

August 1, 2014

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: California Independent System Operator Corporation
Docket No. ER14-____ - 000
Flexible Resource Adequacy Capacity Requirement Amendment**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) hereby submits for filing a tariff amendment to establish a flexible resource adequacy capacity requirement.¹ The flexible resource adequacy capacity requirement is an interim, but critical, measure to ensure the availability of the flexible capacity required to integrate renewable resources in the CAISO’s balancing authority area.

The CAISO proposes a November 1, 2014 effective date for the tariff amendments so that they will apply to resource adequacy showings beginning with the January 2015 resource adequacy month.

I. EXECUTIVE SUMMARY

The CAISO electric grid is undergoing significant transformation. The State of California has adopted renewable portfolio standards for electric utilities requiring that 33 percent of retail electric sales be served by renewable energy sources by 2020, which represents approximately 20,000 megawatts of capacity from new variable energy resources. The 33 percent renewables portfolio standard is a floor, not a ceiling, on mandated deliveries from renewable resources. For example, current estimates for 2024 are 25,000 megawatts of capacity from variable energy resources. In addition, 12,079 megawatts of coastal generation resources will likely retire over the next eight years rather than meet environmental regulations that would otherwise require those plants to phase out their once-through-cooling systems and convert to the best available technology for minimizing adverse environmental impact. Further, California is currently examining policies to achieve 12,000 megawatts of distributed generation.

¹ The CAISO makes this filing pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 825d (2012) and Rule 205 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. 385.205. (2014).

Operating the grid reliably and efficiently is one of the CAISO's core responsibilities. Managing a greener grid, with an increased penetration of variable energy resources and distributed generation presents significant operational challenges to grid reliability in the future. The influx of large quantities of these resources will increase supply and load variability and unpredictability. The CAISO is already beginning to experience the effects of the new variable energy resources coming on line. For example, on 22 days in March 2014, the CAISO system experienced two significant daily net load² ramps. This demonstrates a current need to have resources available that are capable of responding to multiple dispatches in a single day.

CAISO studies show that to reliably operate the grid with this heightened level of uncertainty and variability, the CAISO will have an increased need for resources that can ramp up and down quickly and start and shut down potentially multiple times per day, *i.e.*, flexible capacity. At the same time, the once-through-cooling retirements will reduce the number of existing resources that are available to provide the flexibility necessary to manage the increased variability and maintain day-to-day reliability.

Moreover, to efficiently operate the grid, the CAISO needs measures to ensure that these flexible resources economically bid into the CAISO markets so the CAISO can optimally dispatch them. Without load serving entity procurement of flexible capacity resources and requirements that the resources economically bid such capacity into the CAISO markets, at best the CAISO will face an increasing need for out-of-market exceptional dispatches and backstop capacity procurement through the CAISO's capacity procurement mechanism. At worst, the CAISO may not have access to sufficient resources to address the significant operational challenges and maintain grid reliability.

The CAISO has designed the proposed flexible capacity framework to work in conjunction with the resource adequacy programs of the California Public Utilities Commission ("CPUC") and other local regulatory authorities to ensure the successful integration of renewable resources and the availability of resources necessary to address the related operational challenges. The CAISO engaged with stakeholders to develop the proposed flexible resource adequacy capacity requirement and collaborated with the CPUC in its rulemaking proceeding that recently incorporated flexible capacity forward procurement obligations into the existing resource adequacy program starting in 2015. The CAISO's proposal builds upon the existing resource adequacy model and rules.

² Net load is defined as load minus both wind and solar output.

The CAISO's flexible resource adequacy capacity proposal has seven basic elements:

- *Needs determination.* The CAISO will determine system-wide flexible capacity needs on a monthly basis through an assessment of the largest monthly three-hour system net load ramps. The flexible capacity need will have three components: (1) the largest system three-hour net-load ramp each month; (2) the higher of the most severe single contingency or 3.5 percent of forecasted peak load monthly; and (3) a forecast adjustment (upward or downward). Although some stakeholders object to the forecast adjustment, the CAISO must include this in the needs determination to refine the forecast so that it appropriately accounts for the actual extent to which flexible capacity is maintained for contingency reserves and therefore not available to provide flexible resource adequacy capacity. Failure to take this into account could leave the CAISO short of needed capacity, thereby forcing the CAISO to rely on its backstop procurement authority. To address stakeholder concerns regarding the CAISO's discretion in setting the forecast adjustment, the CAISO proposes to cap the level of any adjustment.
- *Flexible Capacity Categories.* The CAISO will have three categories of flexible capacity that correlate with the three types of conditions that the CAISO faces that require flexible capacity: (1) base ramping flexibility; (2) peak ramping flexibility; and (3) super-peak ramping flexibility. Each category will have specific availability requirements, and the CAISO will calculate the amount of capacity needed in each category to ensure that it has sufficient capacity to meet the specific needs it has identified. The three categories will facilitate liquid procurement and allow all types of resources to provide some form of flexible capacity, while ensuring that the CAISO can meet its operational needs.
- *Allocation.* The CAISO will allocate the total system flexible capacity need to local regulatory authorities based on their jurisdictional load serving entities' average contribution to the components of the five highest daily maximum three-hour net load ramps on the system. Each local regulatory authority may allocate those requirements among its jurisdictional load serving entities. Absent such an allocation by the local regulatory authority, the CAISO will determine the allocation to the individual load serving entities. The CAISO's proposed allocation methodology (1) reflects cost causation, (2) addresses anomalous conditions for load serving entities that could inappropriately skew the allocation, and (3) ensures that the CAISO will meet its total flexible capacity need each month.

- *Flexible Resource Adequacy Showing.* The CAISO will require load serving entities to provide both month-ahead and year-ahead flexible resource adequacy capacity showings. The month-ahead showings must identify the flexible capacity category for which the resource is designated.
- *Showing Assessment and Resource Counting.* Local regulatory authorities may assume responsibility for evaluating the sufficiency of the flexible resource adequacy capacity showings of individual load serving entities using the local regulatory authority's counting rules. Otherwise, the CAISO will evaluate the sufficiency. The CAISO, using counting rules that it determines, will evaluate all showings to determine whether there is a cumulative flexible capacity deficiency, *i.e.*, whether the showings of all load serving entities establish sufficient flexible capacity system-wide to meet the CAISO identified monthly need. The CAISO's authority will be comparable to the authority it currently exercises to determine the net qualifying capacity of resource adequacy resources, set local capacity requirements, and calculate the effectiveness of specific resources to determine if load serving entities have procured sufficient capacity to meet local area capacity needs.
- *Must Offer Obligation.* Resources included in the flexible capacity resource adequacy demonstration are subject to a flexible capacity must-offer obligation according to their designated flexible capacity category.
- *Backstop Procurement.* In the event of a system-wide cumulative deficiency, the CAISO will use the proposed flexible capacity designation to procure backstop capacity pursuant to its capacity procurement mechanism. The CAISO's backstop authority will be consistent with its existing backstop authority and includes safeguards to prevent over-procurement and ensure that the CAISO is procuring backstop capacity only as a "last resort". The CAISO will allocate the costs of this procurement to the load serving entities that are deficient and that are under the jurisdiction of a local regulatory authority that is overall deficient. The CAISO will use the allocation methodology established by the local regulatory authority or, in the absence of such a rule, will allocate the costs among deficient load serving entities *pro rata* to their contribution to the deficiency.

This flexible resource adequacy capacity proposal is an interim measure. It meets the CAISO's immediate need for flexible capacity requirements to address the operational challenges as the fleet of variable energy resources grows. It will reduce the CAISO's need to rely on exceptional dispatch and the capacity procurement mechanism. However, as the CAISO's Market Surveillance Committee observed, resolution of California's need for flexible capacity will require a more comprehensive

framework than the flexible resource adequacy capacity requirement. Other elements of the broader approach that the CAISO is considering through stakeholder initiatives and in cooperation with the CPUC include a market-based backstop procurement that will also provide incentive mechanisms and rational performance penalties, a spot market for flexible ramping products, and a multi-year forward resource adequacy mechanism. In 2016, after the CAISO has one-year of experience with new flexible capacity requirements, the CAISO will commence a stakeholder process to assess the flexible capacity framework and identify any appropriate enhancements or modifications.

II. BACKGROUND

A. Need for Flexible Resource Adequacy Capacity

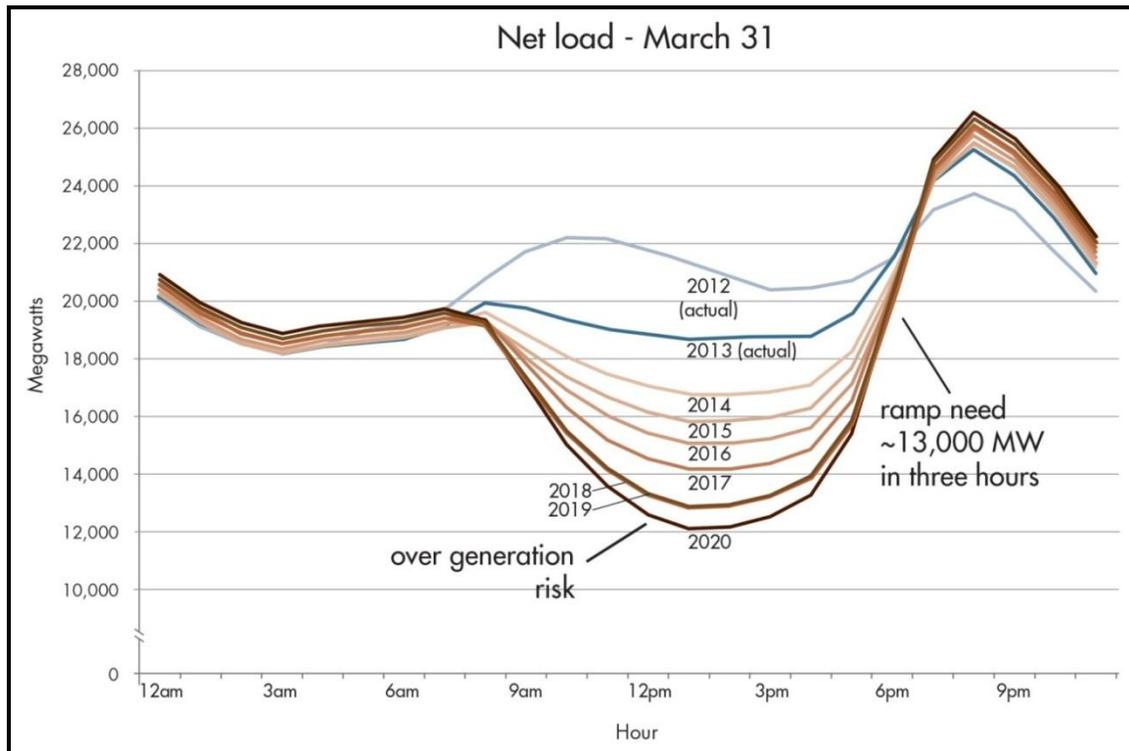
1. Effectively Managing the Greener Grid

California's energy and environmental policy initiatives are driving significant changes to the electrical grid and will result in a greener grid. These initiatives include renewable standards portfolio requirements, once-through cooling regulations, increased reliance on distributed generation, and greenhouse gas emission reductions. Meeting these important policy objectives creates several operational challenges for the CAISO, and the CAISO is working with the CPUC and local regulatory authorities to meet them. The CAISO discusses the impact of these initiatives in greater detail below.

As an overview, two of the operational challenges that the CAISO faces to reliably manage the greener grid are shorter, steeper ramps and the need to start-up and shut-down multiple times a day to address net-load needs and potential over-generation. The CAISO therefore needs flexible resources with ramping flexibility and the ability to start and stop multiple times per day, as well as resources that can respond to constantly changing grid conditions and help balance supply and demand at all times of the operating day.

Figure 1, commonly referred to as the "duck chart", uses net load curves to illustrate the steepening net load ramps expected over the next six years during the spring season. The duck chart shows the system requirement to supply an additional 13,000 MW of upward ramping capability, all within approximately three hours, to replace the electricity lost by solar power as the sun sets. The duck chart illustrates the larger ramping needs, as evidenced by the "fattening of the duck" as more renewables come on line and the multiple ramps each day. The CAISO must ensure that there is sufficient flexible capacity to address the added variability and uncertainty of variable energy resources.

Figure 1



The duck chart also illustrates the growing concern regarding over-generation on the system, when more electricity is supplied than the CAISO needs to satisfy real-time electricity requirements. The CAISO experiences over-generation as it prepares to meet the two daily upward ramps that occur in the morning and in the late afternoon, when output from non-dispatchable/must-take resources increases supply in times of low electricity need, typically in the nighttime hours. This flexible resource adequacy capacity proposal is not specifically designed to address the over-generation concern. However, as the duck chart demonstrates, the potential for over-generation will continue to grow. As this occurs, the CAISO will consider the need for flexible capacity to address over-generation in future initiatives.

2. Renewable Portfolio Standards

California has adopted a renewable portfolio standard requirement of 33 percent by 2020. Successfully integrating the resources required to achieve California's renewable portfolio standard creates the need for a resource adequacy flexible capacity requirement. In particular, sufficient flexible capacity must be available to the CAISO to address the added variability and unpredictability created by variable energy resources.

When California initially adopted a 20 percent renewable energy portfolio standard, the CAISO conducted a study to evaluate the flexibility of the CAISO's generation fleet to maintain grid reliability under that standard.³ The study concluded that the variability of wind and solar production, and forecast uncertainty of the additional resources necessary to meet the standard, would increase the CAISO's net load-following requirement substantially in certain hours. It also found that these factors would significantly increase regulation capacity requirements in the summer season over time.

The 33 percent renewable portfolio standard heightens the operational challenges the CAISO will face. Using assumptions provided by the CPUC, the CAISO analyzed whether a projected future generation fleet will be able to reliably integrate a 33 percent standard. The studies demonstrated potential downward load-following shortfalls in excess of 500 MWs in two of the CPUC's four priority scenarios.

In evaluating the increasing operational challenges that the CAISO faces, it is important to recognize that the required quantity of renewable resources will not simply jump from the 2013 level of 20 percent to 33 percent in 2020. Rather, the penetration of renewable resources has increased rapidly, thereby necessitating that the CAISO implement tariff measures in 2015 to address operational challenges rather than wait for five years. The CPUC has recognized this need and in June 2013 approved flexible capacity procurement as part of its resource adequacy program to help address the operational concerns facing the CAISO.

3. California State Water Board's Once-Through Cooling Regulations

On May 4, 2010, the California State Water Board adopted the "Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling." The once-through-cooling policy applies to the 19 existing power plants (including two nuclear plants) that withdraw water from California's oceans and bays for use in a single-pass cooling system, also known as once-through cooling. The once-through-cooling policy requires these plants to phase out their once-through-cooling technology and implement closed-cycle wet cooling or another equally effective system to reduce intake flow and velocity

³ [Integration of Renewable Resources: Transmission and operating issues and recommendations for integrating renewable resources on the California CAISO-controlled Grid](#) (November 2007). The CAISO has conducted numerous other studies regarding the impact of the integration of renewable resources. See, e.g., August 31, 2010; and [CAISO studies conducted as part of the CPUC 2010 Long Term Planning Process proceeding](#).

or impacts on aquatic life.⁴

Thirteen conventional thermal generators (representing about 17,500 MW) and California's nuclear generators⁵ must retrofit, repower, or retire by 2020 and 2024, respectively, to comply with the once-through cooling policy. A number of these generators are flexible and dispatchable, and can start quickly. The unavailability of these resources – either temporarily or permanently – will significantly limit the CAISO's access to the flexible capacity necessary to integrate renewable resources reliably so that the balance of load and supply can be maintained even when the wind suddenly stops and the sky turns cloudy. Instituting a resource adequacy flexible capacity requirement will help ensure that sufficient flexible capacity is available to the CAISO to meet the operational challenges it will face due to rapidly and significantly changing grid conditions.

4. Increased Reliance on Distributed Generation

Another component of California's efforts to make a greener grid is an effort to increase the share of electricity produced by distributed generation. California has set a goal for the state to achieve 12,000 MW of distributed generation capacity within the electric distribution grid by 2020.⁶ Distributed generation resources are often relatively small-scale and largely inflexible resources connected to utility distribution systems and located close to load. Much of the distributed generation will be variable energy resources, such as roof-top solar installations, thereby increasing CAISO's need for flexible capacity.

A potential benefit of increasing distributed generation is that the additional production may decrease load during system peaks. However, distributed generation poses operational challenges, primarily due to its volatility. For example, the CAISO expects that much of the distributed generation will be photovoltaic installations whose

⁴ See [Once Through Cooling Water Policy, Adoption and Amendments](#).

⁵ One of the nuclear plants, the San Onofre Nuclear Generating Station, permanently retired in June 2013 due to insurmountable technical problems with its recently installed steam generators.

⁶ To facilitate the State's goal, the CAISO filed, and the Commission approved, a tariff amendment to implement a faster, more streamlined process to enable distributed generation resources to obtain resource adequacy deliverability status without requiring any additional delivery network upgrades to the CAISO controlled grid and without adversely affecting the deliverability status of existing generation resources or proposed generation in the interconnection queue. See *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,132 (2012), *on reh'g*, 144 FERC ¶ 61,189 (2013).

output can vary when cloud cover is intermittent and that start and stop production in unison as the sun rises and sets. Even with tools to improve the CAISO's visibility of these resources, a large increase in distributed generation with intermittent production will increase the total variability on the system and net load ramping needs as the sun sets. Further, to the extent distributed generation counts towards resource adequacy requirements and does not enhance the flexibility of the system, it will not resolve the CAISO's operational and reliability needs and could leave the CAISO "short" on available flexible resources. A resource adequacy flexible capacity requirement addresses these risks.

5. Economic Consequences of Increased Reliance on Renewable Resources

The CAISO's study of the impact of the 20 percent renewable standards portfolio also examined the economic impact on gas-fired generation. It concluded that, depending on the configuration of each gas generator, the increased supply variability would lead to a 21 to 35 percent increase in the number of start-ups and shut-downs by generators, while energy production from gas-fired units would decrease from 11 percent to 39 percent, depending on the type of unit and whether off-peak or on-peak production is considered.⁷ The study projected that the lower capacity factors resulting from these operational changes, combined with reduced energy prices under the 20 percent renewable portfolio standard, could result in a significant drop in energy market revenues for the gas-fired fleet of between 16 and 39 percent.⁸

Under the 33 percent renewable portfolio standard, the CAISO will need even more flexible capacity from these conventional resources to maintain grid reliability. However, a 33 percent renewable portfolio standard will further reduce the need for conventional resources to provide energy and resource adequacy capacity, thereby placing additional economic pressure on these units and calling their continued economic viability into question. Successful integration of the renewable standards portfolio requires mechanisms like a resource adequacy flexible capacity requirement to ensure that needed flexible resources receive appropriate compensation for the critical flexible capacity they provide and thus remain available.

⁷ [Integration of Renewable Resources: Operational Requirements and Generation Fleet Capability at 20% RPS](#) (August 2010) at 87.

⁸ *Id.*

6. CAISO Flexible Capacity Needs Assessment for 2015

The CAISO’s recently completed flexible capacity needs assessment for resource adequacy year 2015 demonstrates an increasing need for flexible capacity. The CAISO performed the needs assessment to determine the quantity of flexible capacity needed to reliably address the upward ramping needs for the upcoming year, using the methodology proposed in this amendment. This methodology determined seasonal percentages needed for three flexible capacity categories, as well as seasonal must-offer obligations for two of the flexible capacity categories. The needs assessment forecasts slightly larger three-hour net load ramps in the spring months than did the 2014 flexible capacity needs assessment, but it forecasts significant increases in the fall and winter months.

Table 1
Year-Ahead Forecasted Three-hour Net Load Ramps⁹

	January	February	March	April	May	June
2014	9,167	8,584	8,341	7,113	5,873	6,189
2015	9,459	9,257	8,351	7,198	6,117	7,350
	July	August	September	October	November	December
2014	6,054	6,824	6,239	7,304	8,799	9,648
2015	6,366	6,098	6,881	8,965	9,595	9,940

While the monthly results differ slightly each year due to differences in weather patterns, the seasonal impacts remain clear: cool, sunny, and breezy spring and fall days require significant amounts of flexibility to deal with uncertainty and ramping needs. The distribution of the largest daily three-hour net load ramps and the distribution of the second largest net load ramp further demonstrate the CAISO’s ramping need.

As shown in Figure 2, the largest three-hour net load ramps occur in the non-

⁹ Compare [Methodology for Determining Flexible Capacity Procurement Requirements](#), March 20, 2013 with [Final 2014 Flexible Capacity Needs Assessment](#).

summer months.

Figure 2

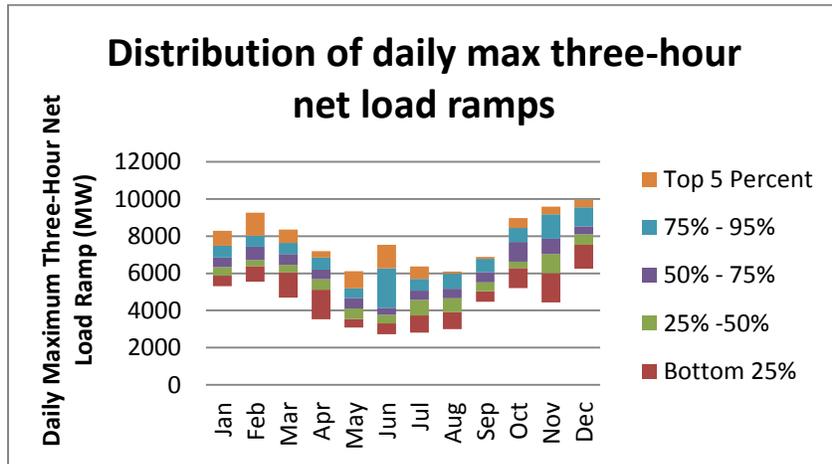
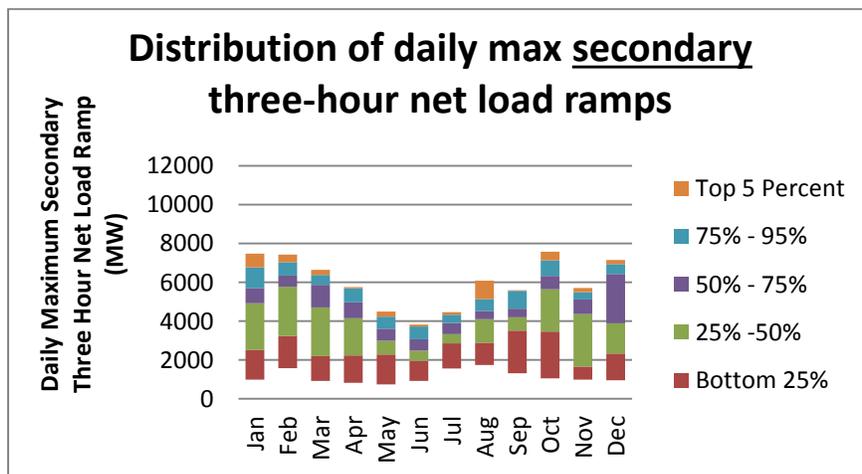


Figure 3 shows that the probability of two significant ramping events on a given day is much greater in the non-summer months.

Figure 3



B. CPUC Resource Adequacy Program

The CPUC established the resource adequacy program to provide sufficient resource adequacy capacity to the CAISO when and where needed to support the safe and reliable operation of the CAISO controlled grid in real time. The CPUC resource

adequacy program consists of a one-year forward and monthly demonstration by load serving entities that they have procured sufficient capacity to meet the resource adequacy requirements set by the CPUC. These requirements consist of a system component calculated based on the load serving entity's system peak load plus a 15 percent planning reserve margin, and a local component, based on the CAISO local capacity technical analysis.

Under the CPUC's resource adequacy program, jurisdictional load serving entities, including energy service providers, must procure at least 90 percent of their resource adequacy requirement for the five summer months in compliance with a year-ahead forward commitment obligation. Additionally, if their load is located in any of the local capacity areas defined by the CAISO, they must procure 100 percent of their local capacity need for the entire year in the year-ahead timeframe. CPUC jurisdictional load serving entities also have a month-ahead forward commitment obligation. They must procure 100 percent of the capacity needed to meet their resource adequacy requirement -- their total forecast load for each month plus a planning reserve margin of 15 percent.¹⁰

Through a series of annual rulemaking proceedings, the CPUC has expanded the resource adequacy program to include a flexible capacity framework and flexible capacity forward procurement obligations for its jurisdictional load serving entities. In October 2012, the CAISO, in collaboration with Southern California Edison Company, San Diego Gas & Electric Company, and Pacific Gas and Electric Company, submitted a proposal to the CPUC, in its annual resource adequacy rulemaking proceeding, to establish forward flexible capacity procurement requirements as part of the CPUC's resource adequacy program. The CAISO and the utilities proposed a monthly flexible capacity procurement requirement based on the CAISO system's projected maximum three-hour change in net load in each month, *i.e.*, the maximum net-load ramp. The proposal included provisions for determining how resources count towards meeting this requirement.

In its decision for resource adequacy operating year 2013, the CPUC "establishe[d] local capacity procurement obligations for 2013 applicable to Commission-jurisdictional electric load-serving entities. . . . based on an annual study of local capacity requirements performed by the [CAISO] for 2013."¹¹ The CPUC decision

¹⁰ Available on the CPUC website.

¹¹ Decision Adopting Local Procurement Obligations for 2013 and Further Refining the Resource Adequacy Program, Rulemaking 11-10-023 (June 21, 2012), p. 2.

recognized that reliability needs are changing over time due to a number of factors, including the renewable portfolio standards, once-through cooling regulations, and the variability of wind and solar resources, and stated the expectation that continuing reliability of the grid “is dependent upon a more complex and flexible fleet of generating resources.”¹² The decision found that there is a “need to define flexible attributes for local reliability purposes in order to ensure ongoing reliability in a changing load and supply environment.”¹³

In the annual resource adequacy proceeding for operating year 2014, the CPUC adopted an interim flexible capacity framework and established forward flexible capacity procurement obligations for its load serving entities as part of its resource adequacy program for 2014.¹⁴ The CPUC based its decision on findings that:

- “The ISO has clearly demonstrated that over the next several years changing system conditions, specifically increased levels of generation from intermittent sources of power, will cause an increasing requirement for flexible capacity to enable the ISO to reliably operate the grid.”¹⁵
- “The current RA program does not address the extent to which flexible resources will be available to the ISO. LSE compliance with the current RA program, standing alone, will not provide the ISO with assurances that resources with the necessary flexibility attributes will be available to ensure reliable operation of the ISO grid.”¹⁶
- “As flexible capacity needs increase, the necessity for flexible resources increases. While we do not know exactly when flexible capacity needs may exceed currently-available flexible capacity resources (although this will almost certainly not occur in 2014), it is necessary to take proactive steps now to ensure that system needs are available to ensure safe and reliable service. Starting in 2015, we find there is a reasonable likelihood that additional flexible

¹² *Id.* at 11-12.

¹³ *Id.* at 17.

¹⁴ Decision Adopting Local Procurement Obligations for 2014 and Further Refining the Resource Adequacy Program, Rulemaking 11-10-023 (June 27, 2013).

¹⁵ *Id.* at 41.

¹⁶ *Ibid.*

resources will need to be available to the ISO through a new RA requirement.”¹⁷

In June 2014, the CPUC issued a final decision in the resource adequacy proceeding for operating year 2015 that adopted firm procurement flexible capacity obligations for its jurisdictional load serving entities. In adopting more comprehensive flexible capacity rules for 2015 through 2017, the CPUC recognized that “[t]he changing supply due to [once-through cooling] restrictions and the increased penetration of non-dispatchable generation will necessitate changes to the way that the residual flexible and dispatchable generation is bid and operated by the CAISO.”

The decision also relied exclusively on the CAISO’s Final 2014 Flexible Capacity Needs Assessment¹⁸ to determine the flexible capacity procurement requirements for the CPUC jurisdictional load serving entities. The CPUC’s decision states “the annual RA decision will then adopt final study results, which consists of total monthly flexible obligations for CPUC LSEs along with the LCR.”¹⁹ In addition, the decision states that

We adopt the CAISO revised proposal for seasonal flexible categories. We find that the use of seasonal categories strikes a balance between reliability, administrative ease, and accurate levels of procurement.²⁰

The decision also adopted counting criteria for resources used to meet the flexible capacity requirements identical to those proposed here by the CAISO, with the exception of energy storage resources.

Finally, the CPUC decision contemplates that flexible capacity will be a permanent part of the resource adequacy program. While the decision acknowledges that the current product is transitional, the CPUC stated that “[w]e also clarify that, while the specific adopted framework is interim, we do not anticipate ending a flexible capacity obligation after 2017. Instead, we expect that the interim framework will evolve based on analysis of data gleaned from the first years of the obligation.”²¹

¹⁷ *Id.* at 42.

¹⁸ See the [Final 2014 Flexible Capacity Need Assessment](#) and the [addendum](#) to the assessment.

¹⁹ Decision Adopting Local Procurement and Flexible Capacity Obligations for 2015, and Further Refining the Resource Adequacy Program, Rulemaking 11-10-023 (June 27, 2013).

²⁰ *Id.* at 21.

²¹ *Id.* at 19.

The CAISO's proposed flexible capacity resource adequacy framework works in conjunction with the CPUC's new flexible capacity procurement requirements to ensure flexible capacity procured under resource adequacy requirements is operationally available to the CAISO market through economic bids.

C. CAISO Resource Adequacy Provisions

The CAISO works collaboratively with the CPUC and other local regulatory authorities to develop procurement requirements so that the capacity procured by their respective load serving entities is sufficient and adequate to meet the CAISO's operational needs and maintain grid reliability. Currently, the resource adequacy program only requires that load serving entities procure resource adequacy capacity to meet their forecasted load needs, plus a reserve margin, and local area capacity needs. There is no requirement for load serving entities to procure flexible resource adequacy capacity.

The CAISO tariff requires scheduling coordinators for all load serving entities to demonstrate that they have met their applicable resource adequacy requirements. If a local regulatory authority has not adopted explicit resource adequacy provisions, the tariff includes default provisions for scheduling coordinators of those load serving entities.²²

Scheduling coordinators for load serving entities must submit resource adequacy plans to the CAISO in the year-ahead and month-ahead timeframes to demonstrate that their resource adequacy requirements will be met for that reporting period.²³ Scheduling coordinators for the resources that will provide resource adequacy capacity must submit year-ahead and monthly supply plans to the CAISO that verify their commitment to provide the listed resource adequacy capacity.²⁴ The CAISO validates the resource adequacy plans and supply plans to ensure that the resource adequacy requirements are being met.²⁵

Scheduling coordinators for the resources designated as resource adequacy resources have a must-offer obligation and must make their resource adequacy capacity available to the CAISO.²⁶

²² See *generally* Section 40 and included subsections.

²³ CAISO Tariff Sections 40.2.2.4 and 40.2.3.4.

²⁴ CAISO Tariff Sections 40.4.7.1.

²⁵ CAISO Tariff Sections 40.4.7.3 and 40.7.

²⁶ CAISO Tariff Section 40.5 or Section 40.6, as applicable.

To the extent that load serving entities do not fulfill their resource adequacy obligations or in the case of a collective deficiency in a local capacity area, the CAISO may procure backstop capacity through its capacity procurement mechanism.²⁷ The CAISO allocates the costs of such procurement to the deficient load serving entities or to the load serving entities in the deficient local capacity area.²⁸

The resource adequacy model has served well to ensure adequate available capacity in the CAISO's balancing authority area. However, developments over the last decade have created a more focused need for flexible capacity and a flexible capacity resource adequacy framework.

D. Relationship Between Flexible Capacity Requirements and the Flexible Capacity Constraint

The CAISO currently employs a flexible ramping constraint, which is a market mechanism designed to dispatch available flexible capacity in real time to address the impact of variable energy resources and load variations on potential ramping needs. The flexible ramping constraint enforces an upward-ramping capability requirement in the real-time unit commitment and real-time dispatch to ensure that the CAISO commits sufficient resources to provide sufficient upward ramping capability to meet load and generation schedule deviations.

The proposed flexible resource adequacy capacity requirement, in contrast, is a resource adequacy and backstop mechanism designed to ensure the availability of needed flexible ramping capacity in the forward timeframe. The proposed flexible capacity resource adequacy requirement complements, but is distinct from, the CAISO's existing flexible ramping constraint. The relationship between flexible resource adequacy capacity and the flexible ramping constraint is similar to the relationship between resource adequacy and energy. Sufficient resources need to be available to provide needed energy. Stated differently, there must first be adequate capacity available to ensure that system needs can be addressed, as well as real-time market mechanisms to ensure an efficient dispatch of these resources. Similarly, sufficient flexible capacity needs to be available to meet needs as they arise, and then a mechanism needs to be in place to efficiently dispatch the available resources when the needs do arise.

²⁷ CAISO Tariff Section 43.2.1.

²⁸ CAISO Tariff Section 43.8.

Absent a flexible capacity resource adequacy requirement, the resources required to meet flexible capacity needs may not be available. Although the flexible ramping constraint, and eventually a flexible capacity product, can provide additional revenue to flexible resources, those revenues will not outweigh the suppression in energy market prices due to the increased penetration of renewable generation. The total revenues will be sufficient revenues to cover the costs of needed flexible resources. These resources will need a capacity payment, and the CAISO's proposal provides flexible resources an opportunity to receive a capacity payment through the resource adequacy program.

E. Stakeholder Process and Board Consideration

In December 2012, the CAISO initiated the flexible resource adequacy criteria and must-offer obligation stakeholder process. The purpose of the stakeholder process was to develop a proposal to enhance existing resource adequacy requirements with flexible capacity provisions that would (1) ensure sufficient flexible capacity is procured under resource adequacy requirements and is operationally available to the CAISO market through economic bids, and (2) allow the CAISO to procure backstop flexible capacity in the event of a cumulative deficiency in load serving entities' flexible capacity showings.

The CAISO conducted an extensive stakeholder process to develop and finalize a proposal and tariff amendments to fulfill those needs. The stakeholder process provided numerous opportunities for input.

In December 2012, the CAISO issued a straw proposal, followed by eight revisions to its proposal. The CAISO solicited comments and conducted stakeholder meetings and web conferences regarding each of these documents.²⁹

On March 20, 2014, CAISO management presented a final proposal to the CAISO Board of Governors. The Board approved the filing of a tariff amendment to implement the proposal unanimously.³⁰

On June 26, 2014, the CAISO posted draft tariff language. The CAISO received comments from eight parties. After reviewing the input from stakeholders, the CAISO on July 16, 2014, posted revised draft tariff language and discussed it in a stakeholder

²⁹ The [complete record](#) of the stakeholder process (including the issue paper, straw proposal, draft final proposals, presentations, stakeholder comments, and draft tariff language is available on the CAISO website.

³⁰ The [materials presented to the CAISO Board](#) are available on the CAISO website.

web conference. The CAISO posted further revisions to the draft tariff language on July 30, 2014.

F. Recommendations of the CAISO's Market Surveillance Committee and Department of Market Monitoring.

The CAISO also received input regarding the proposal from its Market Surveillance Committee and Department of Market Monitoring. The Market Surveillance Committee discussed the proposal in four open meetings over the course of a year. Market Surveillance Committee members participated in stakeholder calls, viewed stakeholder comments submitted to the CAISO, and participated in a Commission Technical Conference concerning the joint CAISO/CPUC Multi-Year Reliability Framework proposal.

On March 11, 2014, the Market Surveillance Committee issued an opinion generally supporting the CAISO's proposed flexible capacity resource adequacy requirement. The Market Surveillance Committee noted that the CAISO's proposal is intended to be a pragmatic and narrowly focused approach to expediting procurement of flexible capacity through the resource adequacy process as an interim solution to addressing operational challenges in the near term. The Market Surveillance Committee observed that the experience gained from implementing this approach will likely be useful in the on-going process of fashioning a holistic approach to flexible capacity procurement and offer incentives.³¹ The Market Surveillance Committee stated that "[i]mplementing a target for flexible RA procurement and imposing a must offer obligation on flexible RA capacity will provide extra assurance that load serving entities will contract for the amount of flexible capacity the CAISO expects will be needed."³²

In addition, the CAISO's Department of Market Monitoring submitted comments on the proposal³³ and the proposed tariff amendments³⁴ and submitted a memorandum to the Board of Governors.³⁵ The Department of Market Monitoring's comments supported system flexible capacity requirement that, at a minimum, ensures both

³¹ [Market Surveillance Committee Opinion](#) at 2.

³² *Id.* at 16.

³³ See, e.g., [Comments on the Proposal for Flexible Resource Adequacy Criteria and Must-Offer Obligation](#), Department of Market Monitoring, July 12, 2013.

³⁴ [Comments on the Draft Tariff Language for Flexible Resource Adequacy Criteria and Must-Offer Obligation](#) Department of Market Monitoring, May 27, 2014.

³⁵ [Memorandum from Eric Hildebrandt to ISO Board of Governors](#), March 12, 2014.

projected three-hour ramping needs and five-minute ramping needs can be met by flexible capacity resources.³⁶ In addition, the Department of Market Monitoring commented that the flexible capacity requirements, counting rules, and must-offer provisions for flexible capacity procured through the resource adequacy process should ensure that load serving entities procure sufficient flexible capacity on a forward basis prior to the CAISO spot markets and then make such capacity available at a reasonable cost to meet the flexible ramping constraint and the new flexible ramping product that the CAISO is currently developing.³⁷ The Department of Market Monitoring supports the concept of including opportunity costs associated with physical use limitations in bid limits for start-up and minimum load costs, conditional on an all-hours must-offer obligation.³⁸

III. DESCRIPTION OF TARIFF AMENDMENTS

A. Determining Flexible Capacity Need

The methodology for determining the flexible capacity need is based on the joint proposal that the CAISO and the utilities submitted in the CPUC resource adequacy proceeding. This methodology provides a balanced approach to meeting the CAISO-determined flexibility needs and facilitating feasible procurement by load serving entities. The methodology focuses on a single flexibility need – maximum upward ramping need – because the CAISO expects that it can satisfy other flexibility needs through this single measure of flexibility. In particular, the CAISO's proposal addresses load following needs by requiring that all flexible resource adequacy resources be dispatchable in the five-minute real-time dispatch. This simplified initial approach provides a smooth transition to establishing durable flexible capacity requirements. The CAISO has committed to re-evaluating the effectiveness of the flexible capacity requirements in 2016 to consider, among other matters, whether enhancements are needed to meet system flexibility needs or to allow resources that are dispatchable on a fifteen-minute basis to fulfill a portion of the flexible capacity needs.

1. Study Process

Under proposed Section 40.10.1, the CAISO will perform an annual study to determine the CAISO balancing authority area's flexible capacity need for each month of the next calendar year. Under proposed Section 40.10.1.1, the CAISO study process

³⁶ Comments, *supra* n. 35, at 1.

³⁷ *Id.* at 2.

³⁸ *Id.* at 3.

will include the opportunity for stakeholders to review and provide input on the study methodology and assumptions and feedback on the draft study results.

The CAISO will evaluate the flexible capacity need on a schedule and using a stakeholder process similar to the schedule and stakeholder process the CAISO currently uses to establish resource adequacy local capacity requirements.³⁹ This transparent and collaborative process with stakeholders has resulted in local capacity study criteria and assumptions that are widely accepted. Discussing the draft local capacity technical study with stakeholders has allowed the CAISO to address many concerns upfront, thereby minimizing issues with the study and the resultant local capacity requirements. The CAISO believes that this approach will be equally successful for determining flexible capacity requirements.

After completing the study, the CAISO will provide the final results of the flexible capacity needs assessment to the local regulatory authorities and post it on the CAISO's website no later than 120 days prior to the date that load serving entities must submit annual resource adequacy plans and flexible resource adequacy capacity plans.⁴⁰ This is the same date that the CAISO must post the final local capacity technical study.

2. Required Information

To ensure that the information and forecasts used in the flexible capacity study are based on current information, the CAISO must obtain from load serving entities certain contractual and operational information about wind and solar resources each year. Scheduling coordinators for load serving entities must submit the in-service status and operating specifications of grid-connected and distributed wind and solar resources that are in whole or in part owned by, or under contractual commitment to, the load serving entity for all or a portion of their capacity.⁴¹ Scheduling coordinators must submit the specified information no later than January 15 for that calendar year and the next five years.⁴² The scheduling coordinators must also submit forecasts of the megawatts of installed, behind-the-meter solar capacity in the load serving entity's service area or part of its forecast served load.⁴³ Except for behind-the-meter resources

³⁹ See CAISO Tariff Section 40.3.1.

⁴⁰ See proposed Section 40.10.1.1(b).

⁴¹ See proposed Section 40.10.1.2(b).

⁴² See proposed Section 40.10.1.2(a).

⁴³ See proposed Section 40.10.1.2(6).

which can be aggregated, scheduling coordinators must provide the required information on a resource-specific basis, which the CAISO will treat as confidential, and on an aggregated basis, which the CAISO will include in an aggregated form in the publically available flexible capacity needs assessment.⁴⁴

If a load serving entity submits incomplete or inaccurate information and (1) the incomplete or inaccurate information represents a net error in excess of either 200 MW or one percent of the total megawatts of wind and solar capacity for any month, and (2) the CAISO has sufficient time to obtain corrected information and complete rerunning the study by May 1 of the current year, then the CAISO will rerun its study using corrected information to recalculate flexible capacity need for the entire year.⁴⁵ The CAISO will post a revised Flexible Capacity Needs Assessment on the CAISO Website by May 1 of the current year.⁴⁶ The CAISO will not otherwise rerun the study.

The accuracy of the data the scheduling coordinators provide for use in the study is critically important. Data that is incomplete or incorrect can impact the calculation and allocation of the flexible capacity need. However, small errors with negligible effect on the calculation do not warrant a rerun. The CAISO believes that the proposed criteria for determining whether a rerun is necessary set a reasonable threshold that allows for correction of errors with measurable impact and avoids correction of nominal errors.

3. Methodology for Determining the Flexible Capacity Need

The CAISO will follow a multi-step methodology to calculate the flexible capacity need. The CAISO will first forecast the minute-to-minute system load and net-load using actual load data, as adjusted for monthly peak load growth, and load generation profiles for wind and solar resources that are in-service or expected to be in-service during the study period. The CAISO will use the most current full year of actual load data, the most current California Energy Commission approved load forecast, and the data on wind and solar resources submitted by the scheduling coordinators for load serving entities.⁴⁷ Based on this input, the CAISO will generate minute-by-minute load and net load forecasts for the upcoming resource adequacy compliance year.⁴⁸ Once

⁴⁴ See proposed Sections 40.10.1.2(c) and (d).

⁴⁵ See proposed Section 40.10.1.2.1(a)

⁴⁶ See proposed Section 40.10.1.2.1(c).

⁴⁷ See proposed Section 40.10.1.2(b).

⁴⁸ See proposed Section 40.10.1.2(a).

the CAISO has generated the load and net load forecasts, it will then calculate the three components of the flexible capacity need: (1) the largest system three-hour net load ramp each month; (2) the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each month; and (3) a forecast adjustment.

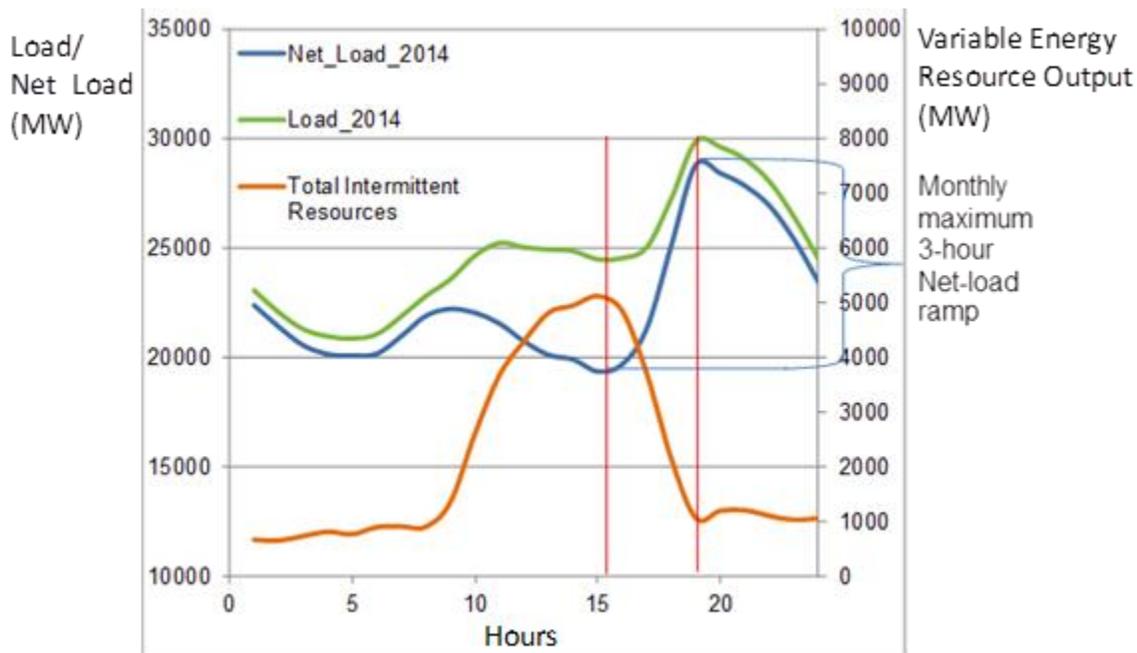
a. Largest Monthly Three-Hour Net Load Ramp

The CAISO will calculate the system maximum three-hour net load ramp for each month using the forecasted minute-to-minute system net-load and establish the monthly system flexible capacity need based on that forecasted maximum upward net load change.⁴⁹ The CAISO's studies showed that three hours span the steepest segments of the longest net load ramp. The three-hour ramping period is based on an assessment of one-minute net-load data. It represents a ramping period that many resources can satisfy, and basing the flexible capacity need on this ramping requirement will ensure that the CAISO can meet its maximum continuous ramping and load following needs during the interim 2014-2017 period.

The CAISO evaluated the forecasted maximum three-hour net load ramps for 2014 and 2015 and identified a general trend – the daily maximum three-hour net load ramp for non-summer months (i.e. October through April) occurred in the evening and for summer months (May through September) in the morning. Two factors lead to this result. First, the morning load ramp during summer months is the driving factor for determining the timing of the net load ramp, not the solar drop off at the end of the day. Second, in the non-summer months, the output of wind and solar resources peaks and drops quickly during the afternoon hours. Wind and solar output can drop simultaneously. When this happens, the net load can increase dramatically. This increase, particularly in the non-summer months, occurs at the same time as the evening load ramp. The loss of the wind and solar output means the CAISO must find resources capable of providing ramping to meet both the increased load as well as the loss of wind and solar output. Figure 4 illustrates the typical relationship between load and net load on a non-summer day.

⁴⁹ See proposed Section 40.10.1.3.

Figure 4
Forecasted Load and Net Load Curves
January 15, 2014



Although the timing of the maximum daily ramps was consistent on a seasonal basis, the magnitude of the ramps was not. For example, in the 2015 forecast, for the non-summer months the difference between the largest monthly three-hour net load ramp and the smallest monthly three-hour net load ramp was almost 2,750 MW. Likewise, in the summer months, the difference was over 1,400 MW. Because there is a material variation in the magnitude of the net-load ramp on a month-to-month basis, the CAISO will establish this component of the overall flexible capacity need using the maximum forecasted system three-hour net load ramp for each month.

b. Higher of the Most Severe Single Contingency or 3.5 Percent of Forecasted Peak Load for Each Month

The CAISO expects that some resources procured as flexible capacity will also be able provide a portion of the CAISO's contingency reserves, but the CAISO does not know the extent to which this may occur. To ensure that the CAISO has access to

sufficient flexible capacity to both maintain required contingency reserves and to address flexibility needs in a given month, the CAISO must reasonably account for this overlap in the determination of the overall flexible capacity need.

As an example, assume the flexible capacity need is set at only the maximum three-hour continuous net-load ramp of 10,000 MW, and the forecasted peak load is 35,000 MW. In this instance, the CAISO would be required by the current WECC Standard BAL-002-WECC-2 -- Contingency Reserve⁵⁰ to maintain approximately 2,450 MW of contingency reserves, half of which or 3.5 percent of forecasted peak load (1,225 MW) would need to be spinning reserves. This 1,225 MW of capacity would almost certainly be flexible capacity. However, if 1,225 MW of flexible capacity is committed to meeting these contingency reserves and is unavailable for dispatch unless there is a contingency event, then the CAISO would not be assured of having sufficient flexible capacity to meet the other ramping needs, including a 10,000 MW ramp. This could unnecessarily increase the CAISO's reliance on exceptional dispatch or capacity procurement mechanism designations because the flexible capacity that load serving entities procured to meet a net-load ramp must remain unloaded to provide contingency reserves.

Accordingly, the CAISO proposes to include the higher of the most severe single contingency or 3.5 percent of expected peak load as a component of the overall flexible capacity need.⁵¹ This will ensure that the CAISO (1) does not have to choose between addressing flexible capacity needs and maintaining sufficient contingency reserves, or (2) rely on its backstop procurement authority. Also, the CPUC's resource adequacy decision includes this component of the overall flexible capacity needs determination.

c. Forecast Adjustment

As just discussed, the CAISO will account for a portion of the flexible capacity

⁵⁰ WECC Standard BAL-002-WECC-2, R1 requires that "Each Balancing Authority and each Reserve Sharing Group shall maintain a minimum amount of Contingency Reserve, except within the first sixty minutes following an event requiring the activation of Contingency Reserve, that is: [*Violation Risk Factor: High*] [*Time Horizon: Real-time operations*];

1.1 The greater of either:

- The amount of Contingency Reserve equal to the loss of the most severe single contingency;
- The amount of Contingency Reserve equal to the sum of three percent of hourly integrated Load plus three percent of hourly integrated generation."

⁵¹ See proposed Section 40.10.1.3(5).

that it will maintain as contingency reserves by including the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each month in the determination of flexible capacity needs. Until the flexible capacity requirement is in place and actual data becomes available, however, the CAISO will not know how closely that factor reflects the actual overlap between the flexible capacity that will be maintained as contingency reserves and flexible capacity that will be available to meet the system flexible capacity need.

Starting in resource adequacy year 2016, the CAISO will use a forecast adjustment proposed in Section 40.10.1.4 to increase or decrease the higher of the 3.5 percent or the most severe single contingency for each month based on the actual amount of flexible capacity that is being maintained as contingency reserve. The forecast adjustment could be either positive or negative based on the historic proportions of reserves being provided by flexible capacity resources. The objective of the adjustment factor is to capture any systematic difference between the quantity determined in the 3.5 percent expected peak load or most severe single contingency and the historic amount of operating reserves met by flexible resource adequacy capacity. The CAISO did not include a forecast adjustment in the flexible capacity needs determination for resource adequacy operating year 2015 and will not revise the final 2015 flexible capacity needs assessment to include such adjustment.

The CAISO will conduct the proposed assessment for each month to determine the maximum allowable forecast adjustment as needed. The monthly forecast adjustment has an objective cap that limits the CAISO's discretion. The amount of the forecast adjustment calculated for each month cannot exceed the forecasted monthly peak operating reserves multiplied by the difference between (1) the historic percentage of operating reserves met by flexible resource adequacy capacity and (2) the percentage calculation that results from dividing the higher of the 3.5 percent or the most severe single contingency by the forecasted monthly peak operating reserves.

Following the example above, the CAISO requires 2,450 MW of contingency reserves to address a 35,000 MW forecasted peak. The flexible capacity need already contemplates that flexible capacity will provide 50 percent of the contingency reserves (1,225 MW). If a review of historic data shows that flexible capacity resources have actually provided 70 percent of contingency reserves, then the forecast adjustment cannot exceed 20 percent (the percent by which flexible capacity actually used for contingency reserves exceeded the expected percentage), multiplied by 1,225 MW (which already accounts for flexible capacity providing contingency reserves), which results in an adjustment of 245 MW.

The CAISO added this limitation in response to stakeholder concerns that the forecast adjustment lacked parameters and gave the CAISO too much discretion to

determine when the forecast adjustment should be applied and in what amount. In calculating the adjustment factor, the CAISO will evaluate the historic portion of contingency reserves served by flexible capacity resources relative to the amount of contingency reserves already contemplated by the 3.5 percent or most severe single contingency component. The CAISO may not adjust the overall flexible capacity need by more than this amount.

The CAISO will be transparent regarding the need for and calculation of a forecast adjustment. If the CAISO includes a forecast adjustment in its draft study results, it will explain why the adjustment is necessary and how it will allocate the adjustment in the draft flexible capacity needs assessment. The CAISO will reach a final determination on the forecast adjustment based on collaboration with the CPUC and other local regulatory authorities, and stakeholders through the stakeholder process.⁵²

Some stakeholders object to the forecast adjustment in general. This position ignores that, unless the CAISO is able to make such incremental changes through the forecast adjustment, the CAISO may not have sufficient flexible capacity available in real-time to address ramping or load following needs. This could unnecessarily increase the CAISO's reliance on exceptional dispatch and backstop procurement. Conversely, if the CAISO reduces the flexible capacity need through the forecast adjustment, such action will reduce the quantity, and hence the cost, of flexible capacity that load serving entities must procure. Further, the proposed cap will limit the extent to which the forecast adjustment can impact the overall flexible capacity need.

B. Flexible Capacity Categories

As part of the flexible capacity needs assessment, the CAISO will determine the amounts of flexible capacity needed in each of the three availability categories.⁵³ In developing the flexible capacity categories, the CAISO's goal was to balance the complexity of having multiple categories to address very specific needs with the need for ensuring that the CAISO has sufficient flexible capacity to address the forecasted operational flexibility needs. Although the CAISO could ensure that all flexible capacity operational needs are addressed by having several very specific categories, this would result in overly complex flexible capacity needs determination with the potential for illiquid procurement in some categories. Alternatively, the CAISO could propose a single category, but that might not ensure that all flexibility needs are addressed and

⁵² See proposed Section 40.10.2.1(c).

⁵³ See proposed section 40.10.1.5

could unnecessarily preclude certain resources from providing flexible capacity. Accordingly, the CAISO is proposing a limited set of categories that it believes will reasonably ensure all flexible capacity operational needs are addressed.

1. Defining the Flexible Capacity Categories

The CAISO designed its proposed flexible capacity categories based on broad system operational needs. The specific categories are as follows:

- *Base ramping flexibility*:⁵⁴ This is the “premium” category of flexible capacity resources, providing the CAISO with the greatest all around assistance in meeting flexible capacity needs. Resources in this category must be able to provide at least six hours of energy at their effective flexible capacity value, have a minimum of two startups a day, and have daily availability seven days a week. Typical resources in this category would be conventional gas-fired resources, hydro resources, wind resources, and energy storage resources with long discharge capabilities.
- *Peak ramping flexibility*:⁵⁵ This category addresses less frequent ramping needs than the “base flexibility” category. Resources in this category must be able to provide at least three hours of energy at their effective flexible capacity value, have at least one startup per day, and have daily availability seven days a week. Use-limited conventional gas-fired resources, solar resources and conventional gas-fired peaking resources could be in this category.
- *Super-peak ramping flexibility*:⁵⁶ This category addresses each month’s most extreme ramping needs. Resources in this category must be able to provide at least three hours of energy at their effective flexible capacity value, respond to five dispatches per month, and have daily availability on weekdays that are not holidays. This category could accommodate, among others, short discharge battery resources providing regulation and demand response resources. This category would also allow for resources that are able to provide regulation under the CAISO’s regulation energy management provisions.

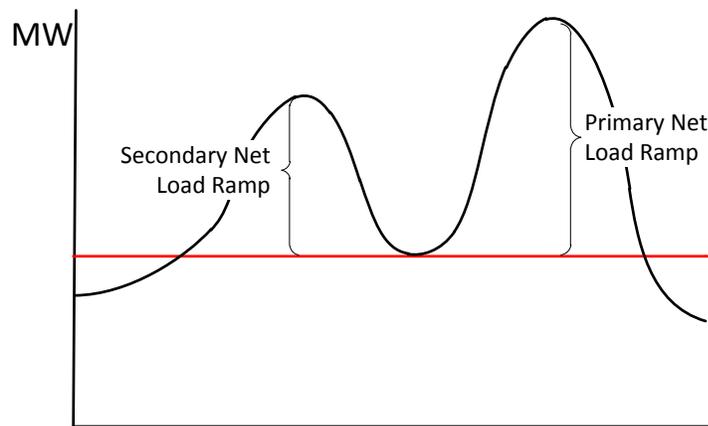
⁵⁴ See proposed Section 40.10.3.2.

⁵⁵ See proposed Section 40.10.3.3.

⁵⁶ See proposed Section 40.10.3.4.

The CAISO designed flexible capacity categories to account for both the primary and secondary three-hour net-load ramps, while considering the increasing number of days that the CAISO experiences two significant net load ramps. Figure 5 is a simplified representation of the CAISO's three-hour net load ramping needs. This is a common net-load shape on non-summer days. It shows the need for resources that can start and stop during the same day. It also shows the need to have resources available for two ramps. Further, it shows that the CAISO requires another set of resources that only need to be available to address the largest net load ramp of the day. These resources would address the difference between the secondary ramp and the primary ramp.

Figure 5



Given these operational considerations, the CAISO proposes to establish three “technology neutral” flexible capacity categories that are designed to meet the flexible capacity needs of the system as opposed to the needs of a particular technology type.⁵⁷ The different eligibility requirements and must-offer obligations of these categories recognize that not all flexible capacity resources need to be available all day every day. This should provide opportunities for resources such as demand response, energy storage, and variable energy resources to provide flexible capacity. The CAISO carefully crafted the categories to ensure that it can fully meet its flexible capacity needs, while allowing all types of resources to qualify to provide some form of flexible capacity.

⁵⁷ See proposed Section 40.10.3.1.

2. Determining the Quantities Needed In Each Category

The CAISO will calculate the amount of flexible capacity needed in each category for each month of the next calendar year to ensure that the CAISO can meet forecasted system operational needs. The CAISO will calculate the minimum quantity of flexible capacity needed in the base ramping category for each month based on the system ramping characteristics identified in the flexible capacity needs assessment and the changes in megawatts of the maximum secondary three-hour net-load ramps for each month within a season.⁵⁸ The CAISO will calculate the maximum quantity of flexible capacity in the peak ramping category for each month as the difference between the minimum quantity needed in the flexible capacity category for base ramping resources and the total flexible capacity need.⁵⁹ The maximum quantity of flexible capacity in the flexible capacity category for super-peak ramping resources will be five percent of the total flexible capacity need.⁶⁰

Several stakeholders requested that the CAISO attempt to simplify the amount of flexible capacity needed in each category by providing fixed percentages across months. In response to this request and based supporting data, the CAISO will determine fixed percentages for each flexible capacity category seasonally. Figure 3, above, shows a distinct seasonal difference in the distributions of the secondary net load ramps. Specifically, although Figure 2 shows that there is a large difference month-to-month in the largest three hour net load ramps (necessitating monthly flexible capacity needs), Figure 3 shows that the distributions of the secondary net load ramps – the primary determinant for the need for base ramping flexible capacity category -- for non-summer months are very similar. Likewise, the distributions for the secondary net load ramps for summer months are similar. That the differences in the characteristics and distributions of net load ramps are largely due to variations in the output of variable energy resources, and these variations are predominantly due to seasonal factors, supports the CAISO's decision to establish the fixed percentage of flexible capacity needed in each of the flexible categories on a seasonal basis.

The CAISO will divide the flexible capacity needs determination into two seasons that mirror the existing summer (May through September) and non-summer (January through April and October through December) seasons used for resource adequacy and then establish fixed percentages needed in each flexible capacity category for each

⁵⁸ See proposed Section 40.10.1.5(a) (1).

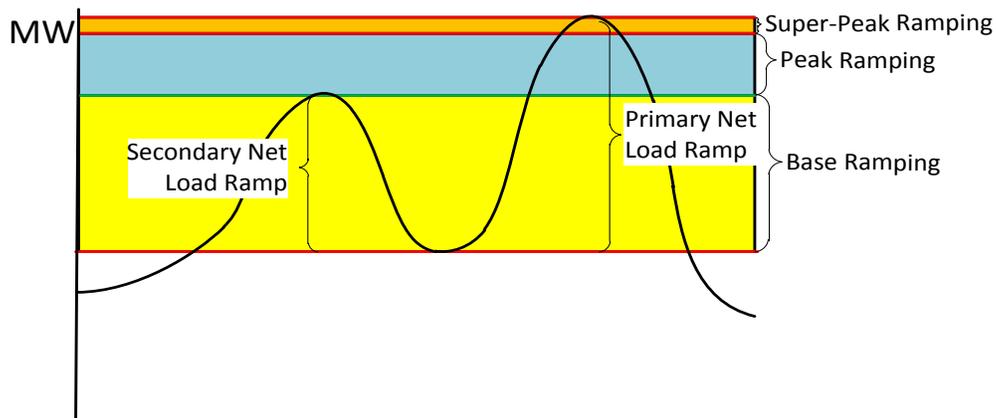
⁵⁹ See proposed Section 40.10.1.5(a) (2).

⁶⁰ See proposed Section 40.10.1.5.

month.⁶¹ This approach has two benefits. It mitigates the impact that variations in the net load ramp in any given month can have on determining the amounts for the various flexible capacity categories for a given season. For example, a month may have either very high or low secondary ramps that are simply the result of the weather in a given year. Second, maintaining a seasonal demarcation that is consistent with the current resource adequacy program will promote administrative efficiency and reduce the potential for errors in monthly flexible resource adequacy capacity showings.

Consistent with Figure 6, the CAISO will set the base ramping flexibility category at levels that reflect the largest secondary three-hour net-load ramp. The base ramping flexibility resources provide adequate flexible ramping capacity during all periods of the day except when the primary ramp exceeds the secondary ramp. The CAISO will need base ramping capacity throughout this period. Because the other two flexible capacity categories reflect needs during a shorter, discrete, part of the day, they provide an opportunity for units that cannot meet the availability requirements of the base ramping flexibility category to provide flexible capacity.

Figure 6



⁶¹ The CAISO also reviewed the results of the initial calculations for categories used in the 2013 Flexible Capacity Needs Assessment to determine if the categories aligned with the previous assessment.

The peak ramping flexibility in Figure 6 represents the difference between largest secondary three-hour net load ramp and the maximum three-hour net load ramp. The CAISO will calculate the maximum quantity of flexible capacity allowed in this category as the difference between the minimum quantity of base ramping flexibility and total flexible capacity need.⁶²

The super peak ramping flexibility is capped at 5 percent of the maximum 3-hour net-load ramp because these resources will not be available to meet the CAISO's needs outside the specified availability periods.⁶³

C. Allocating Flexible Capacity Requirements

Each year, at least 120 days prior to the due date for the annual flexible capacity resource adequacy plans, the CAISO will inform each local regulatory authority or metered subsystem of the share of the overall system flexible capacity requirement (as determined by the flexible capacity needs assessment) attributable to load serving entities under the jurisdiction of the authority.⁶⁴ The CAISO establishes the monthly flexible capacity need based, in large part, on the maximum monthly system three-hour net load ramp, plus expected overlap for contingency reserves.

The CAISO proposes to allocate the monthly system flexible capacity need to each local regulatory authority based on the contribution of its jurisdictional load serving entities to each of the component parts of the need. Specifically, the CAISO will calculate a local regulatory authority's or metered subsystem's share of the monthly maximum three-hour net load ramp as the average, during the five highest three-hour net-load changes in the month, of the sum of the jurisdictional load serving entities' change in load, minus the change in wind output, minus the change in solar photovoltaic output, minus the change in solar thermal output.⁶⁵ The CAISO will determine each load serving entity's forecasted net load changes and forecasted variable energy resource output changes based on its contracted amounts of variable energy resources. The CAISO will determine the contribution to each component using historical data for load and forecasts for the other components. The CAISO will calculate net load by taking the forecasted load and subtracting the forecasted electricity production from variable generation resources, wind and solar.⁶⁶ Proposed Section 40.10.2 also provides that

⁶² See proposed Section 40.10.3.3.

⁶³ See proposed Section 40.10.3.4.

⁶⁴ See proposed Sections 40.10.2 and 40.10.2.2.

⁶⁵ See proposed Section 40.10.2.1(a).

⁶⁶ See proposed Section 40.10.2.1(a).

nothing in Section 40 obligates any individual load serving entity to demonstrate that it has procured flexible capacity resources to satisfy a minimum or maximum quantity needed, as applicable, within each flexible capacity category.

The following example illustrates the calculations the CAISO will make when determining a local regulatory authority's allocable share of the three-hour net load changes.

**Example Allocation with Forecasted Monthly Maximum
 3-Hour Net Load Ramp in the Evening**

ISO flexible capacity need assessment	
Δ load	4,500
Δ wind	-2,000
Δ solar PV	-2,500
Δ solar thermal	-1,000
Total flexible capacity need	10,000

LRA	LRA's percent contribution to load change during historic top five daily maximum three hour net load ramp in a month
LRA 1	35%
LRA 2	30%
LRA 3	20%
LRA 4	15%

LRA	Average percent contribution to change in wind output during the five largest forecasted net load changes in a month	Average percent contribution to change in solar PV output during the five largest forecasted net load changes in a month	Average percent contribution to change in solar thermal output during the five largest forecasted net load changes in a month
LRA 1	40%	30%	70%
LRA 2	20%	35%	20%
LRA 3	25%	15%	0%
LRA 4	15%	20%	10%

LRA	Load contribution	Wind contribution	Solar PV contribution	Solar Thermal contribution	Total contribution
LRA 1	.35 x 4,500 = 1,575 MW	.40 x -2,000 = -800 MW	.30 x -2,500 = -750 MW	.70 x -1,000 = -700 MW	3,825
LRA 2	.30 x 4,500 = 1,350 MW	.20 x -2,000 = -400 MW	.35 x -2,500 = -875 MW	.20 x -1,000 = -200 MW	2,825
LRA 3	.20 x 4,500 = 900 MW	.25 x -2,000 = -500 MW	.15 x -2,500 = -375 MW	.00 x -1,000 = 0 MW	1,775
LRA 4	.15 x 4,500 = 675 MW	.15 x -2,000 = -300 MW	.20 x -2,500 = -500 MW	.10 x -1,000 = -100 MW	1,575
Total	4,500	-2,000	-2,500	-1,000	10,000

The CAISO will determine each load serving entity's share of the most severe single contingency or 3.5 percent of forecasted peak load based on its respective peak load ratio share. The CAISO will also determine for each local regulatory authority or metered subsystem the sum of each of its jurisdictional load serving entities' shares.⁶⁷

The CAISO's proposed allocation methodology is based on generally accepted cost allocation principles. The CAISO will calculate the system flexible capacity need based on the coincident maximum system ramp. The CAISO's allocation methodology effectively captures each load serving entity's contribution to the coincident maximum net-load ramp and thus better reflects cost causation than other potential allocation methodologies. The coincident peak ramp methodology recognizes that the flexible capacity requirement is designed to meet the CAISO's maximum system-wide flexible capacity need, not the discrete needs of individual load serving entities. The Commission has approved the use of coincident peak methodologies to allocate costs to meet needs that are attributable to system peak loads,⁶⁸ and the same rationale applies to allocating capacity requirements to meet the system maximum net load ramp.

The CAISO will provide each local regulatory authority with the breakdown of the individual contribution of each of its load serving entities. Specifically, the CAISO will provide the local regulatory authority the percent contributions to change in load, wind, and solar for each of its jurisdictional load serving entities. Local regulatory authorities will be responsible for establishing procurement obligations for their jurisdictional

⁶⁷ See proposed Section 40.10.2.1(b).

⁶⁸ See, e.g., *Southwest Pub. Serv. Co.*, 144 FERC ¶ 61,133, at P 2 (2013); *Golden Spread Elec. Coop., Inc. v. Southwest Pub. Serv. Co.*, 144 FERC ¶ 61,132, at P 25 (2013).

entities. The local regulatory authority may allocate its portion of the identified monthly flexible capacity need to its jurisdictional load serving entities based on the methodology it finds to be appropriate. For example, under its current rules, the CPUC will allocate the CPUC's share of the flexible capacity need among its jurisdictional load serving entities based on their share of peak load.⁶⁹

One stakeholder asserted that the CAISO should allocate flexible capacity needs based on non-coincident maximum three-hour net load ramps because it would avoid free-rider problems. To the contrary, such proposal would actually encourage free-ridership. A load serving entity that contributed significantly to the monthly peak three-hour net load ramp, could "free-ride" on another load-serving entity that had a much smaller contribution to the monthly peak three-hour net load ramp or might even be helping to mitigate this ramp because it is allocated a larger portion of the three-hour net load ramp than its actual contribution. For example, one load serving entity may decrease the magnitude of the maximum three-hour net load ramp. However, if flexible capacity allocations are based on non-coincident ramps, this load serving entity would have flexible capacity requirements that do not reflect this. On the flip side, a load serving entity that contributed significantly to the three-hour net load ramp will be allocated a lower flexible capacity requirement than what it actually caused. The load serving entity that is helping to mitigate the load ramp would essentially subsidize the load serving entity that is contributing to the three hour net load ramp. Allocating flexible capacity need to a local regulatory authority based on non-coincident peak ramp would not incent its load serving entities to reduce their contribution to the three hour net load ramp because they would only be allocated a portion of their actual contribution. A load serving entity will be fully incented to reduce its contribution to the net load ramp only if it is allocated its full "contribution" to that ramp.

A non-coincident peak allocation does not follow cost causation principles because it does not reflect a load serving entity's contribution to the CAISO's flexible capacity need, which is based on the system's maximum coincident system maximum ramp. In other words, it creates "disconnect" between the basis for the CAISO's determination of need and the CAISO's allocation of the need. As the Market Surveillance Committee noted, this stakeholder's allocation proposal "stands in contradiction to established economic principles of marginal cost pricing and peak load pricing theory."⁷⁰

⁶⁹ Decision Adopting Local Procurement and Flexible Capacity Obligations for 2015, and Further Refining the Resource Adequacy Program, cited supra, p. 66.

⁷⁰ MSC Opinion at 13-14.

The same stakeholder also objected to the CAISO's proposal to allocate the flexible capacity need based on the monthly average of five highest peak ramps. The stakeholder instead recommended that the CAISO allocate the need based on each load serving entity's peak ramp contribution. An averaging approach is appropriate in this instance, however, to smooth out any anomalies in individual load serving entity conditions during the month. Use of a single ramp that resulted from anomalous conditions for a particular load serving entity could inappropriately skew the allocation. The CAISO must ensure that sufficient flexible capacity is available to address the single largest three-hour net load ramp. The single peak ramp contribution of the load serving entities under the jurisdiction of a particular local regulatory authority to that net load ramp may not be generally representative of those load-serving entities' contribution to the most significant three-hour net load ramps within a month. A single peak ramp contribution may be a somewhat random event when compared to a more representative sampling of data points across the applicable month. Using the average contribution to the top five three-hour net load ramps reduces the randomness of a single contribution and offers a more holistic view of the contribution to the flexible capacity need. The CAISO believes this is a fairer and less arbitrary approach compared to using just one ramp. The CAISO's analysis also showed that the five highest ramps constituted a representative sample of the large ramps. Finally, unlike "averaging" approaches suggested by stakeholders in different contexts, allocating monthly needs to load serving entities based on the average of their five highest monthly ramps will not leave the CAISO short of capacity because it does not change the monthly flexible capacity need.

Another stakeholder expressed concern that the CAISO's proposed allocation methodology does not properly reflect each load serving entity's contribution to monthly flexible capacity needs because the allocations, particularly in the summer months, are prone to atypical data and modeling effects that do not reflect true operating conditions or a resource group's actual impact on flexible capacity needs. The stakeholder suggested a further averaging of the allocation for the four summer months. This approach ignores that the CAISO is allocating flexible capacity needs on a monthly basis, not on a seasonal basis. Data shows that flexible capacity needs can vary materially month-to-month. A seasonal allocation based on a four-month average fails to capture the needs attributable to a load-serving entity in a single month and could leave the CAISO short of flexible capacity in a given month where there is a greater-than-average need. Moreover, merely averaging the allocation factors over a four-month period would not resolve any underlying data or modeling irregularities that may exist or change the overall amount of capacity that is allocated to the load serving entity during that four-month period. Because the CAISO's proposal is interim in nature, the CAISO will continue to monitor and assess this situation.

Another concern was that the CAISO's allocation process should account for changes in distributed resource output. The CAISO believes at this time that it is preferable to rely on a load-serving entity's overall historic load contribution. Although distributed energy is increasing in the CAISO's balancing authority area, there is no evidence that it is increasing disproportionately in certain load serving entities' service territories (thus creating an inequitable allocation based on load changes). The impact of distributed energy resources is merely a component of overall load variability, which is how the CAISO views it in real-time. However, the CAISO commits to collect data regarding the increase of distributed energy resources to assess how this increase might impact flexible capacity needs.

Other stakeholders argued that the CAISO should allocate flexible capacity needs caused by variable energy resources directly to variable energy resources, rather than to load-serving entities. The proposed amendment builds upon the existing resource adequacy model which assigns resource adequacy requirements to load serving entities. Imposing resource adequacy obligations on generating resources would be a dramatic change in the current resource adequacy construct. In approving the CAISO's resource adequacy program, the Commission has already found that imposing resource adequacy obligations on load serving entities is just and reasonable. There is no basis to find that it is not just and reasonable in this instance.

Lastly, the Federal Power Act allows a utility like the CAISO to implement any cost allocation approach within a range of reasonable rate methodologies.⁷¹ For all the reasons described above, the Commission should accept the CAISO's proposal as a just and reasonable cost allocation approach.

D. Resource Eligibility for Flexible Capacity Categories

Under the CAISO's proposal, a resource is eligible to provide flexible resource adequacy capacity in each flexible capacity category for which it meets the qualifications in proposed Section 40.10.3.

A base ramping resource must be capable of providing energy for a minimum of six hours up to its full effective flexible capacity value including its minimum operating

⁷¹ See, e.g., [Montana-Dakota Util. Co. v. Northwestern Pub. Serv. Co., 341 U.S. 246, 251 \(1951\)](#) ("Statutory reasonableness is an abstract quality represented by an area rather than a pinpoint. It allows a substantial spread between what is unreasonable because too low and what is unreasonable because too high."); *Midwest Independent Transmission System Operator, Inc.*, 137 FERC ¶ 61,074, at P 210 (2011) ("The Commission also determined, and we continue to find, that the MVP Proposal is within the range of reasonable cost allocation methods.").

capacity (“PMin”) and must be capable of being available seven days a week.⁷² The resource must be able to provide (1) the minimum of two start-ups per day for every day of the month or sixty start-ups per month, or (2) the number of start-ups allowed by its operational limits, including minimum up and minimum down time. The resource must not have annual or monthly limitations on the number of start-ups or the amount of energy produced that, on a daily basis, are lower than these requirements. A use-limited resource or non-generator resource is eligible for this category if it meets these criteria. In addition, a load serving entity may include in this category a “combined resource” consisting of two use-limited resources that do not individually meet the minimum operational and availability requirements for a base ramping resource, but in combination meet the criteria. A non-generator resource that elects to provide flexible resource adequacy capacity and regulation energy management is not eligible to be included in this category because it may not be able to sustain energy charge or discharge for the requisite period.

A peak ramping resource must be capable of providing energy for a minimum of three continuous hours up to its full effective flexible capacity value including PMin and be capable of being available seven days a week.⁷³ The resource must be capable of at least one start-up per day. The resource must not have annual or monthly limitations on the number of unit start-ups or the amount of energy produced that, on a daily basis, are lower than these requirements. Use-limited resources and non-generator resources are eligible for this category if they meet these criteria. A non-generator resource that elects to provide flexible resource adequacy capacity and regulation energy management is not eligible to be included in this category for the same reasons discussed above.

A super-peak ramping resource must be capable of providing energy for a minimum of three continuous hours up to its full effective flexible capacity value including PMin.⁷⁴ The resource must be capable of being available on weekdays that are not holidays, of at least one start-up per day, and of responding to at least five CAISO dispatches per month, during the five-hour period of the must-offer obligation, for the resource to start-up. Use-limited resources and non-generator resources that are not registered as regulation energy management resources may be included in this category if they meet these criteria. A non-generator resource that is a regulation energy management resource may be included in this category if it is capable of being available seven days a week and have unlimited start-ups per day.

⁷² See proposed Section 40.10.3.2.

⁷³ See proposed Section 40.10.3.3.

⁷⁴ See proposed Section 40.10.3.4.

Some stakeholders argued that the proposed flexible capacity categories are overly restrictive and prevent flexible resources from counting as a base flexibility resource. They suggested that the CAISO should allow resources with significant start and energy limitations to count as base flexibility resources. In response to these comments, the CAISO revised its proposal to allow a load serving entity to combine two use-limited resources to meet the base flexible capacity obligation, as discussed above.⁷⁵ This provides much of the flexibility that these stakeholders sought, while not undermining the CAISO's reliability and flexible capacity needs.

The CAISO is concerned, however, that if it broadens the eligibility criteria for base ramping resources beyond the exceptions to use limited resources already included, it will not have sufficient flexible capacity available to maintain reliability and meet identified flexibility needs. Resources with severe use limitations are not suited to address base flexibility needs given the persistent nature of these needs. For example, Figure 3 above shows the distribution of the second largest unique ramp in a day. The CAISO forecasts that it will have two separate and distinct ramps greater than 7,500 MW on at least half the days in October. A resource limited to 40 starts per month, or less, would not be available to address the frequency of ramping that a base ramping resource must address. Additionally, if the CAISO does not set uniform requirements for the base flexibility category, individual local regulatory authorities could count resources with severe use limitations for base flexibility. This could lead to a local regulatory authority leaning on the flexible capacity procurement of other local regulatory authorities that only counted resources that are truly capable of providing base flexibility service. It could also force the CAISO to use its exceptional dispatch or backstop procurement authority to procure the needed capacity. For these reasons, the CAISO does not propose to change the eligibility requirements for the base ramping flexible capacity category at this time, but may consider this issue further as part of its ongoing reliability services initiative.

At this time, the CAISO proposes to exclude imports other than pseudo-ties or dynamically scheduled import resources from providing flexible resource adequacy capacity.⁷⁶ A stakeholder argued that this is unduly discriminatory. However, for purposes of providing the proposed flexible capacity product – which requires meeting both long ramps and five-minute load following – external resources with hourly or 15-minute schedules are not similarly situated to internal resources and dynamically-scheduled or pseudo-tied external resources. Based on currently available information,

⁷⁵ See proposed Section 40.10.3.2(c) (2).

⁷⁶ See proposed Section 40.10.3.6.

the CAISO concluded that its ability to use flexible ramping capacity and meet its flexible capacity needs requires that it be able to dispatch the capacity on a five-minute basis. Static imports cannot meet this requirement. Allowing 15-minute or hourly static imports to provide flexible capacity would require the CAISO to “go back to the drawing board” and completely change the flexible capacity product. That is inappropriate at this time and unnecessary in light of the CPUC’s decision to preclude resources submitting 15-minute static schedules from providing resource adequacy flexible capacity. Further, nothing prohibits an external resource that wishes to provide flexible capacity from entering into a dynamic scheduling or pseudo-tie arrangement and providing the service.

The CAISO recognizes that 15-minute dispatchable intertie resources may be able to meet a portion of the CAISO’s five minute ramping needs but, because the CAISO only implemented 15-minute scheduling on the interties on May 1, 2014, the CAISO does not have sufficient analysis or experience with 15-minute dispatchable intertie resources to assess their ability to meet the CAISO’s flexible capacity needs. The CAISO has committed to re-evaluating the effectiveness of the flexible capacity requirements in 2016, including consideration of whether enhancements are needed to meet system flexibility needs or provide opportunities for resources that are not dispatchable on a five-minute basis to provide a portion of the flexible capacity needs.

Accordingly, the CAISO’s restriction on imports is an interim mechanism. The CAISO intends to address this issue, and other issues, in a future stakeholder process when more data is available, and it can comprehensively study the matter. In the meantime, a resource outside the CAISO’s balancing authority area that wishes to provide flexible resource adequacy capacity has the option of becoming a pseudo-tie or making arrangements for dynamic scheduling. The Commission has approved such interim proposals as just and reasonable until a utility collects more data to determine whether there is a more appropriate alternative.⁷⁷ Further, a proposal need not be the only reasonable or even the most reasonable proposal for the Commission to approve it as just and reasonable.⁷⁸

E. Effective Flexible Capacity

⁷⁷ See, e.g., *Cal. Indep. Sys. Operator Corp.*, 131 FERC ¶ 61,148, at P 16 (2010) (“We accept the CAISO’s proposal to temporarily hold non-resource specific system imports to the same availability standard as in-area resources. We find that this represents an acceptable interim solution in the absence of adequate data on non-resource specific imports.”).

⁷⁸ See, *Oxy USA, Inc. v. FERC*, 64 F.3d 679, 691, 314 U.S. App. D.C. 175 (D.C. Cir. 1995); *City of Bethany v. FERC*, 727 F.2d 1131, 1136, 234 U.S. App. D.C. 32 (D.C. Cir. 1984).

The CAISO will calculate an effective flexible capacity value for each resource that will identify the maximum amount of flexible capacity the resource may provide unless a local regulatory authority has established criteria for calculating the effective flexible capacity value for eligible resource types.⁷⁹ As discussed below, the CAISO will use the effective flexible capacity values it calculates to determine whether a cumulative deficiency exists in the flexible resource adequacy capacity included in the annual and monthly plans of the load serving entities.

The CAISO will calculate the effective flexible capacity value for each resource that submitted at least one economic bid for energy in the real-time market on at least 10 days in the previous calendar year, or in the most recent 12-month period for which data is available, taking into account a resource's net qualifying capacity, minimum operating level, start-up time, and average ramp rate.⁸⁰

The CAISO will use the following formulas, with except for the resource types discussed below, for determining the effective flexible capacity of a resource:

If start-up time of a resource is greater than 90 minutes:

EFC is limited to the MW range between PMin and Net Qualifying Capacity (NQC) as limited by ramp rate

EFC = minimum of (NQC-PMin) or (180 min * RRavg)

If start-up time of a resource is less than or equal to 90 minutes:

EFC is limited to the MW range between zero and NQC as limited by start-up time and ramp rate

EFC = minimum of (NQC) or (PMin + (180 min – SUT) * RRavg)

Where: SUT = Longest (cold) RDT start-up time in minutes

RRavg = Weighted average MW/min ramp rate between PMin and NQC

A hydro resource will qualify as flexible capacity for the amount of output its physical storage capacity allows it to provide as energy equivalent to output for six

⁷⁹ See proposed Sections 40.10.4 and 40.10.4.1.

⁸⁰ See proposed Section 40.10.4.4.1.

hours.⁸¹ The CAISO proposes to determine the effective flexible capacity of demand response resources based on a test event during the demand response resource's selected flexible capacity must-offer obligation window.⁸² The test event would occur randomly, and the CAISO will use the previous ten days load data for the proxy demand response resource to measure the load reduction and pay the resource's bid price for the testing period. The CAISO can use any actual demand response dispatch as a measurement of the demand response resource's effective flexible capacity.

The CAISO, in conjunction with stakeholders, considered multiple start-up times for calculating the effective flexible capacity of a resource, including 60, 90, 120, and 180 minutes. The CAISO had to consider the need to address load following as well as three-hour ramps. The CAISO determined that calculating a resource's effective flexible capacity using long start up times could lead to a resource counting for only its ramp to PMin. As such, the CAISO focused on start-up times less than half of the three hour time frame to ensure that resources have significant ability to provide flexible capacity beyond simply ramping to PMin. The CAISO's assessment of 60 minutes and 90 minute start-up time showed a difference of approximately 500 MW of effective flexible capacity. Because the difference between these two start-up times was small, the CAISO proposes to use the 90-minute start up time.⁸³ As noted above, the CPUC also found this to be a reasonable start up time for determining the effective flexible capacity resources.

The CAISO will publish the draft and final lists of the effective flexible capacity values for such resources on the CAISO website each year for use in the next calendar year. The scheduling coordinator for a resource that seeks to be added to the draft list of effective flexible capacity values or that seeks to change the value listed, must submit a request to the CAISO and provide documentation to support its request. The CAISO will review the submitted information and notify the scheduling coordinator whether the change was accepted.

The final list of Effective Flexible Capacity values cannot be changed during that year unless the net qualifying capacity or PMax of a resource included on the list is changed in the master file, or a resource identified as under construction, or other new resource, achieves commercial operation during the year. Any disputes regarding the CAISO's effective flexible capacity determination are subject to the CAISO alternative

⁸¹ See proposed Section 40.10.4.1(b).

⁸² See proposed Section 40.10.4.1(c).

⁸³ See proposed Section 40.10.4.1(a).

dispute resolution procedures.

Stakeholders raised some issues regarding the CAISO's rules for determining effective flexible capacity. Certain stakeholders stated that the proposed calculation for thermal units – the weighted average ramp rate calculated from the minimum operating level (for longer start units) or zero (for shorter start units) to net qualifying capacity⁸⁴ – is not appropriate for combined heat and power units. To accommodate this concern, the CAISO revised its proposal to use the lesser of the combined heat and power unit's net qualifying capacity or the difference between the resource's maximum output and minimum operating level or its capability over three hours.⁸⁵

In addition, some parties recommended that the CAISO include the charging portion of storage resources in its effective flexible capacity. The CAISO revised its proposal to accommodate this concern by allowing energy storage resources that are a non-generator resources not registered as regulation energy management resources to provide flexible capacity that includes both the charging and discharging capabilities of the resource. The CAISO proposes to measure the effective flexible capacity of an energy storage resource that does not provide regulation energy management as the output range the resource can provide over three hours of charge or discharge while constantly ramping.⁸⁶ This is an initial step in establishing a methodology to calculate the effective flexible capacity value of energy storage resources, as the CAISO, CPUC, and other parties collaborate to establish a qualifying capacity counting methodology for energy storage resources to count toward meeting load serving entities' generic resource adequacy requirements.

F. Flexible RA Capacity Annual and Monthly Plans

Scheduling coordinators for load serving entities, other than load-following metered subsystems, must submit to the CAISO annual and monthly flexible resource adequacy capacity plans showing the flexible capacity they have procured to comply with their local regulatory authority's resource adequacy requirements.⁸⁷ The submission requirements and schedule are nearly identical to the existing tariff provisions regarding the submission of annual and monthly resource adequacy plans.

⁸⁴ See proposed Section 40.10.4.2(a).

⁸⁵ See proposed Section 40.10.4.2(f).

⁸⁶ See proposed Section 40.10.4.2(d).

⁸⁷ See proposed Section 40.10.5.1.

Scheduling coordinators for load serving entities must submit the annual plan by the last business day of October prior to the upcoming resource adequacy year. The annual plan must demonstrate that the load serving entity has either procured for each month at least 90 percent of the annual flexible capacity requirement determined by the CAISO or the amount required by the load-serving entity's local regulatory authority, if the local regulatory authority has set such requirement. The plan must identify the resources on which the load-serving entity intends to rely to meet its flexible capacity obligations. The annual plan need not identify flexible resource adequacy categories.

Scheduling coordinators for load serving entities must submit monthly plans at least 45 days before the relevant resource adequacy month. The monthly plan must demonstrate that the load-serving entity has procured 100 percent of the flexible capacity requirement determined by the CAISO or the amount required by the load-serving entity's local regulatory authority, if the local regulatory authority has set such requirement. The monthly plan must also show that the load serving entity has met the flexible capacity requirement for each flexible capacity category established by the CAISO or by the local regulatory authority, if the local regulatory authority has established such requirements. Load-serving entities can revise their plans up until 11 days prior to the beginning of the month.

A Scheduling Coordinator for a resource that provides flexible resource adequacy capacity must also submit annual and monthly plans. The annual plan must verify the resource's agreement to provide flexible resource adequacy capacity during the next year. The monthly plan must verify the resource's agreement to provide flexible resource adequacy capacity during the month.⁸⁸

The Scheduling Coordinator for the Load Serving Entity may submit a revision to its monthly LSE Flexible RA Capacity Plan to correct an error in the plan at any time from 45 days through 11 days in advance of the first day of the month covered by the plan.

Due to timing constraints, the CAISO will not require an annual flexible capacity showing for the 2015 resource adequacy compliance year.

G. Evaluation of Flexible Resource Adequacy Capacity Plans

Unless the local regulatory authority has established its own flexible capacity procurement requirements, the CAISO will validate the annual and monthly flexible resource adequacy capacity plans of the individual load serving entities and determine

⁸⁸ See proposed Section 40.10.5.2.

whether each load serving entity has met its requirements. In validating the plans, the CAISO will use the effective flexible capacity values that it calculated for the resources in the plan.⁸⁹

If the local regulatory authority has established its own flexible capacity procurement requirements, and has advised the CAISO of those requirements, the CAISO will not validate the individual load serving entity flexible capacity plans for that local regulatory authority's jurisdictional load serving entities.⁹⁰ This aspect of the proposal accommodates concerns expressed by the CPUC that the local regulatory authority should have the primary role of determining how a resource counts toward meeting a load serving entity's resource adequacy flexible capacity procurement requirement if the local regulatory authority has set one.

However, consistent with its existing authority, the CAISO will compare the annual and monthly flexible resource adequacy capacity plans of all load serving entities and resources to determine whether there is a discrepancy in the resources listed or the amount of the capacity committed.⁹¹

In addition, the CAISO will evaluate the flexible capacity resource adequacy plans of all load serving entities in the aggregate to determine if there is a cumulative deficiency -- *i.e.*, whether the total megawatts of flexible capacity included collectively in the plans meets the system flexible capacity need determined by the CAISO. The CAISO will make this determination using the effective flexible capacity value that it has calculated for each resource, rather than any determined by a local regulatory authority. As the balancing authority area and system operator, the CAISO must ensure it has sufficient flexible resources to maintain system stability and reliably operate the grid in accordance with NERC standards. The availability, or non-availability, of sufficient flexible capacity directly impacts the CAISO's day-to-day operations and the reliability of the grid. The CAISO cannot properly fulfill its responsibility if it must rely upon counting methodologies established by other entities.

The CAISO exercises comparable authority in determining the net qualifying capacity of resource adequacy resources,⁹² determining what qualifies as a use-limited resource,⁹³ setting local capacity requirements,⁹⁴ and calculating the effectiveness of

⁸⁹ See proposed Section 40.10.5.3(a).

⁹⁰ *Id.*

⁹¹ See proposed Section 40.10.5.3(b).

⁹² CAISO Tariff Sections 40.4.2, 40.4.4, 40.4.5, 40.4.6

⁹³ CAISO Tariff Section 40.6.4.1.

specific resources to determine if load serving entities have procured sufficient capacity to meet local area capacity needs.⁹⁵ The Commission has recognized that the CAISO “must play a greater role in setting local resource adequacy requirements because it is uniquely situated to assess capacity needs in constrained areas and load pockets.”⁹⁶ Similarly, the CAISO will perform the annual technical study to determine the minimum amount of flexible capacity that must be available to the CAISO each month to meet its expected operational needs and is thus best suited to determine the nature of the capacity that can fulfill those needs.

Moreover, the need for flexible capacity arises due to day-to-day conditions on the grid. These conditions create operational and system reliability issues that the CAISO manages. In its role as the system operator for its grid for over fifteen years and the entity responsible for operating the CAISO Controlled Grid and CAISO Balancing Authority Area in compliance with NERC and WECC reliability standards, the CAISO has extensive experience with and first-hand knowledge of individual resources’ actual capabilities, performance, and effectiveness at responding to the types of system conditions the CAISO will face.

Having consistent minimum availability requirements established by the CAISO will also prevent a local regulatory authority from over-counting the flexibility of its resources and thus leaning on other local regulatory authorities’ procurement. Also, over-counting the flexible capacity values of resources could leave the CAISO “short” in meeting its actual flexible capacity needs. Under these circumstances, it is just and reasonable for the CAISO to perform this role.

The CAISO will undertake three reviews of resource adequacy plans to evaluate the flexible resource adequacy capacity showings. First, the CAISO will evaluate the plans of individual load serving entities whose local regulatory authorities have not established flexible capacity requirements.⁹⁷ If the local regulatory authority has established its own flexible capacity procurement requirements, the CAISO will not validate the individual load serving entity’s flexible capacity plans for that local

⁹⁴ CAISO Tariff Sections 40.3 et seq.

⁹⁵ CAISO Tariff Sections 43.2.1.1, 43.2.1.2, and 43.2.2.

⁹⁶ *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶61,274 at P 1119 (2006). The Commission also recognized that the CAISO is “best positioned to make uniform and non-discriminatory determinations of net qualifying capacity through its assessment of deliverability, performance, and testing” and that the “CAISO’s role in determining what qualifies as a use-limited resource is consistent with its role in determining net qualifying capacity.” *Id.* at PP 1213, 1307. *see also Cal. Indep. Sys. Operator Corp.*, 115 FERC ¶61,172 at P 83 (2006).

⁹⁷ See proposed Section 40.10.5.3(a) (1).

regulatory authority's jurisdictional load serving entities.⁹⁸ If the CAISO's validation of an individual load serving entity's plan finds either (1) that the total amount of flexible resource adequacy capacity included in an annual or monthly plan is not sufficient to satisfy the load serving entity's allocated flexible resource adequacy capacity requirement or (2) that the total monthly requirement in a monthly plan was not met within the minimum or maximum quantity, as applicable, for each flexible capacity category, the CAISO will notify the load serving entity's scheduling coordinator and local regulatory authority at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a deficiency exists. If the CAISO issues a notice of deficiency, and the deficiency is resolved, the scheduling coordinator for the load serving entity must demonstrate, no less than 11 days prior to the first day of the month covered by the plan, that it has cured the identified deficiency by submitting a revised plan, or advise the CAISO that the load serving entity's local regulatory authority has determined that no deficiency exists. If the CAISO issues a notice of deficiency and is not advised that the deficiency is resolved, the CAISO will use the information contained in the resource plan to set the obligations of resources under Section 40 (e.g., must offer) and to assign any costs incurred pursuant to Section 43 (i.e., the capacity procurement mechanism).⁹⁹

Second, the CAISO will follow the same process and schedule for providing notice of a discrepancy between a load serving entity's plan and a resource plan, and allow the same opportunity for the discrepancy to be corrected.¹⁰⁰

Third, the CAISO will review all of the resource adequacy plans to determine whether there is a cumulative deficiency. If the CAISO's evaluation under proposed Section 40.10.5.3(c) finds a cumulative deficiency of flexible resource adequacy capacity after taking into account the resource adequacy showings of all load serving entities, the CAISO will identify each local regulatory authority that did not meet its allocable share of the flexible capacity need and each load serving entity that (1) is subject to the jurisdiction of a local regulatory authority that did not meet its allocable share of the flexible capacity need, and (2) did not include sufficient flexible resource adequacy capacity in an annual or monthly plan to meet its allocated flexible resource adequacy capacity requirement or did not meet the monthly requirement within the minimum or maximum quantity, as applicable, for each flexible capacity category, based on the allocation methodology of the local regulatory authority if it has established its own allocation methodology. The CAISO will follow the same process of notifying each

⁹⁸ See proposed Section 40.10.5.3(a) (2).

⁹⁹ See proposed Section 40.10.5.4.

¹⁰⁰ See proposed Section 40.10.5.3(b).

load serving entity's scheduling coordinator and local regulatory authority of the cumulative deficiency and provide the opportunity for the cumulative deficiency to be resolved.

H. Must-Offer Obligation

Resources included in the flexible capacity resource adequacy demonstration are subject to a flexible capacity must-offer obligation according to their assigned flexible capacity category.¹⁰¹ Resources shown as flexible resource capacity and as either system or local resource adequacy are subject to both system or local (whichever is applicable) and flexible must offer requirements. During the period a flexible capacity resource has a must-offer obligation, it must be operationally available except for limitations specified in the master file, legal or regulatory prohibitions or as otherwise required by the CAISO tariff or good utility practice.

Scheduling coordinators generally must bid energy and ancillary services from flexible resource adequacy capacity into the CAISO market. Through the integrated forward market co-optimization process, the CAISO will use available flexible resource adequacy capacity to provide energy or ancillary services in the most efficient manner to clear the energy market, manage congestion, and procure required ancillary services. A flexible resource adequacy capacity resource must participate in the residual unit commitment process to the extent that the resource has available flexible resource adequacy capacity that is not reflected in an integrated forward market schedule. Flexible resource adequacy capacity that the CAISO does not select in the residual unit commitment process will not be eligible to receive a residual unit commitment availability payment.¹⁰² The CAISO will not insert generated bids for flexible resource adequacy capacity that the scheduling coordinator fails to bid into the market. However, if the CAISO issues an exceptional dispatch instruction to such a resource for all or a portion of its flexible resource adequacy capacity, the resource will not be eligible for an exceptional dispatch capacity procurement mechanism designation.

The must-offer obligation for the flexible resource adequacy capacity for which the resource has been designated in a flexible capacity plan is as follows:

¹⁰¹ See proposed Section 40.10.6.1.

¹⁰² See proposed Section 40.10.6.1(d)

- *Base ramping flexibility:* Resources in this category must submit economic bids for energy and ancillary services into the CAISO market for the period from 5:00 a.m. to 10:00 p.m. every day.¹⁰³
- *Peak ramping flexibility:* Resources in this category must submit economic bids into the CAISO market for a five-hour period each day. The CAISO will determine this five-hour period for each month as part of the annual flexible capacity needs assessment, using its net-load ramping forecast.
- *Super-peak ramping flexibility:* Resources in this category have the same five-hour period obligation to submit economic bids as the “peak flexibility” category, but must respond to only five dispatches per month. Also, they would only be required to submit economic bids on non-holiday weekdays. Resources providing flexible capacity using regulation energy management are required to provide economic bids for regulation from 5:00 a.m. to 10:00 p.m. every day.

Use-limited resources must bid in accordance with their resource limitations.¹⁰⁴ Short start, medium start, and long start units providing flexible resource adequacy capacity that do not have an integrated forward market schedule or a residual unit commitment schedule for any of their resource adequacy capacity are required to participate in the real-time market consistent with applicable resource adequacy provisions. If those provisions require the resource to be available, the scheduling coordinator for the resource must submit in the real-time market for the trading hour for which the resource is capable of responding to dispatch instructions (1) energy bids for the full amount of the available flexible resource adequacy capacity, including capacity for which it has submitted ancillary services bids, and (2) ancillary services bids for the full amount of its flexible resource adequacy capacity, to the extent certified to provide ancillary services.¹⁰⁵ Flexible resource adequacy capacity resources that are extremely long-start resources must be available by complying with the applicable commitment process for those units or otherwise upon instruction from the CAISO, if physically capable. Once the CAISO commits an extremely long-start resource, it is subject to the must-offer provisions for flexible resource adequacy capacity.¹⁰⁶ Non-generator resources providing flexible resource adequacy capacity and regulation energy

¹⁰³ See proposed Section 40.10.3.2.

¹⁰⁴ See proposed Section 40.10.6.1(e).

¹⁰⁵ See proposed Section 40.10.6.1(f).

¹⁰⁶ See proposed Section 40.10.6.1(g).

management must submit bids for regulation up and regulation down for trading hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and cannot submit bids for energy or other ancillary services.¹⁰⁷

A stakeholder objected to requiring use-limited resources in the base ramping category to submit economic bids for energy and ancillary services into the CAISO market for the period from 5:00 a.m. to 10:00 p.m. every day. The stakeholder claimed that it is impractical for use-limited resources, such as hydroelectric facilities, to include the provision of ancillary services in their use plans because they will not know how that offer requirement will translate into actual energy usage. The stakeholder also commented that hydroelectric facilities are constrained by water management restrictions and other environmental objectives that may prevent them from offering ancillary services bids even when they are able to offer energy bids. The stakeholder suggested that use limited resources providing flexible resource adequacy capacity be exempt from the must-offer obligation for ancillary services, as they are from the must-offer obligation for generic resource adequacy capacity. The stakeholder argued that this exemption is consistent with the treatment of use-limited resources in the existing resource adequacy program.

The CAISO's proposed requirement that resources submit economic bids for ancillary services that are not flagged as contingency-only in the day-ahead market differs from the existing bidding requirements for use-limited resources providing resource adequacy capacity. A resource can fulfill its generic resource adequacy must-offer obligations by either self-scheduling or economically bidding into the CAISO's energy markets. However, when resource adequacy resources meet their must-offer obligation by self-scheduling, they are not actually available for dispatch by the CAISO without adjusting the self-schedule, and, therefore, are not flexible. Requiring flexible capacity resources to submit economic bids will allow the CAISO to efficiently dispatch flexible resources in an optimal manner. Increasing the pool of resources with economic bids in the CAISO markets will improve the CAISO's ability to maintain grid reliability through the efficient dispatch of flexible resources. Flexible capacity resources must submit economic bids for ancillary services without a contingency-only flag in order for the CAISO market to optimize and dispatch the resource when needed for flexible capacity. Exempting use-limited resources from the must-offer obligation for flexible resource adequacy capacity would be counter to the market optimization objective. Also, it would increase the probability that there will not be sufficient flexible resource adequacy capacity to meet system needs. That would require the CAISO to

¹⁰⁷ See proposed Section 40.10.6.1(h)

exceptionally dispatch resources or procure backstop capacity through a significant event designation under the capacity procurement mechanism.

Further, a use limited resource has the ability to limit its exposure to providing energy based on its water management or environmental restrictions. The use-limited resource may submit an annual use plan that identifies its expected daily supply capability and daily energy limit that would apply to its bidding requirement for flexible capacity.¹⁰⁸ The use-limited resource also has the option to provide flexible capacity under a flexible capacity category that has a shorter must-offer obligation than the base ramping resource category. For example, if a hydroelectric facility is eligible to provide all three categories of flexible capacity, it may choose the base ramping category with a 17-hour must offer-obligation, or the super-peak ramping category with a five-hour must offer obligation.

I. Backstop Procurement

The CAISO proposes to add authority to its existing capacity procurement mechanism to designate capacity to provide capacity procurement mechanism services if the CAISO determines that there is a cumulative deficiency in the total flexible resource adequacy capacity included in the annual or monthly plans, or in a flexible capacity category in a monthly plan.¹⁰⁹ A cumulative deficiency exists in annual plans if the total amount of flexible capacity shown in the plans of all load serving entities, based on the effective flexible capacity value determined by the CAISO for each resource, is less than 90 percent of the annual flexible capacity need.¹¹⁰ A cumulative deficiency exists in monthly plans if (1) the total amount of flexible capacity shown in the plans of all load-serving entities, limited on a collective basis to the maximum monthly requirement for each category once aggregated and based on the CAISO's effective flexible capacity values is less than the applicable monthly need or (2) the total amount of base flexible capacity shown in the plans of all load-serving entities, on a collective basis and based on the CAISO's effective flexible capacity values, is less than the

¹⁰⁸ CAISO Tariff Section 40.6.4.2 requires that “[t]he scheduling coordinator shall provide for the following Resource Adequacy Compliance Year a proposed annual use plan for each Use-Limited Resource that is a Resource Adequacy Resources. For each Use-Limited Resources that is a Resource Adequacy Resource but is not a Reliability Demand Response Resources, the proposed annual use plan will delineate on a month-by-month basis the total MWs of Generation, total run hours, expected daily supply capability (if greater than four hours) and the daily Energy limit, operating constraints, and the timeframe for each constraint.

¹⁰⁹ See proposed Sections 43.2 and 43.2.7.

¹¹⁰ See proposed Section 43.2.7(a).

applicable monthly need for base flexible capacity.¹¹¹ The ability to designate backstop capacity in the event there is a cumulative deficiency in procured flexible capacity is comparable to the CAISO's existing backstop authority under the capacity procurement mechanism.¹¹²

Existing and proposed safeguards mitigate any concerns that the CAISO might undertake unnecessary backstop. These safeguards provide transparency and require the CAISO to explain why it procured backstop flexible capacity. First, the CAISO will designate flexible capacity under the capacity procurement mechanism only if there is a deficiency after taking into account the flexible resource adequacy capacity showings of all load serving entities. Second, prior to designating backstop capacity, the CAISO will issue a market notice describing the cumulative deficiency and specifying the quantity of flexible capacity necessary to meet the applicable flexible capacity need, as determined in the evaluation of load-serving entities plans.¹¹³ Third, the CAISO will notify the local regulatory authorities and load serving entities that are deficient. Fourth, a scheduling coordinator for a load serving entity that is deficient may submit a revised annual or monthly flexible resource adequacy capacity plan demonstrating procurement of additional flexible capacity consistent with the market notice. The scheduling coordinator for a deficient load serving entity must submit a revised annual plan no later than December 31 for the following calendar year and a revised monthly flexible resource adequacy capacity plan no less than five days prior to the first day of the applicable month.¹¹⁴ Load serving entities will have two separate opportunities to cure any flexible resource adequacy capacity deficiency, once through the opportunity to cure a deficiency based on the CAISO's review of the resource adequacy plan¹¹⁵ and a second opportunity after the CAISO identifies that there is a cumulative flexible capacity deficiency.¹¹⁶ Finally, following the designation of capacity procurement mechanism capacity, the CAISO will publish a designation report indicating, among other things, the justification for the capacity procurement mechanism designation.¹¹⁷

¹¹¹ See proposed Section 43.2.7(b).

¹¹² CAISO Tariff Sections 43.2.1.1, 43.2.1.2, 43.2.2, and 43.2.3.

¹¹³ CAISO Tariff Section 43.6.1.

¹¹⁴ See proposed Section 43.2.7.1.

¹¹⁵ CAISO Tariff Section 40.7.

¹¹⁶ CAISO Tariff Section 43.4.1.

¹¹⁷ CAISO Tariff Section 43.6.2.

If the cumulative deficiency in the annual plans remains after the opportunity to revise plans, the CAISO may issue a flexible capacity capacity procurement mechanism designation with a minimum commitment term of one month and a maximum commitment term of one year, based on the period of overall shortage reflected in the annual plans. The commitment must begin and end in the same year. If a cumulative deficiency remains in monthly plans, the CAISO may issue a flexible capacity capacity procurement mechanism designation with a term of one month, which must begin and end in the same month.¹¹⁸ Capacity that is already committed as resource adequacy capacity, flexible resource adequacy capacity, replacement capacity, substitute capacity, reliability must-run capacity, or capacity procurement mechanism capacity is not eligible for a flexible capacity capacity procurement mechanism designation.¹¹⁹ Capacity on, or scheduled to be on, a forced outage, approved maintenance outage, or de-rate, is not operationally available and is not eligible to receive a flexible capacity capacity procurement mechanism designation for the duration of that unavailability.¹²⁰ In the event the CAISO determines that it must make a capacity procurement mechanism designation to resolve an overall deficiency of resource adequacy capacity and a designation to resolve a cumulative deficiency of flexible resource adequacy capacity for annual or monthly plans covering the same or overlapping time periods, the CAISO will endeavor to designate capacity that will be effective in resolving both underlying deficiencies. These requirements are consistent with existing capacity procurement mechanism provisions.

If the scheduling coordinator for a resource accepts a flexible capacity capacity procurement mechanism designation, the resource is obligated to perform for the full quantity and full period of the designation, subject to the must-offer obligation that applies to the flexible capacity category of the resource that was designated.¹²¹ To the extent a resource accepts simultaneous or overlapping designations as capacity procurement mechanism capacity and capacity procurement mechanism flexible capacity, that resource is subject to the must-offer obligations for both designations.¹²²

The CAISO will treat flexible capacity that it designates under the capacity procurement mechanism in the same manner as it treats capacity designated for other

¹¹⁸ See proposed Section 43.3.8.

¹¹⁹ See proposed Section 43.4.1(a).

¹²⁰ See proposed Section 43.4.1(b).

¹²¹ See proposed Section 43.5.2.

¹²² See proposed Section 43.5.3.

reasons.¹²³ The compensation will be identical. However, if a resource accepts simultaneous or overlapping designations, the megawatt amount of the capacity procurement mechanism capacity payments for the period the designations overlap shall be the highest megawatt amount of either designation. The CAISO will not pay the resource two capacity procurement mechanism payments for the same capacity.

The CAISO will allocate flexible capacity capacity procurement mechanism costs to the load serving entities that are deficient and under the jurisdiction of a local regulatory authority whose jurisdictional entities, in the aggregate, submitted deficient plans. The CAISO will allocate the costs among the local regulatory authority's jurisdictional load-serving entities using rules established by the local regulatory authority.¹²⁴ If the local regulatory authority does not establish rules for the allocation, the CAISO will allocate the costs proportionately to each jurisdictional load-serving entity that failed to meet its procurement obligation.¹²⁵

The CAISO must have backstop authority for cumulative resource adequacy flexible capacity deficiencies for the same reasons that gave rise to its backstop authority to designate capacity to address local area capacity deficiencies. The changing nature of the grid and the operational challenges the CAISO will face in the future create a need for flexible capacity that is just as important as the existing need for local capacity. Because the CAISO is responsible for ensuring the efficient and reliable operation of the transmission system under its control, it must have adequate resources to do so. If the CAISO cannot exercise backstop authority to meet the flexible capacity needs it has determined, and load serving entities do not procure a sufficient quantity or quality of capacity necessary to meet the CAISO's operational needs, the capacity deficit could severely interfere with the efficient and reliable operation of the grid.

The CAISO notes that the existing capacity procurement mechanism expires in February 2016. The CAISO has an ongoing initiative to address a replacement for the capacity procurement mechanism. Any future changes to the capacity procurement mechanism arising from that initiative will apply to flexible capacity as well.

J. Future Developments

As the resource adequacy program evolved, CAISO market participants identified a need for a standardized availability measure to facilitate the selling, buying

¹²³ See proposed amendment to Section 43.7.2 and subsections.

¹²⁴ See proposed Section 43.8.8(c).

¹²⁵ See proposed Section 43.8.8(b).

and trading of capacity to meet resource adequacy requirements. To meet that need, the CAISO adopted a standard capacity product on January 1, 2010. Through that process, the CAISO tracks the resource adequacy capacity subject to the standard capacity product provisions and determines the availability of that capacity during specified availability assessment hours of each month (*i.e.*, the extent to which the total amount of capacity for each resource adequacy resource is available and not on a forced equipment outage or de-rate). The CAISO then compares each resource's calculated availability to a monthly availability standard and calculates whether the resource should be assessed non-availability charges or should receive availability incentive payments depending on the direction and percentage by which the resource deviated from the monthly standard capacity product availability standard.

The CAISO has not as yet determined the need for the equivalent of the standard capacity product for flexible capacity. The CAISO intends to work with stakeholders to evaluate the need for such a product in a future stakeholder process.

The CPUC Staff asked the CAISO to include a sunset provision in the tariff under which all flexible resource adequacy criteria and must-offer obligation tariff provisions would expire at the end of 2017. The CAISO does not consider a sunset necessary or appropriate at this time. The CAISO has committed to conduct on-going assessments to determine how well the flexible capacity categories function to meet flexible capacity needs. Further, the CAISO will initiate a stakeholder process in the first quarter of 2016, after there has been a year's experience with the flexible capacity requirements, to discuss with stakeholders the findings of these ongoing assessments, as well as any recommendations for potential modifications to the flexible capacity requirements.

IV. MISCELLANEOUS AND CONFORMING CHANGES

Implementation of the flexible resource adequacy capacity provisions requires additional miscellaneous and conforming changes to the tariff:

- The CAISO has revised Section 43.1.1 to apply the capacity procurement mechanism expiration provision to the flexible capacity capacity procurement mechanism provisions in Section 43 and any flexible capacity capacity procurement mechanism designations in existence on the expiration date;
- The CAISO has revised Sections 43.4, 43.4.2, 43.5.1, 43.5.2, 43.6.2, 43.7.1, 43.7.1.1, 43.7.2, 43.7.2.1, 43.7.2.1.1, 43.7.2.1.2, 43.7.2.2, and 43.7.3 to apply generally applicable capacity procurement mechanism provisions in Section 43 to capacity procurement mechanism flexible capacity designations; and
- The CAISO has made minor administrative edits or corrections to Sections

43.4, 43.4.2, 43.5.1, 43.6.1, 43.6.2, and 43.7.3.

In addition, the CAISO proposes to delete Section 43.1 because it has expired.

V. EFFECTIVE DATE

The CAISO requests that the Commission issue an order on the proposed tariff amendments by October 16, 2014 and approve an effective date of November 1, 2014. Load serving entities will be required to make their first flexible resource adequacy showings by November 15, 2014, and they need sufficient notice and time to finalize their arrangements.

VI. COMMUNICATIONS

Communications regarding this filing should be addressed to the following individuals, whose names should be placed on the official service list established by the Secretary with respect to this submittal:

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VII. SERVICE

The CAISO has served copies of this transmittal letter, and all attachments, on the CPUC, the California Energy Commission, and all parties with effective Scheduling Coordinator Service Agreements under the CAISO tariff. In addition, the CAISO is posting this transmittal letter and all attachments on the CAISO website.

VIII. ATTACHMENTS

The following documents, in addition to this transmittal letter, support the instant filing:

- | | |
|---------------------|--------------------------------------|
| Attachment A | Revised CAISO Tariff Sheets – Clean |
| Attachment B | Revised CAISO Tariff Sheets – Marked |

The Honorable Kimberly D. Bose
August 1, 2014
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IX. CONCLUSION

For the reasons set forth above, the CAISO respectfully requests that the Commission approve the tariff modifications in Attachments A and B, effective as of November 1, 2014.

Respectfully submitted,

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Dated: August 1, 2014

Attachment A – Clean Tariff Sheets
Flexible Resource Adequacy Capacity Requirement Amendment
California Independent System Operator Corporation

40.10 Flexible RA Capacity

40.10.1 Flexible Capacity Needs Assessment

The CAISO shall annually conduct a study to determine the Flexible Capacity Need of the CAISO Balancing Authority Area for each month of the next calendar year and provide the results of the study in the Flexible Capacity Needs Assessment.

40.10.1.1 Process

- (a) **Schedule.** The CAISO shall conduct the study pursuant to the schedule set forth in the Business Practice Manual, which shall include a process for stakeholders to review and provide input on the study methodology and assumptions and on the draft study results.
- (b) **Completion and Distribution.** The CAISO shall provide the final results of the Flexible Capacity Needs Assessment to each Local Regulatory Authority in the CAISO Balancing Authority Area and post the Flexible Capacity Needs Assessment on the CAISO Website no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be submitted under Section 40.

40.10.1.2 Required Information From LSEs

- (a) **Submission Requirement.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required by this Section, no later than January 15 each year, for use in the CAISO's study to generate minute-by-minute net-load data that will be used to determine the Maximum Three-Hour Net-Load Ramp for each month.
- (b) **Required Information.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area must submit information that --
 - (1) covers the calendar year in which the information is submitted and each year in the next five-year period;
 - (2) identifies each wind and solar resource connected to the CAISO Controlled Grid, and distributed wind and solar resources, that is owned, in whole or in part, by the Load Serving Entity, or under contractual commitment to the Load Serving Entity, for all or a portion of its capacity;
 - (3) indicates the status of the resource as either in service or in development with its expected commercial operation date;

- (4) for each wind and solar resource, specifies the MWs of installed capacity, renewable energy area location, MWs of flexible capacity owned by or contractually committed to the Load Serving Entity, and other information required by the Business Practice Manual;
 - (5) describes the balancing services, if any, provided by another balancing authority area for a wind or solar resource that is located outside of the CAISO Balancing Authority Area and that is owned by or contractually committed to the Load Serving Entity; and
 - (6) forecasts the MW of installed, behind-the-meter solar capacity in the Load Serving Entity's service area or part of its forecast served load.
- (c) **Confidential Treatment.** The CAISO will treat the resource-specific information provided under Section 40.10.1.2(b) as confidential under Section 20.
- (d) **Aggregated Information.** In addition to the required resource-specific information, the Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required in Section 40.10.1.2(b) on an aggregated basis, as described in the Business Practice Manual, for inclusion in the Flexible Capacity Needs Assessment that will be posted on the CAISO Website.

40.10.1.2.1 Incomplete or Inaccurate Information.

- (a) **Rerun of Study.** If the CAISO finds that a Load Serving Entity submitted incomplete or inaccurate information under Section 40.10.1.2(b), which was used in the calculation of the Flexible Capacity Need for the next calendar year, the CAISO may rerun its study using corrected information to recalculate Flexible Capacity Need for the entire year.
- (b) **Criteria for Rerun.** The CAISO will not rerun its study to recalculate the Flexible Capacity Need unless: (1) the incomplete or inaccurate information represents a net error in excess of either (i) 200 MW; or (ii) one percent of the total MWs of wind and solar capacity submitted under Section 40.10.1.2(b) for any month; and (2) the CAISO has sufficient time to obtain corrected information and complete rerunning the study for the next calendar year by May 1.
- (c) **Revised Flexible Capacity Need.** If the CAISO determines that the requirements in Sections 40.10.1.2.1(a) and (b) are met, the CAISO will recalculate the Flexible Capacity Need for the next

calendar year and will no later than May 1 post a revised Flexible Capacity Needs Assessment on the CAISO Website.

40.10.1.3 Flexible Capacity Need Methodology

The CAISO shall conduct the study to determine the Flexible Capacity Need for the system for each month of the next calendar year as follows:

- (1) forecast the minute-to-minute system load and net-load using actual load data, as adjusted for monthly peak load growth, and generation profiles for wind and solar resources that are in-service or expected to be in-service during the study period;
- (2) calculate the Maximum Three-Hour Net-Load Ramp for each month using the forecasted minute-to-minute system net-load;
- (3) determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each month;
- (4) may include a forecast adjustment, as described in Section 40.10.1.4; and
- (5) compute the resultant Flexible Capacity Need for each month based on the sum of the Maximum Three-Hour Net-Load Ramp, and the higher of the most severe single contingency or 3.5 percent of the forecasted monthly peak load.

40.10.1.4 Flexible Capacity Need Forecast Adjustment

- (a) The Flexible Capacity Need determination may include a positive or negative forecast adjustment to capture a systemic difference between the value determined in Section 40.10.3(3) and the historic amount of Operating Reserves met by Flexible Capacity:
- (b) The CAISO will determine the need for a forecast adjustment in consultation with the CPUC and other Local Regulatory Authorities, and as part of the stakeholder process under Section 40.10.1.1; and
- (c) The amount of the forecast adjustment calculated for each month shall not exceed the forecasted monthly peak Operating Reserves multiplied by the difference between (i) the historic percentage of Operating Reserves met by Flexible RA Capacity and (ii) the percentage calculation that results from dividing the quantity determined in Section 40.10.1.3(3) by the forecasted monthly peak Operating Reserves.

40.10.1.5 Flexible Capacity Category Need

- (a) The CAISO shall calculate the total system amount of Flexible Capacity needed in each Flexible Capacity Category, for each month of the next calendar year to ensure that forecast system operational needs will be met, as follows:
- (1) The minimum quantity of Flexible Capacity needed in the Flexible Capacity Category for base ramping resources for each month will be calculated on a seasonal basis based on the system ramping characteristics identified in the Flexible Capacity Needs Assessment and the changes in MWs of the Maximum Secondary Three-Hour Net-Load Ramps for each month within a season, and will be specified in MW and as the percentage of total Flexible Capacity Needs.
 - (2) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for peak ramping resources will be calculated for each month as the difference between the minimum quantity needed in the Flexible Capacity Category for base ramping resources and the total Flexible Capacity Need, and will be specified in MW and as the percentage of total Flexible Capacity Needs.
 - (3) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for super-peak ramping resources will be five percent of the total Flexible Capacity Need.
- (b) The CAISO shall provide the results of the Flexible Capacity Category need determination with the Flexible Capacity Needs Assessment.

40.10.2 Allocation of Flexible Capacity Need

The CAISO will calculate each Local Regulatory Authority's allocable share of the total system Flexible Capacity Need, and the contribution of each of the Local Regulatory Authority's jurisdictional Load Serving Entities to the Maximum Three-Hour Net-Load Ramp used to calculate its share of the total system Flexible Capacity Need. The CAISO shall provide these calculations to each Local Regulatory Authority no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be submitted under Section 40. Nothing in this Section 40 obligates any individual Load Serving Entity to demonstrate that it has procured Flexible Capacity Resources to satisfy a minimum or maximum quantity needed, as applicable, within each Flexible Capacity Category.

40.10.2.1 Calculation of LRA Allocations

- (a) **Allocation of Maximum Three-Hour Net-Load Ramp.** The CAISO will calculate the Local Regulatory Authority's allocable share of the Flexible Capacity Need as the average of the sum of its jurisdictional Load Serving Entities' change in load, minus the change in wind output, minus the change in solar PV output, minus the change in solar thermal output during the five highest three-hour net-load changes in the month.
- (b) **Allocation of MSSC or Forecasted Peak Load.** The CAISO will determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each Load Serving Entity based on the respective Load Serving Entity's peak load ratio share, and calculate each Local Regulatory Authority's allocable share based on the sum of its jurisdictional Load Serving Entities' shares.
- (c) **Allocation of Forecast Adjustment.** If the CAISO includes a forecast adjustment in its draft study results, it will include an explanation of the cause and allocation of the changed need in its Flexible Capacity Needs Assessment for review as part of the stakeholder process under Section 40.10.1.1.

40.10.2.2 Allocation to Load-Following MSS

The CAISO will calculate the allocable share of the Flexible Capacity Need for each Load-following MSS in accordance with the provisions for Local Regulatory Authorities in Section 40.10.2. The CAISO will deduct the Flexible Capacity Need allocated to each Load-following MSS from the calculation to determine whether a cumulative deficiency in Flexible RA Capacity exists under Section 43.2.7.

40.10.3 Flexible Capacity Categories

40.10.3.1 Flexible Capacity Category Calculation. A resource qualifies to provide Flexible RA Capacity in each Flexible Capacity Category for which it meets the qualifications set forth in this Section 40.10.3.

40.10.3.2 Flexible Capacity Category-- Base Ramping Resources

- (a) **Resource Criteria.** Base ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.2(b) and (c) --
 - (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets

through Economic Bids for Energy and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, submitted daily for the 17-hour period from 5:00 a.m. through 10:00 p.m.;

- (2) The resource must be capable of providing Energy for a minimum of six hours up to its full Effective Flexible Capacity value including PMin;
- (3) The resource must be capable of being available seven days a week;
- (4) The resource must be able to provide the minimum of (i) two Start-Ups per day for every day of the month or sixty Start-Ups per month, or (ii) the number of Start-Ups allowed by its operational limits, including minimum up and minimum down time; and
- (5) The resource must not have annual or monthly limitations on the number of Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.2(a)(1) through (4).

(b) **Use-Limited Resource**

- (1) A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.2(a).
- (2) A Load Serving Entity may include in this category a combined resource consisting of two Use-Limited Resources that do not individually meet the minimum operational and availability requirements but in combination meet the criteria in Section 40.10.3.2(a).
- (3) The Flexible RA Capacity amount for the combined resource will be less than or equal to the lowest Effective Flexible Capacity value shown on the Resource Flexible RA Capacity Plan for a resource in the combination.
- (4) Both resources in the combination shall be subject to the must-offer obligation up to their Flexible RA Capacity amounts.

- (c) **Non-Generator Resource.** A Non-Generator Resource that elects to provide Flexible RA Capacity may be included in this category if it meets the criteria in Section 40.10.3.2(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.

40.10.3.3 Flexible Capacity Category -- Peak Ramping Resources

- (a) **Resource Criteria.** Peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.3(b) and (c) --
- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted daily for a five-hour period to be determined by the CAISO on a seasonal basis;
 - (2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;
 - (3) The resource must be capable of being available seven days a week.
 - (4) The resource must be capable of at least one Start-Up per day; and
 - (5) The resource must not have annual or monthly limitations on the number of unit Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.3(a)(1) through (4).
- (b) **Use-Limited Resource.** A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.3(a).
- (c) **Non-Generator Resource.** A Non-Generator Resource that elects to provide Flexible RA Capacity may be included in this category if it meets the criteria in Section 40.10.3.3(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.
- (d) **Base Ramping Resource.** A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources also qualifies to be included in this category as a peak ramping resource; however, a resource that meets only the qualifications of a peak ramping resource does not qualify as a base ramping resource.

40.10.3.4 Flexible Capacity Category -- Super-Peak Ramping Resources.

- (a) **Resource Criteria.** Super-peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.4(b), (c) and (d) --

- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services Bids that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted each weekday that is not holiday, for a five-hour period to be determined by the CAISO on a seasonal basis;
 - (2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;
 - (3) The resource must be capable of being available on weekdays that are not holidays, as defined in the Business Practice Manual;
 - (4) The resource must be capable of at least one Start-Up per day; and
 - (5) The resource must be capable of responding to at least five CAISO dispatches per month, during the five-hour period of the must offer obligation, for the resource to Start-Up.
- (b) **Use-Limited Resource.** A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a).
- (c) **Non-Generator Resource.** A Non-Generator Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a) and is not registered in the CAISO's Master File as a Regulation Energy Management resource.
- (d) **Non-Generator Resource, Regulation Energy Management.** A Non-Generator Resource that is a Regulation Energy Management resource may be included in this category if it meets the following criteria --
- (1) The resource must be capable of providing Regulation Energy Management to the CAISO Markets through Economic Bids for Regulation Up and Regulation Down submitted daily for a 17-hour period from 5:00 a.m. through 10:00 p.m.;
 - (2) The resource shall not submit bids to provide Energy;
 - (3) The resource must be capable of being available seven days a week;
 - (4) The resource must be capable of unlimited Start-Ups per day; and

(5) The resource must be registered as a Non-Generator Resource providing Regulation Energy Management in the CAISO's Master File.

(e) **Base Ramping and Peak Ramping Resources.** A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources or peak ramping resources also qualifies to be included in this category as a super-peak ramping resource; however, a resource that meets only the qualifications of a super-peak ramping resource does not qualify as a base ramping resource or a peak ramping resource.

40.10.3.5 Flexible Capacity Category By Resource

The CAISO will provide to the Scheduling Coordinator of each resource a non-binding determination of the Flexible Capacity Category with the highest qualifications for which the resource qualifies to provide Flexible Capacity, as provided in Section 40.10.4.

40.10.3.6 Non-Eligible Resources

Intertie resources and imports, other than Pseudo-Ties and Dynamic Scheduled resources, are not eligible to provide Flexible RA Capacity.

40.10.4 Effective Flexible Capacity

The CAISO shall calculate the Effective Flexible Capacity value for each resource that submitted at least one Economic Bid for Energy in the Real-Time Market on at least 10 days in the previous calendar year, or in the most recent 12-month period for which data is available. The CAISO shall publish the draft and final lists of the Effective Flexible Capacity values for such resources and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity on the CAISO Website each year in accordance with the schedule for publishing the Net Qualifying Capacity values, as set forth in the BPM, for use in the next calendar year.

40.10.4.1 Effective Flexible Capacity Calculation

(a) **Flexible Resources.** The CAISO will calculate the Effective Flexible Capacity value of a resource, for use (i) if a Local Regulatory Authority has not established criteria for calculating the Effective Flexible Capacity value for eligible resource types, and (ii) for determining if a cumulative deficiency exists under Sections 43.2.7(a) and (b), as follows, except as provided in Sections 40.10.4.1 (b) through (f) --

- (1) If the Start-Up Time of the resource is greater than 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from PMin to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not exceed the difference between the PMin and PMax of the resource.
 - (2) If the Start-Up Time of the resource is less than or equal to 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from zero to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not exceed the Net Qualifying Capacity of the resource.
- (b) **Hydroelectric Generating Unit.** The Effective Flexible Capacity of a hydroelectric generating unit will be the amount of capacity from which the resource can produce Energy consistently for 6 hours based upon the resource's physical storage capacity, which shall not exceed its Net Qualifying Capacity.
- (c) **Proxy Demand Response Resource.** The Effective Flexible Capacity of a Proxy Demand Response Resource will be based on the resource's actual MWs of load modification in response to a dispatch by the CAISO during a test event. In determining the Effective Flexible Capacity of a Proxy Demand Response Resource, the CAISO will --
- (1) conduct the test at a random time during the flexible capacity must-offer obligation period for the resource;
 - (2) use the baseline load data, as described in the CAISO Tariff or Business Practice Manual, to measure the load modification for the Proxy Demand Response Resource being tested; and
 - (3) pay the resource's bid price for the testing period.
- (d) **Energy Storage Resource.** The Effective Flexible Capacity value for an energy storage resource will be determined as follows --
- (1) for an energy storage resource that provides Flexible RA Capacity but not Regulation Energy Management, the Effective Flexible Capacity value will be the MW output range the resource can provide over three hours of charge/discharge while constantly ramping.
 - (2) for an energy storage resource that provides Flexible RA Capacity and Regulation

Energy Management, the Effective Flexible Capacity value will be the resource's 15-minute energy output capability.

- (e) **Multi-Stage Generating Resource.** The Effective Flexible Capacity value for a Multi-Stage Generating Resource will be calculated using the longest Start-Up Time of the resource's configuration that has the lowest PMin.
- (f) **Combined Heat and Power Resource.** The Effective Flexible Capacity value of a Combined Heat and Power Resource will be the lesser of (i) the resource's Net Qualifying Capacity, or (ii) the MW difference between the resource's maximum output and the minimum of either its operating level or its capability over three hours.

40.10.4.2 EFC Omission or Correction

- (a) **Draft List.** The posted draft list of Effective Flexible Capacity values may be modified only as follows –
 - (1) If the Scheduling Coordinator for a resource that was not included on the draft list of Effective Flexible Capacity values seeks to have the resource included on the list, it must no later than September 1 submit a request to the CAISO either showing that the resource meets the criteria in Section 40.10.4.1 or is capable of meeting the criteria, and provide documentation to enable the CAISO to determine the resource's Effective Flexible Capacity pursuant to the criteria in Section 40.10.4.1.
 - (2) If the Scheduling Coordinator for a resource that was included on the draft list of Effective Flexible Capacity values seeks to change the value for that resource, it must submit documentation no later than September 1 that supports such a change.
 - (3) The CAISO will review the information submitted and notify the Scheduling Coordinator whether the change was accepted at least 15 days prior to posting the final list of Effective Flexible Capacity values on the CAISO Website.
- (b) **Final List.** The CAISO will post on the CAISO Website the final list of Effective Flexible Capacity values for resources that are in service or that are under construction with an expected in service date during the year and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity. The final list shall be used for the next calendar year and shall not be

changed during that year, except as follows –

- (1) If the Net Qualifying Capacity or PMax of a resource included on the final list increases or decreases during the year, and that value is changed in the Master File, the Scheduling Coordinator for the resource may request that the Effective Flexible Capacity value be recalculated to account for the change; or
 - (2) If a resource identified as under construction on the final list, or other new resource, achieves commercial operation during the year, the Scheduling Coordinator for the resource may request that the CAISO calculate and add its Effective Flexible Capacity value and the Flexible Capacity Categories for which the resource qualifies to provide Flexible Capacity to the final list as an in-service resource.
- (c) **Disputes.** Any disputes as to the CAISO's determination regarding Effective Flexible Capacity shall be subject to the CAISO ADR Procedure.

40.10.5 Flexible RA Capacity Plans

40.10.5.1 LSE Flexible RA Capacity Plans

- (a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly LSE Flexible RA Capacity Plans for each Load Serving Entity it represents; except that an annual plan for 2015 is not required. A Load-Following MSS is not required to submit annual or monthly LSE Flexible RA Capacity Plans.
- (b) **Annual Plan.** Each annual LSE Flexible RA Capacity Plan must –
 - (1) demonstrate that the Load Serving Entity has procured for each month at least 90 percent of the annual Flexible RA Capacity requirement determined by the CAISO; or the amount of Flexible RA Capacity required by the Load Serving Entity's Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;
 - (2) identify the resources the Load Serving Entity intends to rely on to provide the Flexible RA Capacity; and
 - (3) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.

- (c) **Monthly Plan.** The monthly LSE Flexible RA Capacity Plan must --
- (1) demonstrate that the Load Serving Entity procured 100 percent of the total monthly Flexible RA Capacity requirement determined by the CAISO; or the monthly amount of Flexible RA Capacity required by the Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;
 - (2) demonstrate that the Load Serving Entity met the total monthly requirement determined by the CAISO within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category; or only if the Local Regulatory Authority has established its own flexible capacity requirement, show that the Load Serving Entity has met the total monthly requirement determined by the Local Regulatory Authority within the minimum or maximum quantity for each Flexible Capacity Category required by the Local Regulatory Authority, if applicable;
 - (3) identify all resources the Load Serving Entity will rely on to provide the Flexible RA Capacity and for each resource specify the Flexible Capacity Category in which the Flexible RA Capacity will be provided; and
 - (4) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (d) **Correction to Monthly Plan.** The Scheduling Coordinator for the Load Serving Entity may submit at any time from 45 days through 11 days in advance of the first day of the month covered by the plan, a revision to its monthly LSE Flexible RA Capacity Plan to correct an error in the plan. The CAISO will not accept any revisions to a monthly LSE Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Load Serving Entity demonstrates good cause for the change and explains why it was not possible to submit the change earlier.

40.10.5.2 Resource Flexible RA Capacity Plans

- (a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly Resource Flexible RA Capacity Plans for each resource it represents that provides Flexible RA

Capacity; except that an annual plan is not required for 2015.

- (b) **Annual Plan.** The annual Resource Flexible RA Capacity Plan shall --
 - (1) verify the resource's agreement to provide Flexible RA Capacity during the next Resource Adequacy Compliance Year; and
 - (2) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (c) **Monthly Plan.** The monthly Resource Flexible RA Capacity Plan shall --
 - (1) verify the resource's agreement to provide Flexible RA Capacity during the month;
 - (2) include an affirmative representation by the Scheduling Coordinator submitting the plan that the CAISO is entitled to rely on the accuracy of the information provided in the plan to perform those functions set forth in this Section 40; and
 - (3) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (d) **Correction to Monthly Plan.** The Scheduling Coordinator for the resource may correct an error in the plan by submitting a revision to its monthly Resource Flexible RA Capacity Plan at any time from 45 days through 11 days in advance of the first day of the month covered by the plan. The CAISO will not accept any revisions to a monthly Resource Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Resource demonstrates good cause for the change and explains why it was not possible to submit the change earlier.

40.10.5.3 Review of Flexible RA Capacity Plans

- (a) **Validation For Deficiency In An Individual LSE Plan.**
 - (1) If the Local Regulatory Authority has not established its own flexible capacity procurement requirements, the CAISO will validate the annual and monthly LSE Flexible RA Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities, and will use the Effective Flexible Capacity value for each resource calculated

under Section 40.10.4. The CAISO will determine whether each Load Serving Entity met its annual or monthly total Flexible RA Capacity Requirement, and for the monthly LSE Flexible RA Capacity Plan, whether it met the total monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category.

- (2) If the Local Regulatory Authority has established its own flexible capacity procurement requirements, the CAISO will not validate the individual LSE Flexible Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities.
- (b) **Identification of Discrepancy.** The CAISO will compare all LSE Flexible RA Capacity Plans and Resource Flexible RA Capacity Plans to identify any discrepancy in the Resource Adequacy Resources listed or the amount of the Resource Adequacy Capacity committed.
- (c) **Evaluation For Cumulative Deficiency.**
- (1) The CAISO will evaluate the annual LSE Flexible RA Capacity Plans of all Load Serving Entities on a cumulative basis to determine whether the total amount of Flexible RA Capacity shown in the plans meets 90 percent of the annual Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1 or whether a cumulative deficiency may exist under Section 43.2.7(a).
 - (2) The CAISO will evaluate the monthly Flexible RA Capacity Plans of all Load Serving Entities to determine whether (i) the total amount of Flexible RA Capacity shown in the plans, limited to the maximum monthly requirement for each category, meets the applicable monthly Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1 or whether a cumulative deficiency may exist under Section 43.2.7(b)(1); or (ii) the total amount of Flexible RA Capacity shown in the base ramping Flexible Capacity Category in the plans meets the minimum monthly requirement for the base ramping Flexible Capacity Category determined by the CAISO pursuant to Section 40.10.1.5 or whether a cumulative deficiency may exist under Section 43.2.7(b)(2).
- (d) **Calculation of Flexible RA Capacity.** The CAISO will calculate the amount of Flexible RA Capacity included in the annual and monthly Flexible RA Capacity Plans using the MW amount of Flexible RA Capacity for each resource designated in a plan as a Flexible RA Capacity Resource

up to the Effective Flexible Capacity value for the resource calculated under Section 40.10.4.

(e) **Allocated Flexible RA Capacity Requirement.** The CAISO will calculate the Load Serving Entity's allocated annual and monthly Flexible RA Capacity Requirement --

- (1) For Load Serving Entities within a Local Regulatory Authority that has not adopted its own allocation methodology, the CAISO will calculate the Load Serving Entity's allocated requirement based on the CAISO's allocation methodology set forth in Section 40.10.2.
- (2) For Load Serving Entities within a Local Regulatory Authority that has adopted its own allocation methodology, the CAISO will use that Local Regulatory Authority's methodology for the Local Regulatory Authority's jurisdictional Load Serving Entities.

40.10.5.4 Deficiency in LSE Flexible RA Capacity Plan

(a) **Finding and Notification.** If the CAISO's validation under Section 40.10.5.3(a) finds either (i) that the total amount of Flexible RA Capacity included in an annual or monthly LSE Flexible RA Capacity Plan is not sufficient to satisfy the Load Serving Entity's allocated Flexible RA Capacity Requirement or (ii) that the total monthly requirement in a monthly LSE Flexible RA Capacity Plan was not met within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category, the CAISO will --

- (1) notify the relevant Scheduling Coordinator, and the Local Regulatory Authority or federal agency with jurisdiction over the relevant Load Serving Entity, in an attempt to resolve any deficiency in accordance with the procedures set forth in the Business Practice Manual; and
- (2) provide the notice at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a deficiency exists.

(b) **Resolved Deficiency.** If the CAISO issues a notice of deficiency under Section 40.10.5.4(a), and the deficiency is resolved, the Scheduling Coordinator for the Load Serving Entity shall --

- (1) demonstrate, no less than 11 days prior to the first day of the month covered by the LSE Flexible RA Capacity Plan, that the identified deficiency is cured by submitting a revised LSE Flexible RA Capacity Plan, or

- (2) advise the CAISO that the Load Serving Entity's Local Regulatory Authority, or federal agency, as appropriate, has determined that no deficiency exists.
- (c) **Unresolved Deficiency.** If the CAISO issues a notice of deficiency under Section 40.10.5.4(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.5.5 Discrepancy Between Flexible RA Capacity Plans.

- (a) **Finding and Notification.** If the CAISO's review under Section 40.10.5.3(b) finds a discrepancy between an LSE Flexible RA Capacity Plan and a Resource Flexible RA Capacity Plan, the CAISO will --
 - (1) notify the relevant Scheduling Coordinators of the mismatch in an attempt to resolve the discrepancy in accordance with the procedures set forth in the Business Practice Manual; and
 - (2) provide the notice at least 25 days in advance of the first day of the month covered by the plans and include the reasons the CAISO believes a discrepancy exists.
- (b) **Resolved Discrepancy.** If the CAISO issues a notice of discrepancy under Section 40.10.5.5(a) and the discrepancy is resolved, the Scheduling Coordinator must provide the CAISO with a revised LSE Flexible RA Capacity Plan or Resource Flexible RA Capacity Plan, as applicable, no less than 11 days prior to the first day of the month covered by the plans.
- (c) **Unresolved Discrepancy.** If the CAISO issues a notice of discrepancy under Section 40.10.5.5(a) and is not advised that the discrepancy is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.5.6 LRA Deficiency.

- (a) **Finding and Notification.** If the CAISO's evaluation under Section 40.10.5.3(c) finds a cumulative deficiency in Flexible RA Capacity, the CAISO will --

- (1) identify each Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need using the cumulative amount of Flexible RA Capacity that the Local Regulatory Authority's jurisdictional Load Serving Entities included in their annual and monthly Flexible RA Capacity Plans in total and, for the monthly Flexible RA Capacity Plans, in each Flexible Capacity Category;
 - (2) identify each Load Serving Entity that (i) is subject to the jurisdiction of a Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need under Section 40.10.5.6, and (ii) did not include sufficient Flexible RA Capacity in an annual or monthly plan to meet its allocated Flexible RA Capacity Requirement or did not meet the monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category, based on the allocation methodology of the Local Regulatory Authority if it has established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities;
 - (3) notify each Local Regulatory Authority identified under Section 40.10.5.6(1) and the Scheduling Coordinator for each Load Serving Entity identified under Section 40.10.5.6(2) of the cumulative deficiency in an attempt to resolve any deficiency in accordance with the procedures set forth in the Business Practice Manual; and
 - (4) provide the notice at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a cumulative deficiency exists.
- (b) **Resolved Deficiency.** If the CAISO provides a notice of cumulative deficiency under Section 40.10.5.6(a), and the deficiency is resolved, the Scheduling Coordinator for the Load Serving Entity shall demonstrate, no less than 11 days prior to the first day of the month covered by the LSE Flexible RA Capacity Plan, that the identified deficiency is cured by submitting a revised LSE Flexible RA Capacity Plan.
- (c) **Unresolved Deficiency.** If the CAISO provides a notice of deficiency under Section 40.10.5.6(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.6 Flexible RA Capacity Must-Offer Obligation

40.10.6.1 Day-Ahead and Real-Time Availability

- (a) **Must-Offer Obligation.** The Scheduling Coordinator for a resource supplying Flexible RA Capacity must submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the applicable Trading Hours that is capable of being economically dispatched as follows, except as provided in Section 40.10.6.1(e) through(h) --
- (1) Flexible Capacity Category for base ramping resources - the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week;
 - (2) Flexible Capacity Category for peak ramping resources - the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, seven days a week; and
 - (3) Flexible Capacity Category for super-peak ramping resources – the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, weekdays, except holidays and as provided in Section 40.10.6.1(h), until the resource receives during the five-hour period of the must offer obligation and responds to five CAISO dispatches for Start-Up during the month, after which the resource will not be subject to a must-offer obligation as a super-peak ramping resource for the remainder of that month; however, any other must-offer obligations for Resource Adequacy Capacity will still apply.
- (b) **Availability Requirement.** During the period of the applicable must-offer obligation, a Flexible RA Capacity Resource must be operationally available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.

- (c) **Co-optimization.** Through the IFM co-optimization process, the CAISO will utilize available Flexible RA Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.
- (d) **Participation in RUC.** A Flexible RA Capacity Resource must participate in the RUC to the extent that the resource has available Flexible RA Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid. Flexible RA Capacity selected in RUC will not be eligible to receive a RUC Availability Payment.
- (e) **Use-Limited Resources.** A Use-Limited Resource providing Flexible RA Capacity must be capable of responding to Dispatch Instructions and, consistent with its use-limitations, must submit Economic Bids for Energy for the full amount of its Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the Trading Hours applicable to the resource's Flexible Capacity Category for that month for the Trading Hours that it is capable of being economically dispatched.
- (f) **Short, Medium or Long Start Units.**
 - (1) Short Start Units or Medium Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.3 that apply to Short Start Units providing RA Capacity.
 - (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.7 that apply to Long Start Units providing RA Capacity.
 - (3) If availability is required under Section 40.6.3 or 40.6.7, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Energy Bids for the full amount of the

available Flexible RA Capacity, including capacity for which it has submitted Ancillary Services Bids; and (ii) Ancillary Services Bids for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids.

- (g) **Extremely Long-Start Resources.** Flexible RA Capacity Resources that are Extremely Long-Start Resources must be available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the resource upon instruction from the CAISO, if physically capable. Once an Extremely Long-Start Resource is committed by the CAISO, it is subject to the provisions of Section 40.10.6.regarding Day-Ahead Availability and Real-Time Availability for the Trading Days for which it was committed.
- (h) **Non-Generator Resources, Regulation Energy Management.** Non-Generator Resources providing Flexible RA Capacity and Regulation Energy Management must submit Bids for Regulation Up and Regulation Down for Trading Hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and shall not submit Bids for Energy or other Ancillary Services.

40.10.6.2 Failure to Bid

If the Scheduling Coordinator for a resource supplying Flexible RA Capacity does not submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the Trading Hours during the period of the applicable must-offer obligation –

- (1) the CAISO will not insert Generated Bids for any Flexible RA Capacity for which the resource did not submit bids; and
- (2) An Exceptional Dispatch instruction issued to the resource for all or a portion of its Flexible RA Capacity shall not be an Exceptional Dispatch CPM designation under Section 43.2.5.

* * *

43.1 [Not Used]

43.1.1 Capacity Procurement Mechanism Expiration

The CPM as well as changes made to other Sections to implement the CPM shall expire at midnight on the last day of the forty-eighth month following the effective date of this Section. CPM designations in existence on the expiration date shall continue in effect and remain subject to the CPM, including the provisions concerning compensation, cost allocation and Settlement, until such time as the CPM resources have been finally compensated for their services rendered under the CPM prior to the termination of the CPM, and the CAISO has finally allocated and recovered the costs associated with such CPM compensation. This Section shall also apply to the Flexible Capacity CPM provisions in Section 43 and any Flexible Capacity CPM designations in existence on the expiration date.

43.2 Capacity Procurement Mechanism Designation

The CAISO shall have the authority to designate Eligible Capacity to provide CPM Capacity services under the CPM to address the following circumstances, as discussed in greater detail in Section 43:

1. Insufficient Local Capacity Area Resources in an annual or monthly Resource Adequacy Plan;
2. Collective deficiency in Local Capacity Area Resources;
3. Insufficient Resource Adequacy Resources in an LSE's annual or monthly Resource Adequacy Plan;
4. A CPM Significant Event;
5. A reliability or operational need for an Exceptional Dispatch CPM;
6. Capacity at risk of retirement within the current RA Compliance Year that will be needed for reliability by the end of the calendar year following the current RA Compliance Year; and
7. A cumulative deficiency in the total Flexible RA Capacity included in the annual or monthly Flexible RA Capacity Plans, or in a Flexible Capacity Category in the monthly Flexible RA Capacity Plans.

* * * * *

43.2.7 Cumulative Deficiency in Flexible RA Capacity

(a) **Annual Plans.** A cumulative deficiency will exist in the annual LSE Flexible RA Capacity Plans if

the total amount of Flexible RA Capacity shown in the plans of all Load Serving Entities, based on the Effective Flexible Capacity value determined by the CAISO for each resource, is less than 90 percent of the annual Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1.

- (b) **Monthly Plans.** A cumulative deficiency will exist in the monthly Flexible RA Capacity Plans --
- (1) if the total amount of Flexible RA Capacity shown in the plans of all Load Serving Entities, limited on a collective basis to the maximum monthly requirement for each category and based on the Effective Flexible Capacity value determined by the CAISO for each resource, is less than the applicable monthly Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1; or
 - (2) if the total amount of Flexible RA Capacity shown in the base ramping Flexible Capacity Category in the plans of all Load Serving Entities, based on the Effective Flexible Capacity value determined by the CAISO for each resources, on a collective basis is less than the minimum monthly requirement for the base ramping Flexible Capacity Category determined by the CAISO pursuant to Section 40.10.1.4.

43.2.7.1 Final Opportunity to Resolve Deficiency

If the processes set forth in Section 40.10.5.4, 40.10.5.5, and 40.10.5.6 do not fully resolve a deficiency or discrepancy in the annual or monthly Flexible RA Capacity Plans, and if the CAISO determines that a cumulative deficiency exists under Section 43.2.7 and that there is a need for Flexible Capacity CPM, but prior to issuing a Flexible Capacity CPM designation for the cumulative deficiency –

- (1) the CAISO shall (i) issue a Market Notice that describes the cumulative deficiency and specifies the quantity of Flexible RA Capacity necessary to meet the applicable Flexible Capacity Need, and (ii) notify the Load Serving Entities that are deficient and the Local Regulatory Authority with jurisdiction over each deficient Load Serving Entity;
- (2) a Scheduling Coordinator for a Load Serving Entity that is deficient, or for a Load Serving Entity subject to the jurisdiction of a Local Regulatory Authority that is deficient, may submit a revised annual or monthly Flexible RA Capacity Plan to demonstrate procurement of additional Flexible RA Capacity consistent with the Market Notice issued

under this Section; but shall not include any other revisions in a plan submitted under this Section. A revised annual Flexible RA Capacity Plan must be submitted no later than December 31 for the following calendar year. A revised monthly Flexible RA Capacity Plan must be submitted no less than five days prior to the first day of the applicable month.

43.2.7.2 Designation

After the opportunity to resolve the cumulative deficiency under Section 40.10.5.4 has been exhausted, if total required Flexible RA Capacity reported to the CAISO in revised annual or monthly Flexible RA Capacity Plans does not meet the Flexible RA Capacity Need in accordance with this Section, the CAISO may issue a Flexible Capacity CPM designation in an amount sufficient to alleviate the deficiency.

* * * * *

43.3.8 Term – Flexible Capacity CPM Designation

- (a) **Annual Plan.** A Flexible Capacity CPM designation under Section 43.2.7 for the failure to show sufficient Flexible RA Capacity in an annual Flexible RA Capacity Plan shall have a minimum commitment term of one month and a maximum commitment term of one year, based on the period(s) of overall shortage reflected in the annual plans. The term of a Flexible Capacity CPM designation under this Section must begin and end during the same calendar year.
- (b) **Monthly Plan.** A Flexible Capacity CPM designation under Section 43.2.7 for the failure to show sufficient Flexible RA Capacity in a monthly Flexible RA Capacity Plan shall have a commitment term of one month. The term of a Flexible Capacity CPM designation under this Section must begin and end during the same calendar month.

43.4 Selection Of Eligible Capacity Under The CPM

In accordance with Good Utility Practice, the CAISO shall make designations of Eligible Capacity as CPM Capacity or CPM Flexible Capacity under Section 43.1 by applying the following criteria in the order listed:

- (1) the effectiveness of the Eligible Capacity at meeting the designation criteria specified in Section 43.2;
- (2) the capacity costs associated with the Eligible Capacity;

- (3) the quantity of a resource's available Eligible Capacity, based on a resource's PMin, relative to the remaining amount of capacity needed;
- (4) the operating characteristics of the resource, such as dispatchability, Ramp Rate, and load-following capability;
- (5) whether the resource is subject to restrictions as a Use-Limited Resource; and
- (6) for designations under Section 43.2.3, the effectiveness of the Eligible Capacity in meeting local and/or zonal constraints or other CAISO system needs.

In applying these selection criteria, the goal of the CAISO is to designate lower cost resources that will be effective in meeting the reliability needs underlying the CPM designations. In making this determination, the CAISO will apply the first criterion to identify the effective Eligible Capacity by considering the effectiveness of the resources at meeting the designation criteria for the type of CPM to be issued and at resolving the underlying reliability need. The CAISO will apply the second criterion by considering the cost of the effective Eligible Capacity. The CAISO will endeavor to designate a resource at the CPM Capacity price determined in accordance with Section 43.6.1 before selecting a resource with a higher unit-specific CPM Capacity price specified under Section 43.6.2. The CAISO will endeavor to designate resources that have specified a capacity price before designating resources that have not specified a CPM Capacity price under Section 43.6.2.1. The CAISO will apply the third criterion by considering the quantity of a resource's Eligible Capacity. The CAISO will endeavor to select a resource that has a PMin at or below the capacity that is needed to meet the reliability need before selecting a resource that has a PMin that would result in over-procurement. The CAISO will apply the fourth criterion by considering specific operating characteristics of a resource, such as dispatchability, ramp rate, and load-following capability to the extent that such characteristics are an important factor in resolving the reliability need. The CAISO will apply the fifth criterion by considering whether a resource is use-limited and whether that status may restrict its ability to be available to the CAISO in the Day-Ahead Market and Real-Time Market throughout the period for which it is being procured. To the extent that use-limited resources are capable of performing the required service for the duration of the CPM designation, the CAISO will not unduly discriminate in favor of non-Use Limited resources when applying the selection criteria. The CAISO will apply the sixth criterion by considering the effectiveness of the Eligible Capacity to meet local and/or

zonal constraints or other CAISO system needs for CPM designations under 43.2.3. If after applying these criteria, two or more resources that are eligible for designation equally satisfy these criteria, the CAISO shall utilize a random selection method to determine the designation between those resources.

43.4.1 Limitation of Eligibility for Flexible Capacity CPM Designation

- (a) **Committed Capacity.** Capacity committed as RA Capacity, Flexible RA Capacity, RA Replacement Capacity, RA Substitute Capacity, RMR Capacity, or CPM Capacity shall not be eligible to receive a Flexible Capacity CPM designation for the duration of that commitment.
- (b) **Operationally Unavailable Capacity.** Capacity on, or scheduled to be on, a Forced Outage, Approved Maintenance Outage, or de-rate, is not operationally available and shall not be eligible to receive a Flexible Capacity CPM designation for the duration of that unavailability.

43.4.2 Designation Amount. While the CAISO does not have to designate the full capability of a resource, the CAISO may designate under the CPM an amount of CPM Capacity or CPM Flexible Capacity from a resource that exceeds the amount of capacity identified to ensure compliance with the Reliability Criteria set forth in Section 40.3 due to the PMin or other operational requirements/limits of a resource that has available capacity to provide CPM service. The CAISO shall not designate the capacity of a resource for an amount of capacity that is less than the resource's PMin.

43.4.3 Simultaneous Designations. In the event the CAISO determines that a CPM designation must be issued to resolve a collective deficiency of system RA Capacity under Section 43.2.3 and that Flexible Capacity CPM designation must be issued to resolve a cumulative deficiency of Flexible RA Capacity under Section 43.2.7 for annual or monthly plans covering the same or overlapping time periods, the CAISO will apply the criteria in Section 43.4 and endeavor to designate capacity that will be effective in resolving both underlying reliability needs –

- (1) If the MW amount of the simultaneous or overlapping designation is sufficient to resolve both underlying reliability needs, no further designation of CPM Capacity or CPM Flexible Capacity will be issued.
- (2) If the MW amount of the simultaneous or overlapping designation is not sufficient to resolve both underlying reliability needs, the CAISO may designate additional CPM Capacity or CPM Flexible Capacity to cover the remaining deficiency.

* * *

43.5.1 Availability Obligations. Capacity and CPM Flexible Capacity from resources designated under the CPM shall be subject to all of the availability, dispatch, testing, reporting, verification and any other applicable requirements imposed under Section 40.6 or Section 40.10.6 as applicable to Resource Adequacy Resources identified in Resource Adequacy Plans and Flexible RA Capacity resources identified in Resource Flexible RA Capacity Plans. In accordance with those requirements, CPM Capacity designated under the CPM shall meet the Day-Ahead availability requirements specified in Section 40.6.1 and the Real-Time availability requirements of Section 40.6.2, and CPM Flexible Capacity shall meet the Day-Ahead and Real-Time availability requirements specified in Section 40.10.6.1. Also in accordance with those requirements, Generating Units designated under the CPM that meet the definition of Short Start Units shall have the obligation to meet the additional availability requirements of Section 40.6.3, and Generating Units designated under the CPM that meet the definition of Long Start Units will have the rights and obligations specified in Section 40.6.7.1.

If the CAISO has not received an Economic Bid or a Self-Schedule for CPM Capacity, the CAISO shall utilize a Generated Bid in accordance with the procedures specified in Section 40.6.8. In addition to Energy Bids, resources designated under the CPM shall submit Ancillary Service Bids for their CPM Capacity and CPM Flexible Capacity to the extent that the resource is certified to provide the Ancillary Service.

43.5.2 Obligation To Provide Capacity And Termination

The decision to accept a CPM or Flexible Capacity CPM designation shall be voluntary for the Scheduling Coordinator for any resource. If the Scheduling Coordinator for a resource accepts an CPM designation, it shall be obligated to perform for the full quantity and full period of the designation with respect to the amount of CPM Capacity for which it has accepted an CPM designation. If the Scheduling Coordinator for a resource accepts a Flexible Capacity CPM designation, the resource shall be obligated to perform for the full quantity and full period of the designation, subject to the must-offer obligation in Section 40.10.6 that applies to the Flexible Capacity Category of the resource that was designated. If a Participating Generator's or Participating Load's Eligible Capacity is designated under the CPM after the Participating Generator or Participating Load has filed notice to terminate its Participating Generator

Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement or withdraw the Eligible Capacity from its Participating Generator Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement, and the Scheduling Coordinator for the resource agrees to provide service under the CPM, then the Scheduling Coordinator shall enter into a new Participating Generator Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement, as applicable, with the CAISO.

43.5.3 Availability Obligations for Simultaneous Designations. To the extent a resource accepts simultaneous or overlapping designations as CPM Capacity and CPM Flexible Capacity under Section 43.4.3, that resource shall be subject to the must-offer obligations for both designations.

* * *

43.6.1 CPM Designation Market Notice

The CAISO shall issue a Market Notice within two (2) Business Days of a CPM designation under Sections 43.2.1 through 43.2.6. CPM designations as a result of Exceptional Dispatches shall be subject to the reporting requirement set forth in Section 34.9.4. The Market Notice shall include a preliminary description of what caused the CPM designation, the name of the resource(s) procured, the preliminary expected duration of the CPM designation, the initial designation period, and an indication that a designation report is being prepared in accordance with Section 43.6.2. For Exceptional Dispatch CPM designations, the market notice shall additionally indicate whether the designation was made to address an Exceptional Dispatch CPM System Reliability Need or an Exceptional Dispatch CPM Non-System Reliability Need, specify the quantity of the Exceptional Dispatch CPM capacity that was procured and the Exceptional Dispatch CPM Term, and identify the engineering assessment the CAISO used to determine the quantity of capacity needed from the resource to address the reliability issue.

43.6.2 Designation Of A Resource Under The CPM

The CAISO shall post a designation report to the CAISO Website and provide a Market Notice of the availability of the report within the earlier of thirty (30) days of procuring a resource under Sections 43.2.1 through 43.2.6 or ten (10) days after the end of the month. The designation report shall include the following information:

- (1) A description of the reason for the designation (LSE procurement shortfall, Local Capacity Area Resource effectiveness deficiency, or CPM Significant Event), and an explanation of why it was necessary for the CAISO to utilize the CPM authority);
- (2) The following information would be reported for all backstop designations:
 - (a) the resource name;
 - (b) the amount of CPM Capacity and/or CPM Flexible Capacity designated (MW),
 - (c) an explanation of why that amount of CPM Capacity and/or CPM Flexible Capacity was designated,
 - (d) the date CPM Capacity and/or CPM Flexible Capacity was designated,
 - (e) the duration of the designation; and
 - (f) the price for the CPM procurement.
- (3) If the reason for the designation is a CPM Significant Event, the CAISO will also include:
 - (a) a discussion of the event or events that have occurred, why the CAISO has procured CPM Capacity, and how much has been procured;
 - (b) an assessment of the expected duration of the CPM Significant Event;
 - (c) the duration of the initial designation (thirty (30) days); and
 - (d) a statement as to whether the initial designation has been extended (such that the backstop procurement is now for more than thirty (30) days), and, if it has been extended, the length of the extension.
- (4) If the reason for the designation is Exceptional Dispatch CPM Capacity, the CAISO will also include additional information about the CAISO's determination of the quantity and term of the designation, which supplements the information included in the market notice issued pursuant to Section 43.6.1.

* * *

43.7.1 Monthly CPM Capacity Payment

On February 16, 2012, the fixed CPM Capacity price of \$67.50/kW-year shall become effective and shall remain in effect for two (2) years. On February 16, 2014, the fixed CPM Capacity price shall increase by five (5) percent and the effective price shall be \$70.88/kW-year, which shall remain in effect for two (2)

years until February 16, 2016. The fixed CPM Capacity price shall also apply to CPM Flexible Capacity payments.

43.7.1.1 Calculation of Monthly CPM Capacity Payment

Scheduling Coordinators representing resources receiving payment under Section 43.7.1 shall receive a monthly CPM Capacity Payment for each month of CPM designation equal to the product of the amount of their CPM Capacity or CPM Flexible Capacity, the relevant CPM Availability Factor for Forced Outages, as determined in accordance with Appendix F, Schedule 6, a monthly shaping factor as set forth in Appendix F, Schedule 6, the effective fixed CPM Capacity price per kW-year and the CPM Availability Percentage for Maintenance Outages, so that the formula for determining the monthly CPM Capacity Payment would be as follows:

$$\text{(CPM Capacity MW)} \times \text{(CPM Availability Factor for Forced Outages)} \times \text{(1/12 monthly shaping factor)} \times \text{(effective fixed CPM Capacity price per kW-year)} \times \text{CPM Availability Percentage for Maintenance Outages.}$$

The CPM Availability Percentage for Maintenance Outages is equal to the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Maintenance Outage or non-temperature-related ambient de-rates to (2) the product of CPM Capacity MW and the total hours in the month.

The foregoing formula shall apply to all CPM Capacity and CPM Flexible Capacity receiving monthly CPM Capacity Payments under this Section 43.7.1 except for CPM Capacity designated to respond to a CPM Significant Event or an Exceptional Dispatch CPM, in which case the monthly CPM Capacity Payment shall be based proportionately on the actual number of days the resource was designated as CPM Capacity during the month to the total number of days in the month.

For purposes of CPM designations, except for designations for CPM Significant Events and Exceptional Dispatch CPM, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM

Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rate, to (2) the product of CPM Capacity MW and the total hours in the month.

For purposes of CPM designations for CPM Significant Events and Exceptional Dispatch CPM, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour across all hours of the month or part of the month for which a unit is designated, whichever is applicable, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rate, to (2) the product of CPM Capacity MW and the total hours in the month or part of the month for which a unit is designated, whichever is applicable.

43.7.1.2 Payments For Simultaneous Designations

If a resource accepts simultaneous or overlapping designations as CPM Capacity and CPM Flexible Capacity, the MW amount of the CPM capacity payments for the period the designations overlap shall be the highest MW amount of either designation. The resource shall not be provided with two CPM payments for the same capacity.

43.7.2 Resource-Specific CPM Capacity Payment

If a Scheduling Coordinator for Eligible Capacity believes that the fixed CPM Capacity price per KW-year in effect under Section 43.7.1 will not compensate a resource for its going forward costs, as calculated in accordance with the formula provided in Section 43.7.2.2, the Scheduling Coordinator may annually in accordance with Section 43.7, inform the CAISO of what proposed higher CPM Capacity price or CPM Flexible Capacity price would compensate the resource for its going forward costs and which the Scheduling Coordinator is willing to have the CAISO use for purposes of the CPM designation process ("going forward cost offer price").

43.7.2.1 Failure to Submit Going Forward Cost Offer Price

A Scheduling Coordinator for a resource is not required to submit a specific going forward cost offer price for such resource under the process provided for in Section 43.7; however, except for an Exceptional Dispatch CPM designation, a Scheduling Coordinator that has not previously identified the going forward cost offer price for a resource must notify the CAISO of what that price is before any CAISO designation

of that resource's capacity as CPM Capacity or CPM Flexible Capacity can become effective. In the case of an Exceptional Dispatch CPM designation on behalf of a resource that has not selected the supplemental revenues option, the CPM designation shall become effective notwithstanding the resource's failure to select compensation pursuant to Section 43.7.1 or to identify a going forward cost offer price pursuant to Section 43.7.2. In such a case, the CAISO shall use the compensation under Section 43.7.1 for both dispatch and compensation for the Exceptional Dispatch CPM Term. In the case of a Scheduling Coordinator that has not previously identified the going forward cost offer price for a resource, the cap on supplemental revenues under Section 39.10.4 will be calculated using the monthly capacity payment under Section 43.7.1.

43.7.2.1.1 Determination of Capacity Price

If the CAISO designates a resource that has proposed a CPM Capacity or CPM Flexible Capacity price above the fixed CPM Capacity price per kW-year in effect under Section 43.7.1, and the sales from the resource are under the jurisdiction of the FERC, the Scheduling Coordinator for the resource shall make a limited resource-specific filing before the FERC to determine the just and reasonable capacity price for the going forward costs for the resource to be used in applying the CAISO's FERC jurisdictional monthly CPM Capacity Payment formula. If the sales from the resource are not under the jurisdiction of the FERC, the Scheduling Coordinator for the resource shall make a non-jurisdictional filing with the FERC to determine the just and reasonable capacity price for the going forward costs for the resource to be used in applying the CAISO's FERC-jurisdictional monthly CPM Capacity Payment formula.

43.7.2.1.2 Going Forward Cost

In making the cost justification filing with FERC for a CPM Capacity or CPM Flexible Capacity price above the fixed CPM Capacity price per kW-year under Section 43.7.1, the Scheduling Coordinator for the resource may not propose -- and shall not get paid -- an amount higher than the going forward cost offer price that it had previously proposed to the CAISO as its going forward cost offer price under Section 43.7 or this Section 43.7.2, either prior to or at the time of CPM designation.

Going forward costs for any resource-specific filing under this Section shall be calculated based on the following formula:

(fixed operation & maintenance costs, plus ad valorem taxes, plus administrative & general costs, plus ten (10) percent of the foregoing amounts),

provided such costs shall be converted to a fixed \$/kW-year amount.

43.7.2.2 Resource-Specific Monthly CPM Capacity Payment

Scheduling Coordinators representing resources receiving payment under Section 43.7.2 shall receive a monthly CPM Capacity Payment for each month of CPM designation equal to the product of the amount of their CPM Capacity or CPM Flexible Capacity, the relevant CPM Availability Factor for Forced Outages as determined in accordance with Appendix F, Schedule 6, a monthly shaping factor as set forth in Appendix F, Schedule 6, the resource-specific CPM Capacity price, as determined by FERC and the CPM Availability Percentage for Maintenance Outages, in accordance with the following formula:

$$\text{(CPM Capacity MW)} \times \text{(CPM Availability Factor for Forced Outages)} \times \text{(1/12 monthly shaping factor)} \times \text{(the resource-specific CPM Capacity price as determined by FERC)} \times \text{CPM Availability Percentage for Maintenance Outages.}$$

The CPM Availability Percentage for Maintenance Outages is equal to the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Maintenance Outage or non-temperature-related ambient de-rate to (2) the product of CPM Capacity MW and the total hours in the month.

The foregoing formula shall apply to all CPM Capacity or CPM Flexible Capacity receiving monthly CPM Capacity Payments under Section 43.7.2 except for CPM Capacity designated to respond to a CPM Significant Event or Exceptional Dispatch CPM, in which case the monthly CPM Capacity Payment shall be based proportionately on the actual number of days the resource was designated as CPM Capacity during the month and available to the CAISO to the total number of days in the month.

Prior to the determination by FERC of the resource-specific going forward costs for CPM Capacity or CPM Flexible Capacity designated and paid pursuant to Section 43.7.2, the CAISO shall proceed as follows. For the period between the CAISO's designation and the FERC's determination, the CAISO shall utilize the fixed CPM Capacity price per kW-year in effect under Section 43.7.1 for purposes of the resource-specific monthly CPM Capacity Payment for financial Settlement. This amount shall be subject

to surcharge based on the outcome of the FERC proceeding so that the resource will receive any higher actual resource-specific payment as determined by FERC for the full period of the CPM designation.

Once approved by FERC, the CAISO shall apply the higher of the fixed CPM Capacity price per kW-year in effect under Section 43.7.1 or the resource-specific CPM Capacity price as determined by the FERC.

For purposes of CPM and Flexible Capacity CPM designations, except for designations for CPM Significant Events, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rates, to (2) the product of CPM Capacity MW and the total hours in the month.

For purposes of CPM designations for CPM Significant Events, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour across all hours of the month or part of the month for which a unit is designated, whichever is applicable, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available and is not on an authorized Outage, to (2) the product of CPM Capacity MW and the total hours in the month or part of the month for which a unit is designated, whichever is applicable.

For purposes of this Section 43.7.2, an authorized Outage shall be limited to a CAISO Approved Maintenance Outage.

43.7.3 Market Payments

In addition to the CPM Capacity Payment identified in Section 43.7, CPM resources, including Flexible Capacity CPM resources, shall be entitled to retain any revenues received as a result of their selection in the CAISO Markets, provided, however, that CPM resources required to participate in the RUC process will be optimized using a zero (\$0) dollar RUC Availability Bid and are not eligible to receive compensation through the RUC process.

* * *

43.8.8 Allocation of CPM Flexible Capacity Costs

(a) Calculation of Deficiency by LRA.

- (1) The CAISO will determine whether each Local Regulatory Authority met its allocable share of the Flexible Capacity Need based on the cumulative amount of Flexible RA Capacity that Local Regulatory Authority's jurisdictional Load Serving Entities included in their annual and monthly Flexible RA Capacity Plans in total, and included in their monthly Flexible RA Capacity Plans for each Flexible Capacity Category.
- (2) The CAISO will calculate the total amount of Flexible RA Capacity included in the annual and monthly Flexible RA Capacity Plans collectively for all Load Serving Entities within the Local Regulatory Authority, and the total amount included in the monthly Flexible RA Capacity Plans for each Flexible Capacity Category using the minimum or maximum quantity, as applicable, for each category, and using the Effective Flexible Capacity value calculated under Section 40.10.4 for each resource designated in a plan as a Flexible RA Capacity Resource.

(b) **Allocation By CAISO Method.**

- (1) If the amount of Flexible RA Capacity the jurisdictional Load Serving Entities included in their annual Flexible RA Capacity Plans or monthly Flexible RA Capacity Plans, in total and in each Flexible Capacity Category, meets or exceeds the applicable Flexible Capacity Need allocated to their Local Regulatory Authority, the CAISO will not allocate any of the CPM Flexible Capacity costs to the Scheduling Coordinators for those Load Serving Entities.
- (2) If the amount of Flexible RA Capacity the jurisdictional Load Serving Entities included in their annual Flexible RA Capacity Plans or monthly Flexible RA Capacity Plans, either in total or for a Flexible Capacity Category, is less than the applicable Flexible Capacity Need allocated to their Local Regulatory Authority, and that Local Authority has not established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities, the CAISO will allocate the CPM Flexible Capacity costs proportionately to the Scheduling Coordinator of each jurisdictional Load Serving Entity that failed to meet its procurement obligation.

(c) **Allocation by Local Regulatory Authority Method.** If Load Serving Entities jurisdictional to a

Local Regulatory Authority have a cumulative deficiency under Section 43.8.8(a) and the Local Regulatory Authority has established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities, the CAISO will use the Local Regulatory Authority's methodology to allocate the CPM Flexible Capacity costs to the Scheduling Coordinator of each Load Serving Entity that is jurisdictional to that Local Regulatory Authority and that failed to meet its procurement obligation.

(d) **Reduction of Cost Allocation.** If the CAISO issues a Flexible Capacity CPM designation, a Scheduling Coordinator for a Load Serving Entity that was deficient, but provided additional Flexible RA Capacity in a revised annual or monthly Flexible RA Capacity Plan consistent with the Market Notice under Section 43.2.7.1 --

- (1) will be not be allocated a share of the Flexible Capacity CPM procurement costs if the additional Flexible RA Capacity included in that LSE's revised LSE Flexible RA Capacity Plan resolved the total deficiency of that Load Serving Entity; or
- (2) will be allocated a share of the Flexible Capacity CPM procurement costs on a proportionate basis to the extent that Load Serving Entity has a remaining partial deficiency.

43.9 Crediting Of CPM Capacity

The CAISO shall credit CPM designations to the resource adequacy obligations of Scheduling Coordinators for Load Serving Entities as follows:

- (a) To the extent the cost of CPM designation under Section 43.2.1.1 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.1, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards (1) the LSE's Local Capacity Area Resource obligation under Section 40.3.2 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.1.1 and (2) the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.1.1.

- (b) To the extent the cost of CAISO designation under Section 43.2.2 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.3, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.2.
- (c) To the extent the cost of CPM designation under Section 43.2.3 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.4, and the designation is for greater than one month under Section 43.3.4, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.3.
- (d) To the extent the cost of CPM designation under Section 43.2.6 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.7, and the designation is for greater than one month under Section 43.3.7, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.6.
- (e) The credit provided in this Section shall be used for determining the need for the additional designation of CPM Capacity under Section 43.2 and for allocation of CPM costs under Section 43.8.
- (f) For each Scheduling Coordinator that is provided credit pursuant to this Section, the CAISO shall provide information, including the quantity of capacity procured in MW, necessary to allow the CPUC, other Local Regulatory Authority, or federal agency with jurisdiction over the LSE on whose behalf the credit was

provided to determine whether the LSE should receive credit toward its resource adequacy requirements adopted by such agencies or authorities.

- (g) To the extent the cost of Flexible Capacity CPM designation under Section 43.2.7 is allocated to a Scheduling Coordinator for an LSE under Section 43.8.8, and the designation is for greater than one month under Section 43.3.8, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Flexible Capacity requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Flexible Capacity designated under Section 43.2.7.

* * *

APPENDIX A MASTER DEFINITIONS

- Effective Flexible Capacity

The maximum MWs of Flexible Capacity a resource has the capability to provide based on the counting criteria set forth in Section 40.10.4.2.

- Flexible Capacity

The capacity of a resource that is operationally able to respond to Dispatch Instructions to manage variations in load and variable energy resource output.

- Flexible Capacity Category

The classification of Flexible Capacity as base ramping, peak ramping, or super-peak ramping based on the resource's operational characteristics and ability to meet minimum availability requirements.

- Flexible Capacity CPM

Flexible Capacity designated under the Capacity Procurement Mechanism, for the term of the designation.

- Flexible Capacity Need

The MW of Flexible Capacity that the CAISO forecasts will be needed in the next Resource Adequacy

Compliance Year to reliably operate the CAISO Controlled Grid.

- Flexible Capacity Needs Assessment

The study performed by the CAISO to forecast the Flexible Capacity Need.

- Flexible RA Capacity

Flexible Capacity with an obligation to provide Flexible RA Capacity during a resource adequacy month.

- LSE Flexible RA Capacity Plan

A submission by a Scheduling Coordinator for a Load Serving Entity in the form required by the Business Practice Manual to satisfy the requirements of Section 40.10.

- Maximum Secondary Three-Hour Net-Load Ramp

The second highest daily increase in CAISO system load, net of wind and solar output, measured over a consecutive three-hour time period that does not correspond with the time period for the Maximum Three-Hour Net-Load Ramp.

- Maximum Three-Hour Net-Load Ramp

The highest daily increase in CAISO system load within a month, net of wind and solar output, measured over a consecutive three-hour time period.

- Resource Flexible RA Capacity Plan

A submission by a Scheduling Coordinator for a resource in the form required by the Business Practice Manual to satisfy the requirements of Section 40.10.

Attachment B – Marked Tariff Sheets
Flexible Resource Adequacy Capacity Requirement Amendment
California Independent System Operator Corporation

40.10 Flexible RA Capacity

40.10.1 Flexible Capacity Needs Assessment

The CAISO shall annually conduct a study to determine the Flexible Capacity Need of the CAISO Balancing Authority Area for each month of the next calendar year and provide the results of the study in the Flexible Capacity Needs Assessment.

40.10.1.1 Process

- (a) **Schedule.** The CAISO shall conduct the study pursuant to the schedule set forth in the Business Practice Manual, which shall include a process for stakeholders to review and provide input on the study methodology and assumptions and on the draft study results.
- (b) **Completion and Distribution.** The CAISO shall provide the final results of the Flexible Capacity Needs Assessment to each Local Regulatory Authority in the CAISO Balancing Authority Area and post the Flexible Capacity Needs Assessment on the CAISO Website no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be submitted under Section 40.

40.10.1.2 Required Information From LSEs

- (a) **Submission Requirement.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required by this Section, no later than January 15 each year, for use in the CAISO's study to generate minute-by-minute net-load data that will be used to determine the Maximum Three-Hour Net-Load Ramp for each month.
- (b) **Required Information.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area must submit information that --
- (1) covers the calendar year in which the information is submitted and each year in the next five-year period;
 - (2) identifies each wind and solar resource connected to the CAISO Controlled Grid, and distributed wind and solar resources, that is owned, in whole or in part, by the Load Serving Entity, or under contractual commitment to the Load Serving Entity, for all or a portion of its capacity;
 - (3) indicates the status of the resource as either in service or in development with its expected commercial operation date;

- (4) for each wind and solar resource, specifies the MWs of installed capacity, renewable energy area location, MWs of flexible capacity owned by or contractually committed to the Load Serving Entity, and other information required by the Business Practice Manual;
- (5) describes the balancing services, if any, provided by another balancing authority area for a wind or solar resource that is located outside of the CAISO Balancing Authority Area and that is owned by or contractually committed to the Load Serving Entity; and
- (6) forecasts the MW of installed, behind-the-meter solar capacity in the Load Serving Entity's service area or part of its forecast served load.

(c) **Confidential Treatment.** The CAISO will treat the resource-specific information provided under Section 40.10.1.2(b) as confidential under Section 20.

(d) **Aggregated Information.** In addition to the required resource-specific information, the Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required in Section 40.10.1.2(b) on an aggregated basis, as described in the Business Practice Manual, for inclusion in the Flexible Capacity Needs Assessment that will be posted on the CAISO Website.

40.10.1.2.1 Incomplete or Inaccurate Information.

(a) **Rerun of Study.** If the CAISO finds that a Load Serving Entity submitted incomplete or inaccurate information under Section 40.10.1.2(b), which was used in the calculation of the Flexible Capacity Need for the next calendar year, the CAISO may rerun its study using corrected information to recalculate Flexible Capacity Need for the entire year.

(b) **Criteria for Rerun.** The CAISO will not rerun its study to recalculate the Flexible Capacity Need unless:

- (1) the incomplete or inaccurate information represents a net error in excess of either (i) 200 MW; or (ii) one percent of the total MWs of wind and solar capacity submitted under Section 40.10.1.2(b) for any month; and

- (2) the CAISO has sufficient time to obtain corrected information and complete rerunning the study for the next calendar year by May 1.

(c) **Revised Flexible Capacity Need.** If the CAISO determines that the requirements in Sections

40.10.1.2.1(a) and (b) are met, the CAISO will recalculate the Flexible Capacity Need for the next calendar year and will no later than May 1 post a revised Flexible Capacity Needs Assessment on the CAISO Website.

40.10.1.3 Flexible Capacity Need Methodology

The CAISO shall conduct the study to determine the Flexible Capacity Need for the system for each month of the next calendar year as follows:

- (1) forecast the minute-to-minute system load and net-load using actual load data, as adjusted for monthly peak load growth, and generation profiles for wind and solar resources that are in-service or expected to be in-service during the study period;
- (2) calculate the Maximum Three-Hour Net-Load Ramp for each month using the forecasted minute-to-minute system net-load;
- (3) determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each month;
- (4) may include a forecast adjustment, as described in Section 40.10.1.4; and
- (5) compute the resultant Flexible Capacity Need for each month based on the sum of the Maximum Three-Hour Net-Load Ramp, and the higher of the most severe single contingency or 3.5 percent of the forecasted monthly peak load.

40.10.1.4 Flexible Capacity Need Forecast Adjustment

- (a) The Flexible Capacity Need determination may include a positive or negative forecast adjustment to capture a systemic difference between the value determined in Section 40.10.3(3) and the historic amount of Operating Reserves met by Flexible Capacity;
- (b) The CAISO will determine the need for a forecast adjustment in consultation with the CPUC and other Local Regulatory Authorities, and as part of the stakeholder process under Section 40.10.1.1; and
- (c) The amount of the forecast adjustment calculated for each month shall not exceed the forecasted monthly peak Operating Reserves multiplied by the difference between (i) the historic percentage of Operating Reserves met by Flexible RA Capacity and (ii) the percentage calculation that results from dividing the quantity determined in Section 40.10.1.3(3) by the forecasted monthly

peak Operating Reserves.

40.10.1.5 Flexible Capacity Category Need

(a) The CAISO shall calculate the total system amount of Flexible Capacity needed in each Flexible Capacity Category, for each month of the next calendar year to ensure that forecast system operational needs will be met, as follows:

(1) The minimum quantity of Flexible Capacity needed in the Flexible Capacity Category for base ramping resources for each month will be calculated on a seasonal basis based on the system ramping characteristics identified in the Flexible Capacity Needs Assessment and the changes in MWs of the Maximum Secondary Three-Hour Net-Load Ramps for each month within a season, and will be specified in MW and as the percentage of total Flexible Capacity Needs.

(2) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for peak ramping resources will be calculated for each month as the difference between the minimum quantity needed in the Flexible Capacity Category for base ramping resources and the total Flexible Capacity Need, and will be specified in MW and as the percentage of total Flexible Capacity Needs.

(3) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for super-peak ramping resources will be five percent of the total Flexible Capacity Need.

(b) The CAISO shall provide the results of the Flexible Capacity Category need determination with the Flexible Capacity Needs Assessment.

40.10.2 Allocation of Flexible Capacity Need

The CAISO will calculate each Local Regulatory Authority's allocable share of the total system Flexible Capacity Need, and the contribution of each of the Local Regulatory Authority's jurisdictional Load Serving Entities to the Maximum Three-Hour Net-Load Ramp used to calculate its share of the total system Flexible Capacity Need. The CAISO shall provide these calculations to each Local Regulatory Authority no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be submitted under Section 40. Nothing in this Section 40 obligates any individual Load Serving Entity to

demonstrate that it has procured Flexible Capacity Resources to satisfy a minimum or maximum quantity needed, as applicable, within each Flexible Capacity Category.

40.10.2.1 Calculation of LRA Allocations

- (a) **Allocation of Maximum Three-Hour Net-Load Ramp.** The CAISO will calculate the Local Regulatory Authority's allocable share of the Flexible Capacity Need as the average of the sum of its jurisdictional Load Serving Entities' change in load, minus the change in wind output, minus the change in solar PV output, minus the change in solar thermal output during the five highest three-hour net-load changes in the month.
- (b) **Allocation of MSSC or Forecasted Peak Load.** The CAISO will determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each Load Serving Entity based on the respective Load Serving Entity's peak load ratio share, and calculate each Local Regulatory Authority's allocable share based on the sum of its jurisdictional Load Serving Entities' shares.
- (c) **Allocation of Forecast Adjustment.** If the CAISO includes a forecast adjustment in its draft study results, it will include an explanation of the cause and allocation of the changed need in its Flexible Capacity Needs Assessment for review as part of the stakeholder process under Section 40.10.1.1.

40.10.2.2 Allocation to Load-Following MSS

The CAISO will calculate the allocable share of the Flexible Capacity Need for each Load-following MSS in accordance with the provisions for Local Regulatory Authorities in Section 40.10.2. The CAISO will deduct the Flexible Capacity Need allocated to each Load-following MSS from the calculation to determine whether a cumulative deficiency in Flexible RA Capacity exists under Section 43.2.7.

40.10.3 Flexible Capacity Categories

40.10.3.1 Flexible Capacity Category Calculation. A resource qualifies to provide Flexible RA Capacity in each Flexible Capacity Category for which it meets the qualifications set forth in this Section 40.10.3.

40.10.3.2 Flexible Capacity Category-- Base Ramping Resources

(a) **Resource Criteria.** Base ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.2(b) and (c) --

- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, submitted daily for the 17-hour period from 5:00 a.m. through 10:00 p.m.:
- (2) The resource must be capable of providing Energy for a minimum of six hours up to its full Effective Flexible Capacity value including PMin;
- (3) The resource must be capable of being available seven days a week;
- (4) The resource must be able to provide the minimum of (i) two Start-Ups per day for every day of the month or sixty Start-Ups per month, or (ii) the number of Start-Ups allowed by its operational limits, including minimum up and minimum down time; and
- (5) The resource must not have annual or monthly limitations on the number of Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.2(a)(1) through (4).

(b) **Use-Limited Resource**

- (1) A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.2(a).
- (2) A Load Serving Entity may include in this category a combined resource consisting of two Use-Limited Resources that do not individually meet the minimum operational and availability requirements but in combination meet the criteria in Section 40.10.3.2(a).
- (3) The Flexible RA Capacity amount for the combined resource will be less than or equal to the lowest Effective Flexible Capacity value shown on the Resource Flexible RA Capacity Plan for a resource in the combination.
- (4) Both resources in the combination shall be subject to the must-offer obligation up to their Flexible RA Capacity amounts.

(c) **Non-Generator Resource.** A Non-Generator Resource that elects to provide Flexible RA

Capacity may be included in this category if it meets the criteria in Section 40.10.3.2(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.

40.10.3.3 Flexible Capacity Category -- Peak Ramping Resources

(a) Resource Criteria. Peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.3(b) and (c) --

(1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted daily for a five-hour period to be determined by the CAISO on a seasonal basis;

(2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;

(3) The resource must be capable of being available seven days a week.

(4) The resource must be capable of at least one Start-Up per day; and

(5) The resource must not have annual or monthly limitations on the number of unit Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.3(a)(1) through (4).

(b) Use-Limited Resource. A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.3(a).

(c) Non-Generator Resource. A Non-Generator Resource that elects to provide Flexible RA Capacity may be included in this category if it meets the criteria in Section 40.10.3.3(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.

(d) Base Ramping Resource. A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources also qualifies to be included in this category as a peak ramping resource; however, a resource that meets only the qualifications of a peak ramping resource does not qualify as a base ramping resource.

40.10.3.4 Flexible Capacity Category -- Super-Peak Ramping Resources.

(a) Resource Criteria. Super-peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.4(b), (c) and (d) --

- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services Bids that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted each weekday that is not holiday, for a five-hour period to be determined by the CAISO on a seasonal basis;
- (2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;
- (3) The resource must be capable of being available on weekdays that are not holidays, as defined in the Business Practice Manual;
- (4) The resource must be capable of at least one Start-Up per day; and
- (5) The resource must be capable of responding to at least five CAISO dispatches per month, during the five-hour period of the must offer obligation, for the resource to Start-Up.

(b) Use-Limited Resource. A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a).

(c) Non-Generator Resource. A Non-Generator Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a) and is not registered in the CAISO's Master File as a Regulation Energy Management resource.

(d) Non-Generator Resource, Regulation Energy Management. A Non-Generator Resource that is a Regulation Energy Management resource may be included in this category if it meets the following criteria --

- (1) The resource must be capable of providing Regulation Energy Management to the CAISO Markets through Economic Bids for Regulation Up and Regulation Down submitted daily for a 17-hour period from 5:00 a.m. through 10:00 p.m.;

- (2) The resource shall not submit bids to provide Energy;
- (3) The resource must be capable of being available seven days a week;
- (4) The resource must be capable of unlimited Start-Ups per day; and
- (5) The resource must be registered as a Non-Generator Resource providing Regulation Energy Management in the CAISO's Master File.

(e) **Base Ramping and Peak Ramping Resources.** A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources or peak ramping resources also qualifies to be included in this category as a super-peak ramping resource; however, a resource that meets only the qualifications of a super-peak ramping resource does not qualify as a base ramping resource or a peak ramping resource.

40.10.3.5 Flexible Capacity Category By Resource

The CAISO will provide to the Scheduling Coordinator of each resource a non-binding determination of the Flexible Capacity Category with the highest qualifications for which the resource qualifies to provide Flexible Capacity, as provided in Section 40.10.4.

40.10.3.6 Non-Eligible Resources

Intertie resources and imports, other than Pseudo-Ties and Dynamic Scheduled resources, are not eligible to provide Flexible RA Capacity.

40.10.4 Effective Flexible Capacity

The CAISO shall calculate the Effective Flexible Capacity value for each resource that submitted at least one Economic Bid for Energy in the Real-Time Market on at least 10 days in the previous calendar year, or in the most recent 12-month period for which data is available. The CAISO shall publish the draft and final lists of the Effective Flexible Capacity values for such resources and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity on the CAISO Website each year in accordance with the schedule for publishing the Net Qualifying Capacity values, as set forth in the BPM, for use in the next calendar year.

40.10.4.1 Effective Flexible Capacity Calculation

(a) **Flexible Resources.** The CAISO will calculate the Effective Flexible Capacity value of a resource, for use (i) if a Local Regulatory Authority has not established criteria for calculating the

Effective Flexible Capacity value for eligible resource types, and (ii) for determining if a cumulative deficiency exists under Sections 43.2.7(a) and (b), as follows, except as provided in Sections 40.10.4.1 (b) through (f) --

(1) If the Start-Up Time of the resource is greater than 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from PMin to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not ~~to~~ exceed the difference between the PMin and PMax of the resource.

(2) If the Start-Up Time of the resource is less than or equal to 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from zero to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not ~~to~~ exceed the Net Qualifying Capacity of the resource.

(b) **Hydroelectric Generating Unit.** The Effective Flexible Capacity of a hydroelectric generating unit will be the amount of capacity from which the resource can produce Energy consistently for 6 hours based upon the resource's physical storage capacity, which shall not exceed its Net Qualifying Capacity.

(c) **Proxy Demand Response Resource.** The Effective Flexible Capacity of a Proxy Demand Response Resource will be based on the resource's actual MWs of load modification in response to a dispatch by the CAISO during a test event. In determining the Effective Flexible Capacity of a Proxy Demand Response Resource, the CAISO will --

(1) conduct the test at a random time during the flexible capacity must-offer obligation period for the resource;

(2) use the baseline load data, as described in the CAISO Tariff or Business Practice Manual, to measure the load modification for the Proxy Demand Response Resource being tested; and

(3) pay the resource's bid price for the testing period.

(d) **Energy Storage Resource.** The Effective Flexible Capacity value for an energy storage resource will be determined as follows --

(1) for an energy storage resource that provides Flexible RA Capacity but not Regulation

Energy Management, the Effective Flexible Capacity value will be the MW output range the resource can provide over three hours of charge/discharge while constantly ramping.

(2) for an energy storage resource that provides Flexible RA Capacity and Regulation

Energy Management, the Effective Flexible Capacity value will be the resource's 15-minute energy output capability.

(e) **Multi-Stage Generating Resource.** The Effective Flexible Capacity value for a Multi-Stage Generating Resource will be calculated using the longest Start-Up Time of the resource's configuration that has the lowest PMin.

(f) **Combined Heat and Power Resource.** The Effective Flexible Capacity value of a Combined Heat and Power Resource will be the lesser of (i) the resource's Net Qualifying Capacity, or (ii) the MW difference between the resource's maximum output and the minimum of either its operating level or its capability over three hours.

40.10.4.2 EFC Omission or Correction

(a) **Draft List.** The posted draft list of Effective Flexible Capacity values may be modified only as follows –

(1) If the Scheduling Coordinator for a resource that was not included on the draft list of Effective Flexible Capacity values seeks to have the resource included on the list, it must no later than September 1 submit a request to the CAISO either showing that the resource meets the criteria in Section in 40.10.4.1 or is capable of meeting the criteria, and provide documentation to enable the CAISO to determine the resource's Effective Flexible Capacity pursuant to the criteria in Section 40.10.4.1.

(2) If the Scheduling Coordinator for a resource that was included on the draft list of Effective Flexible Capacity values seeks to change the value for that resource, it must submit documentation no later than September 1 that supports such a change.

(3) The CAISO will review the information submitted and notify the Scheduling Coordinator whether the change was accepted at least 15 days prior to posting the final list of Effective Flexible Capacity values on the CAISO Website.

(b) **Final List.** The CAISO will post on the CAISO Website the final list of Effective Flexible Capacity

values for resources that are in service or that are under construction with an expected in service date during the year and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity. The final list shall be used for the next calendar year and shall not be changed during that year, except as follows –

(1) If the Net Qualifying Capacity or PMax of a resource included on the final list increases or decreases during the year, and that value is changed in the Master File, the Scheduling Coordinator for the resource may request that the Effective Flexible Capacity value be recalculated to account for the change; or

(2) If a resource identified as under construction on the final list, or other new resource, achieves commercial operation during the year, the Scheduling Coordinator for the resource may request that the CAISO calculate and add its Effective Flexible Capacity value and the Flexible Capacity Categories for which the resource qualifies to provide Flexible Capacity to the final list as an in-service resource.

(c) **Disputes.** Any disputes as to the CAISO's determination regarding Effective Flexible Capacity shall be subject to the CAISO ADR Procedure.

40.10.5 Flexible RA Capacity Plans

40.10.5.1 LSE Flexible RA Capacity Plans

(a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly LSE Flexible RA Capacity Plans for each Load Serving Entity it represents; except that an annual plan for 2015 is not required. A Load-Following MSS is not required to submit annual or monthly LSE Flexible RA Capacity Plans.

(b) **Annual Plan.** Each annual LSE Flexible RA Capacity Plan must –

(1) demonstrate that the Load Serving Entity has procured for each month at least 90 percent of the annual Flexible RA Capacity requirement determined by the CAISO; or the amount of Flexible RA Capacity required by the Load Serving Entity's Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;

(2) identify the resources the Load Serving Entity intends to rely on to provide the Flexible RA Capacity; and

(3) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.

(c) **Monthly Plan.** The monthly LSE Flexible RA Capacity Plan must --

(1) demonstrate that the Load Serving Entity procured 100 percent of the total monthly Flexible RA Capacity requirement determined by the CAISO; or the monthly amount of Flexible RA Capacity required by the Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;

(2) demonstrate that the Load Serving Entity met the total monthly requirement determined by the CAISO within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category; or only if the Local Regulatory Authority has established its own flexible capacity requirement, show that the Load Serving Entity has met the total monthly requirement determined by the Local Regulatory Authority within the minimum or maximum quantity for each Flexible Capacity Category required by the Local Regulatory Authority, if applicable;

(3) identify all resources the Load Serving Entity will rely on to provide the Flexible RA Capacity and for each resource specify the Flexible Capacity Category in which the Flexible RA Capacity will be provided; and

(4) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.

(d) **Correction to Monthly Plan.** The Scheduling Coordinator for the Load Serving Entity may submit at any time from 45 days through 11 days in advance of the first day of the month covered by the plan, a revision to its monthly LSE Flexible RA Capacity Plan to correct an error in the plan. The CAISO will not accept any revisions to a monthly LSE Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Load Serving Entity demonstrates good cause for the change and explains why it was not possible to submit the change earlier.

40.10.5.2 Resource Flexible RA Capacity Plans

- (a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly Resource Flexible RA Capacity Plans for each resource it represents that provides Flexible RA Capacity; except that an annual plan is not required for 2015.
- (b) **Annual Plan.** The annual Resource Flexible RA Capacity Plan shall --
- (1) verify the resource's agreement to provide Flexible RA Capacity during the next Resource Adequacy Compliance Year; and
 - (2) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (c) **Monthly Plan.** The monthly Resource Flexible RA Capacity Plan shall --
- (1) verify the resource's agreement to provide Flexible RA Capacity during the month;
 - (2) include an affirmative representation by the Scheduling Coordinator submitting the plan that the CAISO is entitled to rely on the accuracy of the information provided in the plan to perform those functions set forth in this Section 40; and
 - (3) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (d) **Correction to Monthly Plan.** The Scheduling Coordinator for the resource may correct an error in the plan by submitting a revision to its monthly Resource Flexible RA Capacity Plan at any time from 45 days through 11 days in advance of the first day of the month covered by the plan. The CAISO will not accept any revisions to a monthly Resource Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Resource demonstrates good cause for the change and explains why it was not possible to submit the change earlier.

40.10.5.3 Review of Flexible RA Capacity Plans

- (a) **Validation For Deficiency In An Individual LSE Plan.**
- (1) If the Local Regulatory Authority has not established its own flexible capacity

procurement requirements, the CAISO will validate the annual and monthly LSE Flexible RA Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities, and will use the Effective Flexible Capacity value for each resource calculated under Section 40.10.4. The CAISO will determine whether each Load Serving Entity met its annual or monthly total Flexible RA Capacity Requirement, and for the monthly LSE Flexible RA Capacity Plan, whether it met the total monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category.

(2) If the Local Regulatory Authority has established its own flexible capacity procurement requirements, the CAISO will not validate the individual LSE Flexible Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities.

(b) **Identification of Discrepancy.** The CAISO will compare all LSE Flexible RA Capacity Plans and Resource Flexible RA Capacity Plans to identify any discrepancy in the Resource Adequacy Resources listed or the amount of the Resource Adequacy Capacity committed.

(c) **Evaluation For Cumulative Deficiency.**

(1) The CAISO will evaluate the annual LSE Flexible RA Capacity Plans of all Load Serving Entities on a cumulative basis to determine whether the total amount of Flexible RA Capacity shown in the plans meets 90 percent of the annual Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1 or whether a cumulative deficiency may exist under Section 43.2.7(a).

(2) The CAISO will evaluate the monthly Flexible RA Capacity Plans of all Load Serving Entities to determine whether (i) the total amount of Flexible RA Capacity shown in the plans, limited to the maximum monthly requirement for each category, meets the applicable monthly Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1 or whether a cumulative deficiency may exist under Section 43.2.7(b)(1); or (ii) the total amount of Flexible RA Capacity shown in the base ramping Flexible Capacity Category in the plans meets the minimum monthly requirement for the base ramping Flexible Capacity Category determined by the CAISO pursuant to Section 40.10.1.5 or whether a cumulative deficiency may exist under Section 43.2.7(b)(2).

- (d) **Calculation of Flexible RA Capacity.** The CAISO will calculate the amount of Flexible RA Capacity included in the annual and monthly Flexible RA Capacity Plans using the MW amount of Flexible RA Capacity for each resource designated in a plan as a Flexible RA Capacity Resource up to the Effective Flexible Capacity value for the resource calculated under Section 40.10.4.
- (e) **Allocated Flexible RA Capacity Requirement.** The CAISO will calculate the Load Serving Entity's allocated annual and monthly Flexible RA Capacity Requirement --
- (1) For Load Serving Entities within a Local Regulatory Authority that has not adopted its own allocation methodology, the CAISO will calculate the Load Serving Entity's allocated requirement based on the CAISO's allocation methodology set forth in Section 40.10.2.
 - (2) For Load Serving Entities within a Local Regulatory Authority that has adopted its own allocation methodology, the CAISO will use that Local Regulatory Authority's methodology for the Local Regulatory Authority's jurisdictional Load Serving Entities.

40.10.5.4 Deficiency in LSE Flexible RA Capacity Plan

- (a) **Finding and Notification.** If the CAISO's validation under Section 40.10.5.3(a) finds either (i) that the total amount of Flexible RA Capacity included in an annual or monthly LSE Flexible RA Capacity Plan is not sufficient to satisfy the Load Serving Entity's allocated Flexible RA Capacity Requirement or (ii) that the total monthly requirement in a monthly LSE Flexible RA Capacity Plan was not met within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category, the CAISO will --
- (1) notify the relevant Scheduling Coordinator, and the Local Regulatory Authority or federal agency with jurisdiction over the relevant Load Serving Entity, in an attempt to resolve any deficiency in accordance with the procedures set forth in the Business Practice Manual; and
 - (2) provide the notice at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a deficiency exists.
- (b) **Resolved Deficiency.** If the CAISO issues a notice of deficiency under Section 40.10.5.4(a), and the deficiency is resolved, the Scheduling Coordinator for the Load Serving Entity shall --

(1) demonstrate, no less than 11 days prior to the first day of the month covered by the LSE Flexible RA Capacity Plan, that the identified deficiency is cured by submitting a revised LSE Flexible RA Capacity Plan, or

(2) advise the CAISO that the Load Serving Entity's Local Regulatory Authority, or federal agency, as appropriate, has determined that no deficiency exists.

(c) **Unresolved Deficiency.** If the CAISO issues a notice of deficiency under Section 40.10.5.4(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.5.5 Discrepancy Between Flexible RA Capacity Plans.

(a) **Finding and Notification.** If the CAISO's review under Section 40.10.5.3(b) finds a discrepancy between an LSE Flexible RA Capacity Plan and a Resource Flexible RA Capacity Plan, the CAISO will --

(1) notify the relevant Scheduling Coordinators of the mismatch in an attempt to resolve the discrepancy in accordance with the procedures set forth in the Business Practice Manual; and

(2) provide the notice at least 25 days in advance of the first day of the month covered by the plans and include the reasons the CAISO believes a discrepancy exists.

(b) **Resolved Discrepancy.** If the CAISO issues a notice of discrepancy under Section 40.10.5.5(a) and the discrepancy is resolved, the Scheduling Coordinator must provide the CAISO with a revised LSE Flexible RA Capacity Plan or Resource Flexible RA Capacity Plan, as applicable, no less than 11 days prior to the first day of the month covered by the plans.

(c) **Unresolved Discrepancy.** If the CAISO issues a notice of discrepancy under Section 40.10.5.5(a) and is not advised that the discrepancy is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.5.6 LRA Deficiency.

(a) **Finding and Notification.** If the CAISO's evaluation under Section 40.10.5.3(c) finds a cumulative deficiency in Flexible RA Capacity, the CAISO will --

(1) identify each Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need using the cumulative amount of Flexible RA Capacity that the Local Regulatory Authority's jurisdictional Load Serving Entities included in their annual and monthly Flexible RA Capacity Plans in total and, for the monthly Flexible RA Capacity Plans, in each Flexible Capacity Category;

(2) identify each Load Serving Entity that (i) is subject to the jurisdiction of a Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need under Section 40.10.5.6, and (ii) did not include sufficient Flexible RA Capacity in an annual or monthly plan to meet its allocated Flexible RA Capacity Requirement or did not meet the monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category, based on the allocation methodology of the Local Regulatory Authority if it has established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities;

(3) notify each Local Regulatory Authority identified under Section 40.10.5.6(1) and the Scheduling Coordinator for each Load Serving Entity identified under Section 40.10.5.6(2) of the cumulative deficiency in an attempt to resolve any deficiency in accordance with the procedures set forth in the Business Practice Manual; and

(4) provide the notice at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a cumulative deficiency exists.

(b) **Resolved Deficiency.** If the CAISO provides a notice of cumulative deficiency under Section 40.10.5.6(a), and the deficiency is resolved, the Scheduling Coordinator for the Load Serving Entity shall demonstrate, no less than 11 days prior to the first day of the month covered by the LSE Flexible RA Capacity Plan, that the identified deficiency is cured by submitting a revised LSE Flexible RA Capacity Plan.

(c) **Unresolved Deficiency.** If the CAISO provides a notice of deficiency under Section 40.10.5.6(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in

the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.6 Flexible RA Capacity Must-Offer Obligation

40.10.6.1 Day-Ahead and Real-Time Availability

(a) Must-Offer Obligation. The Scheduling Coordinator for a resource supplying Flexible RA Capacity must submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the applicable Trading Hours that is capable of being economically dispatched as follows, except as provided in Section 40.10.6.1(e) through(h) --

- (1) Flexible Capacity Category for base ramping resources - the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week;
- (2) Flexible Capacity Category for peak ramping resources - the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, seven days a week; and
- (3) Flexible Capacity Category for super-peak ramping resources – the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, weekdays, except holidays and as provided in Section 40.10.6.1(h), until the resource receives during the five-hour period of the must offer obligation and responds to five CAISO dispatches for Start-Up during the month, after which the resource will not be subject to a must-offer obligation as a super-peak ramping resource for the remainder of that month; however, any other must-offer obligations for Resource Adequacy Capacity will still apply.

(b) Availability Requirement. During the period of the applicable must-offer obligation, a Flexible RA Capacity Resource must be operationally available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.

- (c) **Co-optimization.** Through the IFM co-optimization process, the CAISO will utilize available Flexible RA Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.
- (d) **Participation in RUC.** A Flexible RA Capacity Resource must participate in the RUC to the extent that the resource has available Flexible RA Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid. Flexible RA Capacity selected in RUC will not be eligible to receive a RUC Availability Payment.
- (e) **Use-Limited Resources.** A Use-Limited Resource providing Flexible RA Capacity must be capable of responding to Dispatch Instructions and, consistent with its use-limitations, must submit Economic Bids for Energy for the full amount of its Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the Trading Hours applicable to the resource's Flexible Capacity Category for that month for the Trading Hours that it is capable of being economically dispatched.
- (f) **Short, Medium or Long Start Units.**
- (1) Short Start Units or Medium Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.3 that apply to Short Start Units providing RA Capacity.
 - (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.7 that apply to Long Start Units providing RA Capacity.
 - (3) If availability is required under Sections 40.6.3 or 40.6.7, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Energy Bids for the full amount of the

available Flexible RA Capacity, including capacity for which it has submitted Ancillary Services Bids; and (ii) Ancillary Services Bids for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids.

(g) **Extremely Long-Start Resources.** Flexible RA Capacity Resources that are Extremely Long-Start Resources must be available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the resource upon instruction from the CAISO, if physically capable. Once an Extremely Long-Start Resource is committed by the CAISO, it is subject to the provisions of Section 40.10.6.regarding Day-Ahead Availability and Real-Time Availability for the Trading Days for which it was committed.

(h) **Non-Generator Resources, Regulation Energy Management.** Non-Generator Resources providing Flexible RA Capacity and Regulation Energy Management must submit Bids for Regulation Up and Regulation Down for Trading Hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and shall not submit Bids for Energy or other Ancillary Services.

40.10.6.2 Failure to Bid

If the Scheduling Coordinator for a resource supplying Flexible RA Capacity does not submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the Trading Hours during the period of the applicable must-offer obligation –

(1) the CAISO will not insert Generated Bids for any Flexible RA Capacity for which the resource did not submit bids; and

(2) An Exceptional Dispatch instruction issued to the resource for all or a portion of its Flexible RA Capacity shall not be an Exceptional Dispatch CPM designation under Section 43.2.5.

* * *

43.1 ~~Interim Capacity Procurement Mechanism [Not Used]~~

~~The ICPM as well as changes made to other Sections to implement the ICPM shall expire at midnight on the last day of the twenty-fourth month following the effective date of this Section and shall be replaced with the CPM. ICPM designations in existence on the date the CPM becomes effective shall, as of that date, be subject to the CPM, including the provisions concerning compensation, cost allocation and Settlement, until such time as the ICPM resources have been finally compensated for their services rendered under the ICPM prior to the termination of the ICPM, and the CAISO has finally allocated and recovered the costs associated with such ICPM compensation.~~

43.1.1 Capacity Procurement Mechanism Expiration

The CPM as well as changes made to other Sections to implement the CPM shall expire at midnight on the last day of the forty-eighth month following the effective date of this Section. CPM designations in existence on the expiration date shall continue in effect and remain subject to the CPM, including the provisions concerning compensation, cost allocation and Settlement, until such time as the CPM resources have been finally compensated for their services rendered under the CPM prior to the termination of the CPM, and the CAISO has finally allocated and recovered the costs associated with such CPM compensation. This Section shall also apply to the Flexible Capacity CPM provisions in Section 43 and any Flexible Capacity CPM designations in existence on the expiration date.

43.2 Capacity Procurement Mechanism Designation

The CAISO shall have the authority to designate Eligible Capacity to provide CPM Capacity services under the CPM to address the following circumstances, as discussed in greater detail in Section 43:

1. Insufficient Local Capacity Area Resources in an annual or monthly Resource Adequacy Plan;
2. Collective deficiency in Local Capacity Area Resources;

3. Insufficient Resource Adequacy Resources in an LSE's annual or monthly Resource Adequacy Plan;
4. A CPM Significant Event;
5. A reliability or operational need for an Exceptional Dispatch CPM; ~~and~~
6. Capacity at risk of retirement within the current RA Compliance Year that will be needed for reliability by the end of the calendar year following the current RA Compliance Year; ~~and~~
7. A cumulative deficiency in the total Flexible RA Capacity included in the annual or monthly Flexible RA Capacity Plans, or in a Flexible Capacity Category in the monthly Flexible RA Capacity Plans.

* * *

43.2.7 Cumulative Deficiency in Flexible RA Capacity

- (a) **Annual Plans.** A cumulative deficiency will exist in the annual LSE Flexible RA Capacity Plans if the total amount of Flexible RA Capacity shown in the plans of all Load Serving Entities, based on the Effective Flexible Capacity value determined by the CAISO for each resource, is less than 90 percent of the annual Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1.
- (b) **Monthly Plans.** A cumulative deficiency will exist in the monthly Flexible RA Capacity Plans --
 - (1) if the total amount of Flexible RA Capacity shown in the plans of all Load Serving Entities, limited on a collective basis to the maximum monthly requirement for each category and based on the Effective Flexible Capacity value determined by the CAISO for each resource, is less than the applicable monthly Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1; or
 - (2) if the total amount of Flexible RA Capacity shown in the base ramping Flexible Capacity Category in the plans of all Load Serving Entities, based on the Effective Flexible Capacity value determined by the CAISO for each resources, on a collective basis is less than the minimum monthly requirement for the base ramping Flexible Capacity Category determined by the CAISO pursuant to Section 40.10.1.4.

43.2.7.1 Final Opportunity to Resolve Deficiency

If the processes set forth in Section 40.10.5.4, 40.10.5.5, and 40.10.5.6 do not fully resolve a deficiency or discrepancy in the annual or monthly Flexible RA Capacity Plans, and if the CAISO determines that a cumulative deficiency exists under Section 43.2.7 and that there is a need for Flexible Capacity CPM, but prior to issuing a Flexible Capacity CPM designation for the cumulative deficiency –

- (1) the CAISO shall (i) issue a Market Notice that describes the cumulative deficiency and specifies the quantity of Flexible RA Capacity necessary to meet the applicable Flexible Capacity Need, and (ii) notify the Load Serving Entities that are deficient and the Local Regulatory Authority with jurisdiction over each deficient Load Serving Entity;
- (2) a Scheduling Coordinator for a Load Serving Entity that is deficient, or for a Load Serving Entity subject to the jurisdiction of a Local Regulatory Authority that is deficient, may submit a revised annual or monthly Flexible RA Capacity Plan to demonstrate procurement of additional Flexible RA Capacity consistent with the Market Notice issued under this Section; but shall not include any other revisions in a plan submitted under this Section. A revised annual Flexible RA Capacity Plan must be submitted no later than December 31 for the following calendar year. A revised monthly -Flexible RA Capacity Plan must be submitted no less than five days prior to the first day of the applicable month.

43.2.7.2 Designation

After the opportunity to resolve the cumulative deficiency under Section 40.10.5.4 has been exhausted, if total required Flexible RA Capacity reported to the CAISO in revised annual or monthly Flexible RA Capacity Plans does not meet the Flexible RA Capacity Need in accordance with this Section, the CAISO may issue a Flexible Capacity CPM designation in an amount sufficient to alleviate the deficiency.

* * *

43.3.8 Term – Flexible Capacity CPM Designation

- (a) **Annual Plan.** A Flexible Capacity CPM designation under Section 43.2.7 for the failure to show sufficient Flexible RA Capacity in an annual Flexible RA Capacity Plan shall have a minimum commitment term of one month and a maximum commitment term of one year, based on the

period(s) of overall shortage reflected in the annual plans. The term of a Flexible Capacity CPM designation under this Section must begin and end during the same calendar year.

(b) **Monthly Plan.** A Flexible Capacity CPM designation under Section 43.2.7 for the failure to show sufficient Flexible RA Capacity in a monthly Flexible RA Capacity Plan shall have a commitment term of one month. The term of a Flexible Capacity CPM designation under this Section must begin and end during the same calendar month.

43.4 Selection Of Eligible Capacity Under The CPM

In accordance with Good Utility Practice, the CAISO shall make designations of Eligible Capacity as CPM Capacity or CPM Flexible Capacity under Section 43.1 by applying the following criteria in the order listed:

- (1) the effectiveness of the Eligible Capacity at meeting the designation criteria specified in Section 43.2;
- (2) the capacity costs associated with the Eligible Capacity;
- (3) the quantity of a resource's available Eligible Capacity, based on a resource's PMin, relative to the remaining amount of capacity needed;
- (4) the operating characteristics of the resource, such as dispatchability, Ramp Rate, and load-following capability;
- (5) whether the resource is subject to restrictions as a Use-Limited Resource; and
- (6) for designations under Section 43.2.3, the effectiveness of the Eligible Capacity in meeting local and/or zonal constraints or other CAISO system needs.

In applying these selection criteria, the goal of the CAISO is to designate lower cost resources that will be effective in meeting the reliability needs underlying the CPM designations. In making this determination, the CAISO will apply the first criterion to identify the effective Eligible Capacity by considering the effectiveness of the resources at meeting the designation criteria for the type of CPM to be issued and at resolving the underlying reliability need. The CAISO will apply the second criterion by considering the cost of the effective Eligible Capacity. The CAISO will endeavor to designate a resource at the CPM Capacity price determined in accordance with Section 43.6.1 before selecting a resource with a higher unit-specific CPM Capacity price specified under Section 43.6.2. The CAISO will endeavor to designate

resources that have specified a capacity price before designating resources that have not specified a CPM Capacity price under Section 43.6.2.1. The CAISO will apply the third criterion by considering the quantity of a resource's Eligible Capacity. The CAISO will endeavor to select a resource that has a PMin at or below the capacity that is needed to meet the reliability need before selecting a resource that has a PMin that would result in over-procurement. The CAISO will apply the fourth criterion by considering specific operating characteristics of a resource, such as dispatchability, ramp rate, and load-following capability to the extent that such characteristics are an important factor in resolving the reliability need. The CAISO will apply the fifth criterion by considering whether a resource is use-limited and whether that status may restrict its ability to be available to the CAISO in the Day-Ahead Market and Real-Time Market throughout the period for which it is being procured. To the extent that use-limited resources are capable of performing the required service for the duration of the CPM designation, the CAISO will not unduly discriminate in favor of non-Use Limited resources when applying the selection criteria. The CAISO will apply the sixth criterion by considering the effectiveness of the Eligible Capacity to meet local and/or zonal constraints or other CAISO system needs for CPM designations under 43.2.3. If after applying these criteria, two or more resources that are eligible for designation equally satisfy these criteria, the CAISO shall utilize a random selection method to determine the designation between those resources.

43.4.1 Limitation of Eligibility for Flexible Capacity CPM Designation

- (a) **Committed Capacity.** Capacity committed as RA Capacity, Flexible RA Capacity, RA Replacement Capacity, RA Substitute Capacity, RMR Capacity, or CPM Capacity shall not be eligible to receive a Flexible Capacity CPM designation for the duration of that commitment.
- (b) **Operationally Unavailable Capacity.** Capacity on, or scheduled to be on, a Forced Outage, Approved Maintenance Outage, or de-rate, is not operationally available and shall not be eligible to receive a Flexible Capacity CPM designation for the duration of that unavailability.

43.4.2 Designation Amount. While the CAISO does not have to designate the full capability of a resource, the CAISO may designate under the CPM an amount of CPM Capacity or CPM Flexible Capacity from a resource that exceeds the amount of capacity identified to ensure compliance with the Reliability Criteria set forth in Section 40.3 due to the PMin or other operational requirements/limits of a

resource that has available capacity to provide CPM service. The CAISO shall not designate the capacity of a resource for an amount of capacity that is less than the resource's PMin.

43.4.3 Simultaneous Designations. In the event the CAISO determines that a CPM designation must be issued to resolve a collective deficiency of system RA Capacity under Section 43.2.3 and that Flexible Capacity CPM designation must be issued to resolve a cumulative deficiency of Flexible RA Capacity under Section 43.2.7 for annual or monthly plans covering the same or overlapping time periods, the CAISO will apply the criteria in Section 43.4 and endeavor to designate capacity that will be effective in resolving both underlying reliability needs –

(1) If the MW amount of the simultaneous or overlapping designation is sufficient to resolve both underlying reliability needs, no further designation of CPM Capacity or CPM Flexible Capacity will be issued.

(2) If the MW amount of the simultaneous or overlapping designation is not sufficient to resolve both underlying reliability needs, the CAISO may designate additional CPM Capacity or CPM Flexible Capacity to cover the remaining deficiency.

* * *

43.5.1 Availability Obligations. Capacity and CPM Flexible Capacity from resources designated under the CPM shall be subject to all of the availability, dispatch, testing, reporting, verification and any other applicable requirements imposed under Section 40.6 or Section 40.10.6 as applicable to~~on~~ Resource Adequacy Resources identified in Resource Adequacy Plans and Flexible RA Capacity resources identified in Resource Flexible RA Capacity Plans. In accordance with those requirements, CPM Capacity designated under the CPM shall meet the Day-Ahead availability requirements specified in Section 40.6.1 and the Real-Time availability requirements of Section 40.6.2, and CPM Flexible Capacity shall meet the Day-Ahead and Real-Time availability requirements specified in Section 40.10.6.1. Also in accordance with those requirements, Generating Units designated under the CPM that meet the definition of Short Start Units shall have the obligation to meet the additional availability requirements of Section 40.6.3, and Generating Units designated under the CPM that meet the definition of Long Start Units will have the rights and obligations specified in Section 40.6.7.1.

If the CAISO has not received an Economic Bid or a Self-Schedule for CPM Capacity, the CAISO shall

utilize a Generated Bid in accordance with the procedures specified in Section 40.6.8. In addition to Energy Bids, resources designated under the CPM shall submit Ancillary Service Bids for their CPM Capacity and CPM Flexible Capacity to the extent that the resource is certified to provide the Ancillary Service.

43.5.2 Obligation To Provide Capacity And Termination

The decision to accept an CPM or Flexible Capacity CPM designation shall be voluntary for the Scheduling Coordinator for any resource. If the Scheduling Coordinator for a resource accepts an CPM designation, it shall be obligated to perform for the full quantity and full period of the designation with respect to the amount of CPM Capacity for which it has accepted an CPM designation. If the Scheduling Coordinator for a resource accepts a Flexible Capacity CPM designation, the resource shall be obligated to perform for the full quantity and full period of the designation, subject to the must-offer obligation in Section 40.10.6 that applies to the Flexible Capacity Category of the resource that was designated. If a Participating Generator's or Participating Load's Eligible Capacity is designated under the CPM after the Participating Generator or Participating Load has filed notice to terminate its Participating Generator Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement or withdraw the Eligible Capacity from its Participating Generator Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement, and the Scheduling Coordinator for the resource agrees to provide service under the CPM, then the Scheduling Coordinator shall enter into a new Participating Generator Agreement, Net Scheduled PGA, Pseudo-Tie Participating Generator Agreement, or Participating Load Agreement, as applicable, with the CAISO.

43.5.3 Availability Obligations for Simultaneous Designations. To the extent a resource accepts simultaneous or overlapping designations as CPM Capacity and CPM Flexible Capacity under Section 43.4.3, that resource shall be subject to the must-offer obligations for both designations.

* * *

43.6.1 CPM Designation Market Notice

The CAISO shall issue a Market Notice within two (2) Business Days of an CPM designation under Sections 43.2.1 through 43.2.6. CPM designations as a result of Exceptional Dispatches shall be subject to the reporting requirement set forth in Section 34.9.4. The Market Notice shall include a preliminary

description of what caused the CPM designation, the name of the resource(s) procured, the preliminary expected duration of the CPM designation, the initial designation period, and an indication that a designation report is being prepared in accordance with Section 43.6.2. For Exceptional Dispatch CPM designations, the market notice shall additionally indicate whether the designation was made to address an Exceptional Dispatch CPM System Reliability Need or an Exceptional Dispatch CPM Non-System Reliability Need, specify the quantity of the Exceptional Dispatch CPM capacity that was procured and the Exceptional Dispatch CPM Term, and identify the engineering assessment the CAISO used to determine the quantity of capacity needed from the resource to address the reliability issue.

43.6.2 Designation Of A Resource Under The CPM

The CAISO shall post a designation report to the CAISO Website and provide a Market Notice of the availability of the report within the earlier of thirty (30) days of procuring a resource under Sections 43.2.1 through 43.2.6 or ten (10) days after the end of the month. The designation report shall include the following information:

- (1) A description of the reason for the designation (LSE procurement shortfall, Local Capacity Area Resource effectiveness deficiency, or CPM Significant Event), and an explanation of why it was necessary for the CAISO to utilize the CPM authority);
- (2) The following information would be reported for all backstop designations:
 - (a) the resource name;
 - (b) the amount of CPM Capacity and/or CPM Flexible Capacity designated (MW),
 - (c) an explanation of why that amount of CPM Capacity and/or CPM Flexible Capacity was designated,
 - (d) the date CPM Capacity and/or CPM Flexible Capacity was designated,
 - (e) the duration of the designation; and
 - (f) the price for the CPM procurement; ~~and.~~
- (3) If the reason for the designation is ~~a~~ CPM Significant Event, the CAISO will also include:
 - (a) a discussion of the event or events that have occurred, why the CAISO has procured CPM Capacity, and how much has been procured;
 - (b) an assessment of the expected duration of the CPM Significant Event;

- (c) the duration of the initial designation (thirty (30) days); and
 - (d) a statement as to whether the initial designation has been extended (such that the backstop procurement is now for more than thirty (30) days), and, if it has been extended, the length of the extension.
- (4) If the reason for the designation is Exceptional Dispatch CPM Capacity, the CAISO will also include additional information about the CAISO's determination of the quantity and term of the designation, which supplements the information included in the market notice issued pursuant to Section 43.6.1.

* * *

43.7.1 Monthly CPM Capacity Payment

On February 16, 2012, the fixed CPM Capacity price of \$67.50/kW-year shall become effective and shall remain in effect for two (2) years. On February 16, 2014, the fixed CPM Capacity price shall increase by five (5) percent and the effective price shall be \$70.88/kW-year, which shall remain in effect for two (2) years until February 16, 2016. The fixed CPM Capacity price shall also apply to CPM Flexible Capacity payments.

43.7.1.1 Calculation of Monthly CPM Capacity Payment

Scheduling Coordinators representing resources receiving payment under Section 43.7.1 shall receive a monthly CPM Capacity Payment for each month of CPM designation equal to the product of the amount of their CPM Capacity or CPM Flexible Capacity, the relevant CPM Availability Factor for Forced Outages, as determined in accordance with Appendix F, Schedule 6, a monthly shaping factor as set forth in Appendix F, Schedule 6, the effective fixed CPM Capacity price per kW-year and the CPM Availability Percentage for Maintenance Outages, so that the formula for determining the monthly CPM Capacity Payment would be as follows:

(CPM Capacity MW) x (CPM Availability Factor for Forced Outages) x (1/12 monthly shaping factor) x (effective fixed CPM Capacity price per kW-year) x CPM Availability Percentage for Maintenance Outages.

The CPM Availability Percentage for Maintenance Outages is equal to the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity

MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Maintenance Outage or non-temperature-related ambient de-rates to (2) the product of CPM Capacity MW and the total hours in the month.

The foregoing formula shall apply to all CPM Capacity and CPM Flexible Capacity receiving monthly CPM Capacity Payments under this Section 43.7.1 except for CPM Capacity designated to respond to a CPM Significant Event or an Exceptional Dispatch CPM, in which case the monthly CPM Capacity Payment shall be based proportionately on the actual number of days the resource was designated as CPM Capacity during the month to the total number of days in the month.

For purposes of CPM designations, except for designations for CPM Significant Events and Exceptional Dispatch CPM, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rate, to (2) the product of CPM Capacity MW and the total hours in the month.

For purposes of CPM designations for CPM Significant Events and Exceptional Dispatch CPM, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour across all hours of the month or part of the month for which a unit is designated, whichever is applicable, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rate, to (2) the product of CPM Capacity MW and the total hours in the month or part of the month for which a unit is designated, whichever is applicable.

43.7.1.2 Payments For Simultaneous Designations

If a resource accepts simultaneous or overlapping designations as CPM Capacity and CPM Flexible Capacity, the MW amount of the CPM capacity payments for the period the designations overlap shall be the highest MW amount of either designation. The resource shall not be provided with two CPM payments for the same capacity.

43.7.2 Resource-Specific CPM Capacity Payment

If a Scheduling Coordinator for Eligible Capacity believes that the fixed CPM Capacity price per KW-year in effect under Section 43.7.1 will not compensate a resource for its going forward costs, as calculated in accordance with the formula provided in Section 43.7.2.2, the Scheduling Coordinator may annually in accordance with Section 43.7, inform the CAISO of what proposed higher CPM Capacity price or CPM Flexible Capacity price would compensate the resource for its going forward costs and which the Scheduling Coordinator is willing to have the CAISO use for purposes of the CPM designation process ("going forward cost offer price").

43.7.2.1 Failure to Submit Going Forward Cost Offer Price

A Scheduling Coordinator for a resource is not required to submit a specific going forward cost offer price for such resource under the process provided for in Section 43.7; however, except for an Exceptional Dispatch CPM designation, a Scheduling Coordinator that has not previously identified the going forward cost offer price for a resource must notify the CAISO of what that price is before any CAISO designation of that resource's capacity as CPM Capacity or CPM Flexible Capacity can become effective. In the case of an Exceptional Dispatch CPM designation on behalf of a resource that has not selected the supplemental revenues option, the CPM designation shall become effective notwithstanding the resource's failure to select compensation pursuant to Section 43.7.1 or to identify a going forward cost offer price pursuant to Section 43.7.2. In such a case, the CAISO shall use the compensation under Section 43.7.1 for both dispatch and compensation for the Exceptional Dispatch CPM Term. In the case of a Scheduling Coordinator that has not previously identified the going forward cost offer price for a resource, the cap on supplemental revenues under Section 39.10.4 will be calculated using the monthly capacity payment under Section 43.7.1.

43.7.2.1.1 Determination of Capacity Price

If the CAISO designates a resource that has proposed a CPM Capacity or CPM Flexible Capacity price above the fixed CPM Capacity price per kW-year in effect under Section 43.7.1, and the sales from the resource are under the jurisdiction of the FERC, the Scheduling Coordinator for the resource shall make a limited resource-specific filing before the FERC to determine the just and reasonable capacity price for the going forward costs for the resource to be used in applying the CAISO's FERC jurisdictional monthly

CPM Capacity Payment formula. If the sales from the resource are not under the jurisdiction of the FERC, the Scheduling Coordinator for the resource shall make a non-jurisdictional filing with the FERC to determine the just and reasonable capacity price for the going forward costs for the resource to be used in applying the CAISO's FERC-jurisdictional monthly CPM Capacity Payment formula.

43.7.2.1.2 Going Forward Cost

In making the cost justification filing with FERC for a CPM Capacity or CPM Flexible Capacity price above the fixed CPM Capacity price per kW-year under Section 43.7.1, the Scheduling Coordinator for the resource may not propose -- and shall not get paid -- an amount higher than the going forward cost offer price that it had previously proposed to the CAISO as its going forward cost offer price under Section 43.7 or this Section 43.7.2, either prior to or at the time of CPM designation.

Going forward costs for any resource-specific filing under this Section shall be calculated based on the following formula:

(fixed operation & maintenance costs, plus ad valorem taxes, plus administrative & general costs, plus ten (10) percent of the foregoing amounts),

provided such costs shall be converted to a fixed \$/kW-year amount.

43.7.2.2 Resource-Specific Monthly CPM Capacity Payment

Scheduling Coordinators representing resources receiving payment under Section 43.7.2 shall receive a monthly CPM Capacity Payment for each month of CPM designation equal to the product of the amount of their CPM Capacity or CPM Flexible Capacity, the relevant CPM Availability Factor for Forced Outages as determined in accordance with Appendix F, Schedule 6, a monthly shaping factor as set forth in Appendix F, Schedule 6, the resource-specific CPM Capacity price, as determined by FERC and the CPM Availability Percentage for Maintenance Outages, in accordance with the following formula:

(CPM Capacity MW) x (CPM Availability Factor for Forced Outages) x (1/12 monthly shaping factor) x (the resource-specific CPM Capacity price as determined by FERC) x CPM Availability Percentage for Maintenance Outages.

The CPM Availability Percentage for Maintenance Outages is equal to the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity

MW for each hour the resource is not available due to a Maintenance Outage or non-temperature-related ambient de-rate to (2) the product of CPM Capacity MW and the total hours in the month.

The foregoing formula shall apply to all CPM Capacity or CPM Flexible Capacity receiving monthly CPM Capacity Payments under Section 43.7.2 except for CPM Capacity designated to respond to a CPM Significant Event or Exceptional Dispatch CPM, in which case the monthly CPM Capacity Payment shall be based proportionately on the actual number of days the resource was designated as CPM Capacity during the month and available to the CAISO to the total number of days in the month.

Prior to the determination by FERC of the resource-specific going forward costs for CPM Capacity or CPM Flexible Capacity designated and paid pursuant to Section 43.7.2, the CAISO shall proceed as follows. For the period between the CAISO's designation and the FERC's determination, the CAISO shall utilize the fixed CPM Capacity price per kW-year in effect under Section 43.7.1 for purposes of the resource-specific monthly CPM Capacity Payment for financial Settlement. This amount shall be subject to surcharge based on the outcome of the FERC proceeding so that the resource will receive any higher actual resource-specific payment as determined by FERC for the full period of the CPM designation.

Once approved by FERC, the CAISO shall apply the higher of the fixed CPM Capacity price per kW-year in effect under Section 43.7.1 or the resource-specific CPM Capacity price as determined by the FERC.

For purposes of CPM and Flexible Capacity CPM designations, except for designations for CPM Significant Events, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour of the month across all hours of the month, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available due to a Forced Outage or temperature-related ambient de-rates, to (2) the product of CPM Capacity MW and the total hours in the month.

For purposes of CPM designations for CPM Significant Events, the CPM Availability Factor for Forced Outages shall be calculated as the ratio of: (1) the sum of the CPM Capacity MW for each hour across all hours of the month or part of the month for which a unit is designated, whichever is applicable, where the actual capacity MW available to the CAISO, if less than the CPM Capacity MW, shall be substituted for CPM Capacity MW for each hour the resource is not available and is not on an authorized Outage, to (2)

the product of CPM Capacity MW and the total hours in the month or part of the month for which a unit is designated, whichever is applicable.

For purposes of this Section 43.7.2, an authorized Outage shall be limited to a CAISO Approved Maintenance Outage.

43.7.3 Market Payments

In addition to the CPM Capacity Payment identified in Section 43.7, CPM resources, including Flexible Capacity CPM resources, shall be entitled to retain any revenues received as a result of their selection in the CAISO Markets, provided, however, that CPM resources ~~are~~ required to participate in the RUC process will be optimized using a zero (\$0) dollar RUC Availability Bid and are not eligible to receive compensation through the RUC process.

* * *

43.8.8 Allocation of CPM Flexible Capacity Costs

(a) Calculation of Deficiency by LRA.

- (1) The CAISO will determine whether each Local Regulatory Authority met its allocable share of the Flexible Capacity Need based on the cumulative amount of Flexible RA Capacity that Local Regulatory Authority's jurisdictional Load Serving Entities included in their annual and monthly Flexible RA Capacity Plans in total, and included in their monthly Flexible RA Capacity Plans for each Flexible Capacity Category.
- (2) The CAISO will calculate the total amount of Flexible RA Capacity included in the annual and monthly Flexible RA Capacity Plans collectively for all Load Serving Entities within the Local Regulatory Authority, and the total amount included in the monthly Flexible RA Capacity Plans for each Flexible Capacity Category using the minimum or maximum quantity, as applicable, for each category, and using the Effective Flexible Capacity value calculated under Section 40.10.4 for each resource designated in a plan as a Flexible RA Capacity Resource.

(b) Allocation By CAISO Method.

- (1) If the amount of Flexible RA Capacity the jurisdictional Load Serving Entities included in their annual Flexible RA Capacity Plans or monthly Flexible RA Capacity Plans, in total

and in each Flexible Capacity Category, meets or exceeds the applicable Flexible Capacity Need allocated to their Local Regulatory Authority, the CAISO will not allocate any of the CPM Flexible Capacity costs to the Scheduling Coordinators for those Load Serving Entities-.

(2) If the amount of Flexible RA Capacity the jurisdictional Load Serving Entities included in their annual Flexible RA Capacity Plans or monthly Flexible RA Capacity Plans, either in total or for a Flexible Capacity Category, is less than the applicable Flexible Capacity Need allocated to their Local Regulatory Authority, and that Local Authority has not established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities, the CAISO will allocate the CPM Flexible Capacity costs proportionately to the Scheduling Coordinator of each jurisdictional Load Serving Entity that failed to meet its procurement obligation.

(c) **Allocation by Local Regulatory Authority Method.** If Load Serving Entities jurisdictional to a Local Regulatory Authority have a cumulative deficiency under Section 43.8.8(a) and the Local Regulatory Authority has established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities, the CAISO will use the Local Regulatory Authority's methodology to allocate the CPM Flexible Capacity costs to the Scheduling Coordinator of each Load Serving Entity that is jurisdictional to that Local Regulatory Authority and that failed to meet its procurement obligation.

(d) **Reduction of Cost Allocation.** If the CAISO issues a Flexible Capacity CPM designation, a Scheduling Coordinator for a Load Serving Entity that was deficient, but provided additional Flexible RA Capacity in a revised annual or monthly Flexible RA Capacity Plan consistent with the Market Notice under Section 43.2.7.1 --

(1) will be not be allocated a share of the Flexible Capacity CPM procurement costs if the additional Flexible RA Capacity included in that LSE's revised LSE Flexible RA Capacity Plan resolved the total deficiency of that Load Serving Entity; or

(2) will be allocated a share of the Flexible Capacity CPM procurement costs on a proportionate basis to the extent that Load Serving Entity has a remaining partial deficiency.

43.9 Crediting Of CPM Capacity

The CAISO shall credit CPM designations to the resource adequacy obligations of Scheduling Coordinators for Load Serving Entities as follows:

- (a) To the extent the cost of CPM designation under Section 43.2.1.1 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.1, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards (1) the LSE's Local Capacity Area Resource obligation under Section 40.3.2 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.1.1 and (2) the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.1.1.
- (b) To the extent the cost of CAISO designation under Section 43.2.2 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.3, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.2.
- (c) To the extent the cost of CPM designation under Section 43.2.3 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.4, and the designation is for greater than one month under Section 43.3.4, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.3.

- (d) To the extent the cost of CPM designation under Section 43.2.6 is allocated to a Scheduling Coordinator on behalf of a LSE under Section 43.8.7, and the designation is for greater than one month under Section 43.3.7, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Demand and Reserve Margin requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Capacity designated under Section 43.2.6.
- (e) The credit provided in this Section shall be used for determining the need for the additional designation of CPM Capacity under Section 43.2 and for allocation of CPM costs under Section 43.8.
- (f) For each Scheduling Coordinator that is provided credit pursuant to this Section, the CAISO shall provide information, including the quantity of capacity procured in MW, necessary to allow the CPUC, other Local Regulatory Authority, or federal agency with jurisdiction over the LSE on whose behalf the credit was provided to determine whether the LSE should receive credit toward its resource adequacy requirements adopted by such agencies or authorities.
- (g) To the extent the cost of Flexible Capacity CPM designation under Section 43.2.7 is allocated to a Scheduling Coordinator for an LSE under Section 43.8.8, and the designation is for greater than one month under Section 43.3.8, the CAISO shall provide the Scheduling Coordinator on behalf of the LSE, for the term of the designation, credit towards the LSE's Flexible Capacity requirements determined under Section 40 in an amount equal to the LSE's pro rata share of the CPM Flexible Capacity designated under Section 43.2.7.

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APPENDIX A MASTER DEFINITIONS

- Effective Flexible Capacity

The maximum MWs of Flexible Capacity a resource has the capability to provide based on the counting

criteria set forth in Section 40.10.4.2.

- Flexible Capacity

The capacity of a resource that is operationally able to respond to Dispatch Instructions to manage variations in load and variable energy resource output.

- Flexible Capacity Category

The classification of Flexible Capacity as base ramping, peak ramping, or super-peak ramping based on the resource's operational characteristics and ability to meet minimum availability requirements.

- Flexible Capacity CPM

Flexible Capacity designated under the Capacity Procurement Mechanism, for the term of the designation.

- Flexible Capacity Need

The MW of Flexible Capacity that the CAISO forecasts will be needed in the next Resource Adequacy Compliance Year to reliably operate the CAISO Controlled Grid.

- Flexible Capacity Needs Assessment

The study performed by the CAISO to forecast the Flexible Capacity Need.

- Flexible RA Capacity

Flexible Capacity with an obligation to provide Flexible RA Capacity during a resource adequacy month.

- LSE Flexible RA Capacity Plan

A submission by a Scheduling Coordinator for a Load Serving Entity in the form required by the Business Practice Manual to satisfy the requirements of Section 40.10.

- Maximum Secondary Three-Hour Net-Load Ramp

The second highest daily increase in CAISO system load, net of wind and solar output, measured over a consecutive three-hour time period that does not correspond with the time period for the Maximum Three-

Hour Net-Load Ramp.

- Maximum Three-Hour Net-Load Ramp

The highest daily increase in CAISO system load within a month, net of wind and solar output, measured over a consecutive three-hour time period.

- Resource Flexible RA Capacity Plan

A submission by a Scheduling Coordinator for a resource in the form required by the Business Practice

Manual to satisfy the requirements of Section 40.10.