CAISO tariff sections dealing with the Local Capacity Technical Study, FERC rejected a request to provide detailed information regarding study parameters in the tariff. FERC noted as follows:

> We reject [the] request for the CAISO to include a detailed schedule and description of the process by which the Local Capacity Technical Study will be conducted ***because we find the CAISO's proposal appropriately balances the need for detail with the need for some level of flexibility***. Given that the process by which the Local Capacity Technical Study will be conducted is not complete, requiring insertion of such specific detail into the tariff would be premature. ***Furthermore, we also agree with the CAISO that the BPM, rather than the***

[10] CAISO 2014-2015 Transmission Plan, p. 90 (http://www.caiso.com/Documents/Board-Approved2014-2015TransmissionPlan.pdf).
[11] 2014-2015 Stakeholder Meeting #2, CAISO Response to Stakeholder Comments, p. 12.

> ***tariff, is a more appropriate place for specific information regarding the Local Capacity Technical Study because the study will not have a material effect on rates, terms and conditions of service***. Therefore, the Commission will not require additional detail.[12] (Emphasis added.)

The 20-minute response requirement is a parameter of the Local Capacity Technical Study that supports the 30-minute repositioning requirement in tariff section 40.3.1.1 and, in accordance with FERC guidance and the CAISO tariff, properly belongs in a BPM. Including this parameter in the PRR clarifies an existing CAISO planning practice that affords the CAISO a reasonable opportunity to meet both NERC reliability standards and CAISO tariff requirements. The PRR does not modify existing requirements for *any* resource or resource type and does not require a tariff amendment preceded by a stakeholder initiative. The CAISO's systematic and transparent BPM change management process is the appropriate and FERC anticipated stakeholder process for the CAISO to make such clarifications to its BPMs.

2. **The PRR does not Infringe on CPUC Authority.**

The PRR clarifies how the CAISO fulfills Tariff Section 40.3.1.1, which requires the CAISO, in performing its Local Capacity Technical Study, to apply certain reliability criteria. Several Appellants state that the CAISO should or must wait until the CPUC has issued a decision on this issue before it adopts the PRR. These Appellants fail to cite any relevant authority that would require the CAISO, as the NERC designated Planning Authority for the balancing area, to defer to a CPUC decision prior to meeting its NERC-mandated reliability requirements or the requirements of the CAISO tariff.

Contrary to the Appellants' assertions, the CAISO does not have any statutory or regulatory obligation to wait until the CPUC or other local regulatory authority acts to meet its mandatory NERC requirements. As noted below, FERC has found that the CAISO has an obligation to "determine the minimum amount of capacity that must be available to the CAISO within each local capacity area."[13] Further, Appellants ignore the plain language of the tariff that requires the CAISO to collaborate with stakeholders, including the CPUC, in establishing assumptions and parameters for the Local Capacity Technical Study, but does not require the CPUC or a local regulatory authority's approval before the CAISO can include such assumptions and parameters in its BPM. As outlined above, the 20-minute response requirement was discussed in the transmission planning process, CPUC proceedings and extensively in the PRR stakeholder process.

In written comments, Energy Division points to language in FERC's order conditionally accepting the CAISO's Market Redesign and Technology Upgrade (MRTU Order) tariff,[14] but in so doing, Energy Division staff both (1) inappropriately redacts key portions of the quoted statements

[12] California Indep. Sys. Operator Corp., 122 FERC ¶ 61017, 61057-58 (Jan. 9, 2008).
[13] California Indep. Sys. Operator Corp., 116 FERC ¶ 61,274 at P 1119 (Sept. 21, 2006).
[14] *See* Appeal of Energy Division Staff, p. 4.

and (2) fails to consider the important distinction between system and local capacity requirements.

Energy Division quotes the MRTU Order in which FERC states that "RA requirements are triggered only when state and Local Regulatory Authorities have failed to act in order to ensure resource adequacy."[15] However, this passage of the MRTU Order applies only to "*system* RA requirements."[16] (emphasis in the original). Nothing in the PRR conflicts with this understanding. This quoted section pertains solely to the CAISO's proposal for a default planning reserve margin for purposes of determining system resource adequacy requirements. That matter is wholly unrelated to the instant proposal which merely clarifies existing tariff provisions related to the CAISO's Local Capacity Technical Study. In any event, the BPM clarification, which pertains to *local* capacity needs, is consistent with FERC's statements regarding *system* resource adequacy capacity because it adheres to FERC's approved construct that the CAISO ensure resource adequacy only when procured resources are inadequate to resolve local contingencies.

Although the language cited by the Energy Division does not contradict, but is irrelevant to, the PRR, it is worth noting that Energy Division's Appeal redacts the word "*system*"[17] in the excerpted quote, which FERC emphasized in the MRTU Order. FERC very specifically differentiated the CAISO's role in setting *system* resource adequacy requirements versus *local* capacity requirements, which are at issue here. In the paragraph subsequent to the excerpt provided in the Energy Division Appeal, FERC notes:

> We find, however, that the CAISO must play a greater role in setting *local* RA requirements because it is uniquely situated to assess capacity needs in constrained areas and load pockets. In this manner, the CAISO's role is similar to the role it plays today in assessing RMR requirements. The CAISO will perform an annual technical study to determine the minimum amount of capacity that must be available to the CAISO within each local capacity area. The CAISO will then work with Local Regulatory Authorities to set local capacity area requirements. While the CAISO has a larger role in setting *local* capacity area requirements than in setting *system* RA requirements, we find that the MRTU proposal, with certain modifications, strikes an appropriate balance between recognizing the authority of state and local entities to establish reliability assurance requirements and the CAISO's responsibility to maintain the reliable operation of the transmission grid

[15] Energy Division Appeal, p. 4 (quoting California Indep. Sys. Operator Corp., 116 FERC ¶ 61,274 at P 1118.)
[16] California Indep. Sys. Operator Corp., 116 FERC ¶ 61,274 at P 1118.
[17] *Id*. (The Energy Division Appeal provides the quoted sentence as follows: "We note that the default…RA requirements are triggered only when state and Local Regulatory Authorities have failed to act in order to ensure resource adequacy.")

and administer wholesale markets that produce just and reasonable rates.[18] (Emphasis in the original.)

The PRR pertains to the annual technical study to determine local capacity requirements, and as FERC clearly found in the MRTU order, the CAISO is ultimately responsible under the tariff for performing that study and establishing any study assumptions and parameters.

Importantly, the CAISO tariff reflects the CAISO's role and authority in this process and does not require the CAISO to first obtain CPUC or other local regulatory authority approval before it can take such actions. Section 40.3.1.1 provides that the Local Capacity Technical Study will "determine the minimum amount of Local Capacity Area Resources needed to address the Contingencies identified in Section 40.3.1.2." The same section goes on to state that "the CAISO will apply those methods for resolving Contingencies considered appropriate for the performance level that corresponds to a particular studied Contingency."[19] To resolve an N-1 contingency, the CAISO operator "must take ***all actions necessary*** to prepare the system for the next Contingency" within 30 minutes after a first contingency.[20] (Emphasis added.) Based on the CAISO's operational knowledge, it is prudent to plan for CAISO operators to have a minimum of 10 minutes to reassess and redispatch the system. This leaves a maximum of 20 minutes for a resource to respond to the dispatch instruction and for the CAISO to ensure that the system is fully repositioned within 30 minutes of the first contingency.

The PRR codifies existing Local Capacity Technical Study parameters in the BPM to clarify for stakeholders how the CAISO must resolve Contingencies. The CPUC may adopt local resource adequacy requirements that differ from the CAISO's Local Capacity Technical Study. In fact, it appears that the CPUC's requirements have differed for several years, and the CAISO has not found it necessary to procure supplemental resources to meet local capacity needs. Further, the PRR does not change the CPUC's existing resource adequacy framework and it does not require that the CPUC or any other local regulatory authority direct its jurisdictional load serving entities to procure specified resources.

B. Substantive Issues

Substantive concerns expressed by Appellants generally fall into one of the following categories: (1) a 20-minute response requirement is inappropriate based on the 30-minute repositioning requirement; (2) the 20-minute local response requirement unduly discriminates against demand response resources; (3) the frequency of pre-contingency dispatch necessary to qualify as a Local Capacity Area Resource is not well-defined; and (4) rejecting the 20-minute requirement will not affect reliability.

[18] California Indep. Sys. Operator Corp., 116 FERC ¶ 61,274 at P 1119.
[19] CAISO Tariff, Sec. 40.3.1.1.
[20] *Id*.

1. **The 20-Minute Local Response Requirement Is Based on Mandatory Real-Time Operations Standards, Planning Standards and CAISO Experience as the Transmission Operator.**

Some Appellants understand that NERC Standards TOP-004 and TOP-007 require the CAISO to reposition the system within 30 minutes after a first Contingency and that any resources that cannot be repositioned in that time period (or frequently dispatched before the first contingency to prepare the system in advance) cannot be counted to meet these standards. However, several parties take issue with the requirement that a resource be able to respond within 20 minutes post-contingency, as opposed to some length of time between 20 and 30 minutes. As discussed above, the 20-minute requirement is based on CAISO experience actually operating the transmission system. Based on its actual experience as a NERC designated Transmission Operator, the CAISO has determined that for planning purposes a 10-minute window for the CAISO real-time operator to identify the contingency, assess the situation, and redispatch the system is a reasonable and prudent planning assumption.

The CAISO notes that system repositioning must occur in real-time, but the Local Capacity Technical Study is a planning analysis. As a result, the Local Capacity Technical Study must build in an adequate amount of time for the real-time operator to assess and resolve contingencies within the NERC-mandated 30 minutes after a Contingency event. There is no one series of events that an operator must undertake to address a given Contingency. Operator actions vary based on the nature of the contingency and the topology of the electric system at the time. Activities that may be required include a gathering data related to the contingency event and system reaction, expedited power flow studies, contacting on-call operations engineers and allowing time for market software to update and run an optimized solution.

The CAISO is the NERC-registered Transmission Operator and Planning Authority for its balancing authority area. As a result, the CAISO alone bears the compliance obligation to meet the real-time operational requirements in TOP-004 and TOP-007. To meet these obligations, the CAISO must make reasonable planning assumptions regarding how it can effectively reposition system within the 30-minute time period after a contingency. The LSEs, local regulatory authorities, and other stakeholders have no corresponding obligations to operate the transmission system and therefore cannot dictate how real-time operations translate into planning analysis. A 10-minute period for identification, reassessment and redispatch is reasonable assessment period based on CAISO operator experience. None of the Appellants have presented evidence otherwise.

2. **The 20-Minute Local Response Requirement Is Not Unduly Discriminatory to Demand Response Resources.**

Appellants argue that the 20-minute response requirement discriminates against demand response resources. Energy Division states that many current CAISO resource adequacy resources cannot be dispatched within 20 minutes, therefore [long-start] demand response

resources "are equally able to respond to a contingency event."[21] These criticisms misunderstand the purpose of the Local Capacity Technical Study and the clarification provided in the PRR. As discussed in detail above, the Local Capacity Technical Study ensures that planned for resources are effective at resolving identified Contingencies, including N-1 contingencies, within the NERC mandated and CAISO planning standards timeframe. The PRR clarifies that in the planning process there are two ways in which a resource can effectively resolve such contingencies (1) by responding to a CAISO dispatch instruction post-contingency within 20 minutes or (2) by having sufficient energy available for frequent dispatch on a pre-contingency basis.

Neither of these methods for resolving contingencies differ based on the resource type. Any resources that meet one of these requirements can qualify as local capacity for purposes of the technical study. Importantly, demand response resources can qualify as a Local Capacity Area Resource by meeting either requirement, just as any other resource can. However, because demand response resources are typically very energy limited and often curtail loads that serve comfort, service, and process needs, they are generally not well suited to be curtailed frequently on a pre-contingency basis as a preparatory measure to reduce loads and position the local area to within system operating limits should a contingency occur. As a result, to resolve the Contingencies identified and studied in the Local Capacity Technical Study, such resources must typically qualify as fast-acting resources capable of responding within 20 minutes after a first contingency event. Individual resource characteristics determine whether or not that resource can meet the Contingencies studied in the Local Capacity Technical Study.

Energy Division's Appeal notes that a significant portion of current Local Capacity Area Resources are not capable of responding to a Contingency from a cold start within 20 minutes. This is true, but such resources have hundreds if not thousands of hours of availability and are fully capable of frequent dispatch on a pre-contingency basis. In other words, the CAISO can dispatch these units under normal system conditions (N-0) at a level (up to the unit Pmax) to ensure that the system as sufficient ramping capability and will not exceed system operating limits after a first Contingency event. To the extent demand response resources can be similarly dispatched pre-contingency with load interrupted more frequently, they too can qualify as Local Capacity Area Resources under the technical study.

3. Frequency of Pre-Contingency Dispatch Warrants Additional Study.

Several parties, including PG&E and SDG&E, raised concerns about better defining how often resources would have to be dispatched pre-contingency over a RA compliance year to qualify as a Local Capacity Area Resource. With the help from the utilities, the CAISO has committed to undertaking a special study in its 2016-2017 transmission plan to review this issue further. As

[21] Energy Division Appeal, p. 11.

noted in the CAISO's Draft 2016-2017 Transmission Planning Process Unified Planning Assumptions and Study Plan:

> In order to be effective, local capacity resources either need to be capable of assisting the system in preparing for a second contingency within 30 minutes of an initial contingency, or being sufficiently unconstrained that the resources may be dispatched whenever certain loading conditions exist and in anticipation of the first contingency actually occurring – allowing a "slower" response time in responding to a dispatch. The number of dispatches in the latter case is anticipated to be orders of magnitude higher than in the former case.[22]

The CAISO notes that the exact level of energy necessary for pre-contingency dispatch will vary by local area. Although the CAISO agrees that this study may be helpful in designing future resource adequacy programs, it does not change the fact that any resource counting toward Local Capacity Area requirements must have the attributes to resolve the studied Contingencies.

The Joint Demand Response Parties point out that demand response resource adequacy resources have a "daily must-offer obligation already" and submits that this should be sufficient to qualify such resources as Local Capacity Area Resources.[23] As discussed above, the CAISO needs resources that can effectively solve the studied Contingencies in the Local Capacity Area. The daily must-offer obligation, by itself, is not sufficient to resolve these Contingencies if a resource has a limited amount of energy it can provide over the course of the resource adequacy compliance period and cannot be frequently curtailed to re-position the system prior to a first Contingency event. The CAISO notes that the CPUC has special rules that allow demand response resource adequacy resources to count toward requirements provided they are available as little as 24 hours per month.[24]

4. Rejecting the 20-Minute Local Response Requirement Will Affect Reliability.

The Energy Division Appeal states that rejecting the 20-minute local response requirement will not affect reliability because (1) NERC requirements do not require that every resource be able to respond within 30 minutes of contingency event and (2) significant time may elapse between a first contingency and second event such that such that there is sufficient time to notify resources that cannot respond within 30 minutes that they need to balance the system before a second contingency. The Joint Demand Response Parties make a similar point, asking why resources need to be dispatched frequently to meet address "very infrequent" N-1-1 contingencies. These assertions are based on an inaccurate understanding of the CAISO's NERC requirements and the need to keep the system within operating limits at all times.

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[22] http://www.caiso.com/Documents/Draft20162017StudyPlan.pdf, p. 51.

[23] Joint Demand Response Parties Appeal, p. 13.

[24] See 2016 CPUC RA Guide (https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=cpuc%20ra%20manual).

With respect to the first point, Energy Division states that NERC reliability requirements provide "only that sufficient resources can respond during a contingency event."[25] This statement is incorrect. NERC TOP-004 and TOP-007 require the CAISO to restore system operations to within proven reliable system limits within 30 minutes. The standards do not state that only a subset of resources are necessary to accomplish the return to system operating limits. Additionally, allowing resources to qualify as local resource adequacy capacity that cannot meet the reliability standards discriminates against those that can. Operationally, the CAISO could only rely on those resources that are capable of meeting the standards when a contingency occurs, placing an undue burden on the capable resources, while providing the same local resource adequacy capacity value to the incapable resources.

To ensure that the CAISO can return the system to within system operating limits in 30 minutes after a first contingency, ***all*** Local Capacity Area Resources must provide the CAISO either the ability to adjust the system quickly after the first contingency or to adjust the system before the first contingency occurs to assure that the system operating limits are not exceeded in the event of a contingency. Based on this understanding, the CAISO's authority to use its Capacity Procurement Mechanism (CPM) is explicitly tied to finding that each Local Capacity Area "has Local Capacity Area Resources in the amounts and locations necessary to comply with the Local Capacity Technical Study criteria provided in Section 40.3.1.1."[26]

The actual time elapse between a first and second contingency is irrelevant to whether the CAISO has planned the system to allow real-time operators to effectively reposition the system. NERC standards and the CAISO tariff require the system to be repositioned within 30 minutes after the first contingency ***whether or not a second contingency ever occurs***. The CAISO would violate NERC reliability requirements if it failed to reposition the system in 30 minutes because it determined that a second contingency was unlikely to actually occur in the 30 minute period following a first contingency.

Some appellants note that use of the CPM to ensure sufficient Local Capacity Area Resources could impose additional costs on ratepayers. This may be true, but the risk of a CPM designation already exists. The CAISO tariff provides the CAISO with authority to designate CPM capacity when the Local Capacity Area Resources specified in resource adequacy plans fail to ensure compliance in one or more Local Capacity Areas with the Local Capacity Technical Study Criteria. As discussed above, the 30-minute repositioning requirement already exists in the CAISO tariff, and the PRR merely clarifies that requirement. Additional capacity required to meet NERC requirements is not optional, and the consequences of having insufficient capacity will also have negative impacts on ratepayers. Failure to return the system to within proven system operating limits under TOP-004 constitutes a "severe violation severity level" under

[25] Energy Division Appeal, p. 12.
[26] CAISO Tariff, Section 43.2.1.1.

NERC standards.[27] Violation severity levels under TOP-007 range from lower to severe based on the length and magnitude of the violation.[28] Failure to meet these requirements can lead to significant financial penalties that will be borne by ratepayers.

C. Miscellaneous Issues

Appellants raise several miscellaneous issues or questions that do not appear to address whether the PRR should be approved. Although not directly relevant to the PRR, the CAISO addresses these miscellaneous issues below.

1. Past CAISO Local Capacity Technical Studies

Several parties state that although the CAISO applied the 20-minute local response time requirement, previous Local Capacity Technical Studies did not expressly specify the 20-minute local response requirement; although such studies referenced the CAISO's need to reposition the within 30 minutes following a first contingency event. This is true and is a reason why the CAISO submitted the PRR to clarify the Local Capacity Technical Study. Delaying approval of the PRR does not change the CAISO's planning standards but will lead to continued confusion regarding what resources are capable of resolving the studied Contingencies.

2. Clarification regarding application of 20-minute response requirement

The Joint Demand Response parties ask for clarification that the "20-minute notification would be limited to this defined N-1-1 contingency event for SCE and SDG&E."[29] This understanding is incorrect in numerous ways. First, the Local Capacity Technical Study reviews the need for resources to meet ***all*** tariff-defined contingencies in ***all*** Local Capacity Areas. Limiting review to a specific contingency event in a specific area fails to meet NERC requirements. Also, the requirement is for a 20-minute local resource ***response*** time. The Joint Demand Response Parties reference to a "notification" time is imprecise terminology in this context. It is properly characterized as a 20-minute response time. In other words, the resource would have received a CAISO dispatch and fully responded to its dispatch instruction within 20 minutes.

3. The location of the PRR in the Reliability Requirements BPM

Several parties take issue with the PRR being "buried" in a footnote of a large BPM. The CAISO notes that it has provided a redlined copy of changes at every stage in this proceeding. The PRR was the only change in the entire document and, as a result, was very easy to find.

IV. Conclusion

[27] NERC Complete Violation Severity Levels Matrix, p. 575 (http://www.nerc.com/pa/Stand/VSL%20Matrix/VSL_Matrix_Complete_2016_02_11.docx.)
[28] *Id*.
[29] Joint Demand Response Parties Appeal, p. 10.

The CAISO will continue to conduct its Local Capacity Technical Study in accordance with its tariff and in a manner that identifies Local Capacity Area Resources capable of resolving the Contingencies identified. The PRR appropriately clarifies the resource characteristics necessary to meet the identified contingencies. It does not impose new resource requirements, nor does it require the CPUC to change its local resource adequacy rules. The PRR must be maintained to ensure the CAISO complies with mandatory NERC requirements in a manner that provides greater transparency to stakeholders.

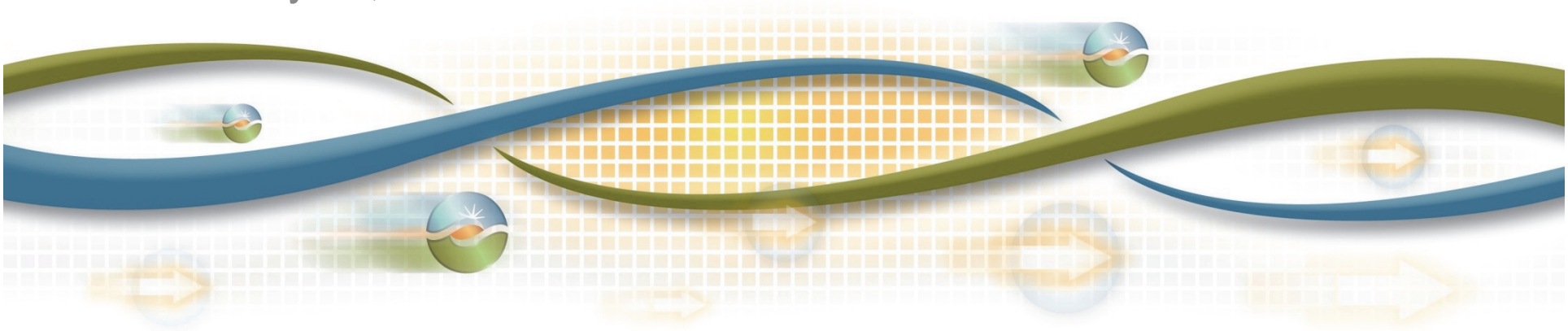
The CAISO looks forward to addressing this issue further with the BPM Appeals Committee and, if necessary, the Board of Governors.

ATTACHMENT B

RA workshop presentation

Karl Meeusen, Ph.D.
Senior Advisor – Infrastructure Policy

CPUC Resource Adequacy Workshop
February 18, 2016



Summary of the ISO comments

- The ISO recommends the Commission align its resource adequacy program with the ISO's planning standards and North American Mandatory Standards
  - As a NERC-registered entity, the ISO must comply with all Applicable Reliability Criteria under its FERC-approved Transmission Control Agreement
  - Local capacity area resource requirements specified in Section 40.3 of the ISO tariff
- ISO must maintain local capacity reliability under NERC Planning Event 6 (P6, formerly Category C) contingencies
  - Requires sufficient capacity to readjust the system to prepare for the loss of a second transmission element (N-1-1)

Summary of the ISO comments

- Based on requirement to reposition the system within 30 minutes, the ISO has two options:
  1. By assessing the system and issuing a dispatch instruction and have a response within 20 minutes*
  2. By dispatching a resource precontingency so as to have sufficient energy available
- The ISO has consistently applied these standards in its Local Capacity Technical Studies
  - ISO recently issued a clarification to its BPM providing additional details regarding these study parameters

* 10 minutes is used at beginning of contingency. If resources do not respond, the ISO will not meet reliability requirement

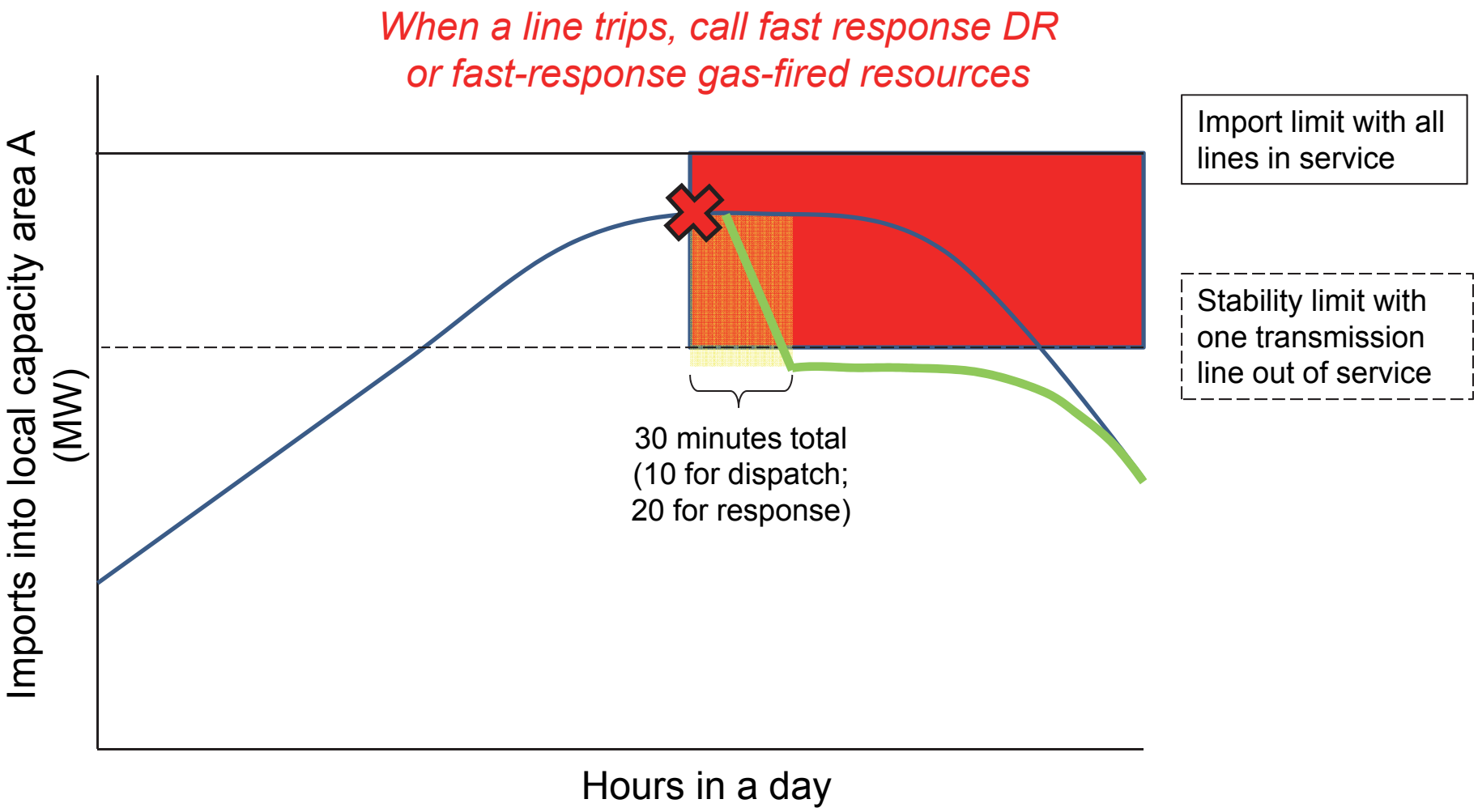
Excerpts from the ISO's Local Capacity Technical Report

- [I]nputs, assumptions and methodology were discussed and agreed to by stakeholders at the 2016 LCT Study Criteria, Methodology and Assumptions Stakeholder Meeting held on October 30, 2014.
- **Time allowed for manual readjustment:** This is the amount of time required for the operator to take all actions necessary to prepare the system for the next contingency. This time should be less than 30 minutes, based on existing CAISO Planning Standards.

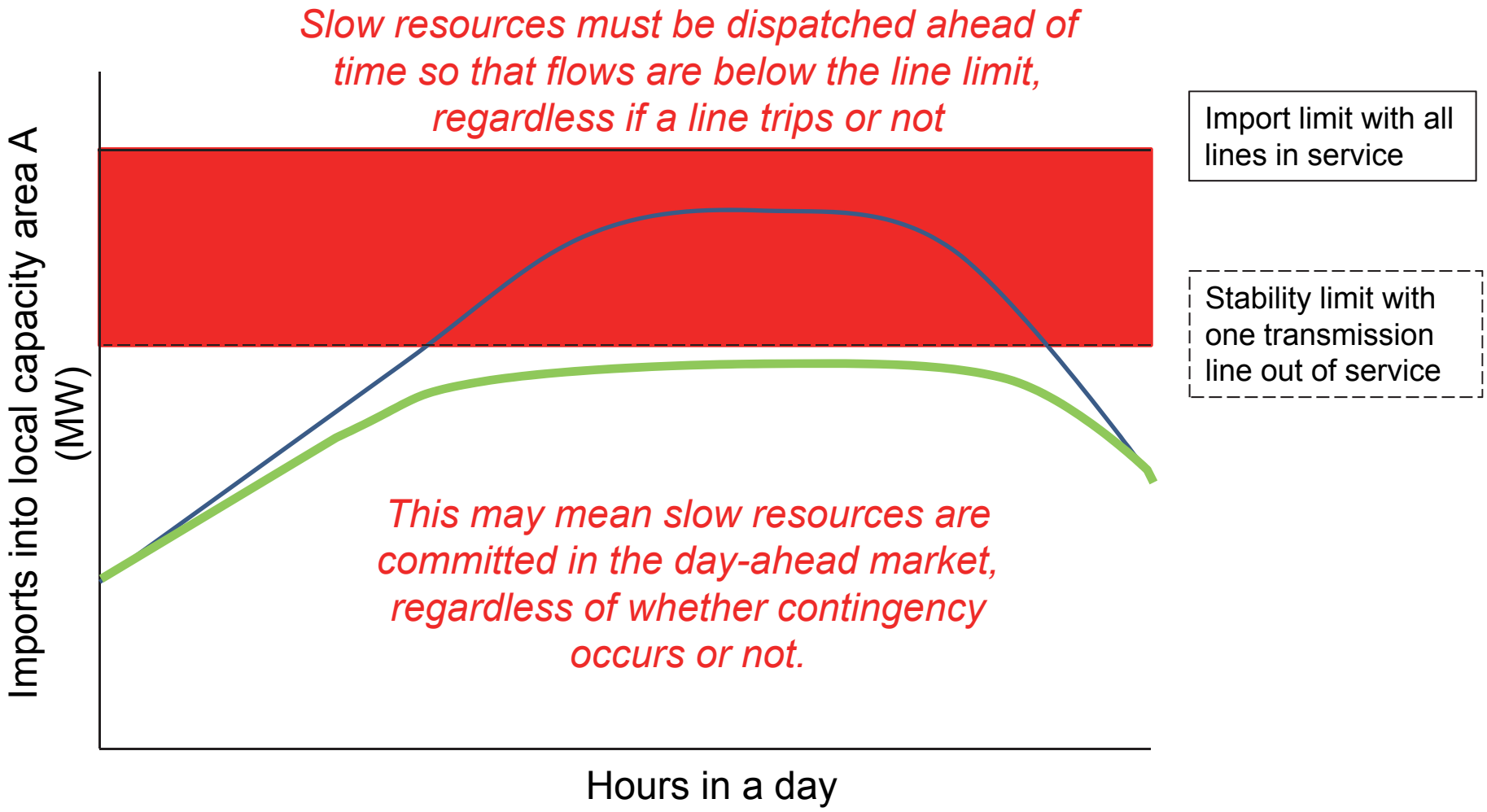
Three scenarios show how ISO can meet NERC requirements for local capacity areas

- Scenario assumptions for local capacity area A:
  - Multiple transmission lines serve the area
  - Import limit is not binding with all transmission in service
  - With one transmission line out of service, import is limited by system voltage stability so imports must be reduced within 30 minutes
- Scenarios shown:
  - All resources are fast response
  - All resources are slow response
  - Resources are a mix of fast and slow response

All fast response

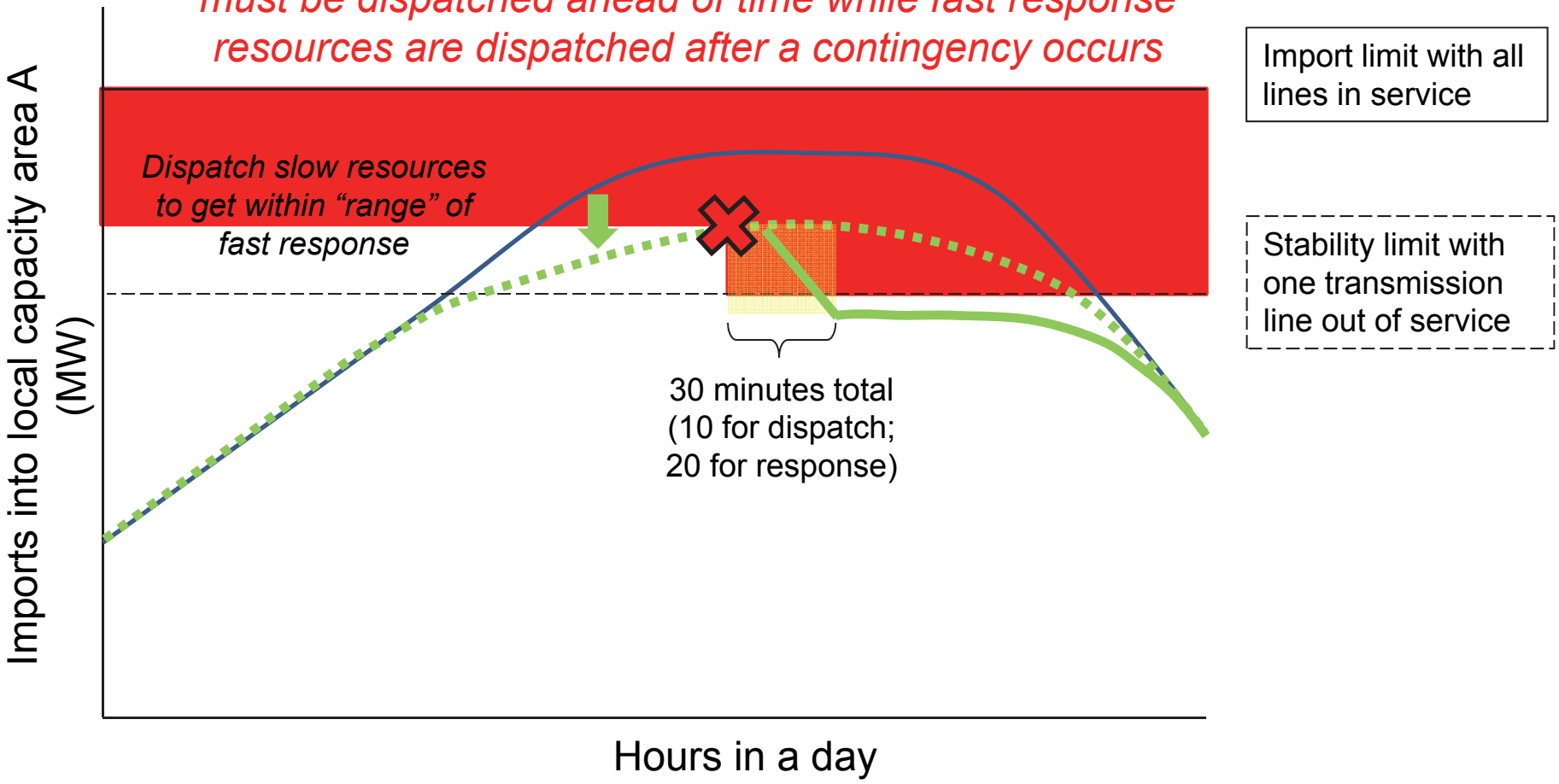


All slow response



Combination of fast and slow (more likely)

With a combination of fast and slow resources, slow resources must be dispatched ahead of time while fast response resources are dispatched after a contingency occurs



Conclusion

- NERC reliability criteria require the ISO return the system to precontingency conditions within 30 minutes during a P6 contingency
- The ISO local capacity study utilizes resources that can either receive a dispatch instruction and respond in 30 minutes or be dispatched precontingency to respond in 30 minutes
- The NERC reliability requirements and the ISO administration of these requirements have not changed for many years
- The ISO recommends the Commission align its resource adequacy program with the ISO's planning standards and North American Mandatory Standards

California ISO

Questions?