

April 28, 2009

2009 APR 26 P 4: 34

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

Re: California Independent System Operator Corporation,  
Docket Nos. ER09-\_\_\_\_ and ER06-615  
Ancillary Services Must Offer Obligation and Resource Adequacy  
Standard Capacity Product

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d, and Section 35.15 of the regulations of the Federal Energy Regulatory Commission ("Commission" or "FERC"), 18 C.F.R. § 35.15, in response to Paragraph 1218 of the Commission's September 21, 2006 Order concerning the Market Redesign and Technology Upgrade ("MRTU") project,<sup>1</sup> and in conformance with Section 40.4.5 of the CAISO Tariff, the California Independent System Operator Corporation ("CAISO") hereby submits for filing an original and five copies of proposed amendments to the effective CAISO Tariff to implement (1) a resource adequacy ("RA") standard capacity product ("SCP"), and (2) an Ancillary Services must-offer obligation ("A/S MOO") for RA Resources.<sup>2</sup>

Adoption of an SCP with Availability Standards and incentives for RA Resources will promote reliability; reward resources that are most available to support grid operations; discourage Load Serving Entities ("LSEs") and resources from "leaning" on others to the detriment of supply sufficiency; facilitate the selling, buying, and trading of capacity to meet RA requirements; and reinforce the planning Reserve Margins established by Local Regulatory Authorities. Adoption of the A/S MOO will enhance grid reliability and market efficiency by allowing the CAISO's markets to co-optimize the use of RA Capacity that is currently subject to an RA must offer obligation to provide Energy, Ancillary Services, or a combination of both, in accordance with an RA Resource's certified physical capability and the grid's needs for Energy and Ancillary Services in each market interval, thereby making the most efficient use of the available RA Capacity.

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<sup>1</sup> *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,3274 at P 1218 (2006) ("September 21 Order").

<sup>2</sup> Capitalized terms not otherwise defined herein have the meanings set forth in the Master Definition Supplement, Appendix A to the CAISO Tariff.

The CAISO proposes an effective date of January 1, 2010 for both the A/S MOO and the SCP tariff provisions,<sup>3</sup> and requests that the Commission grant all appropriate waivers to allow the tariff provisions to go into effect on these dates. The CAISO further requests that the Commission grant the CAISO the authority to obtain from market participants the information needed in advance of January 1, 2010, as discussed later in this letter, to enable the SCP and the A/S MOO to be implemented on January 1, 2010. The CAISO also requests that the Commission issue an order approving the SCP and A/S MOO proposals by June 27, 2009 so that: (1) the parties negotiating RA Capacity contracts for the 2010 RA Compliance Year will have early certainty about how these provisions will apply to the suppliers of RA Capacity (LSE RA showings are due to the CAISO by September 30, 2009),<sup>4</sup> and (2) the CAISO can begin making the necessary systems and software changes to its Settlements, Outage Scheduling and Logging System (“SLIC”), Scheduling Infrastructure Business Rules (“SIBR”) and Master File systems so that the SCP and A/S MOO can be implemented by the proposed effective date. The CAISO will also need to follow the Business Practice Manual (“BPM”) Change Management process and revise the affected BPMs.

## **I. EXECUTIVE SUMMARY**

The RA program was implemented to ensure that adequate resources would be available when and where needed to serve load, meet appropriate reserve requirements, and support reliable operation of the CAISO Controlled Grid. As the RA program has evolved, participants have identified a need to develop an SCP to facilitate the selling, buying and trading of capacity to meet RA requirements. An SCP, with appropriate availability requirements and incentives, would also enhance the ability of the CAISO to ensure reliable grid operations. Stakeholders have affirmed to the CAISO that their ability to efficiently transact RA procurement is hindered by the current approach that requires negotiating agreements between parties without a standard product definition for trade. The need to address this matter was highlighted during the CAISO’s Market Initiatives Roadmap process in 2008 where the SCP was ranked the highest priority out of a list of over 70 initiatives.<sup>5</sup> Stakeholders expressed their desire to have this product implemented in the CAISO Tariff as soon as possible so that it may be used as the basis for capacity contracting during 2009 for the 2010 RA Compliance Year. In addition, as recognized in Section 40.4.5 of the current CAISO Tariff, the CPUC has maintained a strong interest in the adoption of performance criteria for Resource Adequacy Resources. Accordingly, the CAISO undertook a stakeholder process and developed its SCP proposal on a timeline that would meet these

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<sup>3</sup> However, the CAISO requests an effective date of the date of the Commission’s Order approving the SCP for the following tariff sections that contemplate CAISO or Market Participant Action prior to January 1, 2010: Sections 40.9.2(2); 40.9.4.1; and 40.9.4.2.1(1).

<sup>4</sup> Any delay in issuance of a Commission order beyond the 60-day timeframe could result in SCP implementation being delayed.

<sup>5</sup> *Market Initiatives Roadmap Process, Final Report on Ranking of High Priority Market Initiatives 7/7/2008* <http://caiso.com/1ff9/1ff9aee434530.pdf>

objectives. The CAISO urges the Commission to expeditiously approve the SCP proposal by June 26, 2009.

Over the past nine months, CAISO staff collaborated with stakeholders to develop an effective SCP that would help streamline the RA program, satisfy the requirements of stakeholders, and support the reliability needs of the CAISO. In developing the SCP, the CAISO was guided by four overarching criteria: (1) improve grid reliability; (2) streamline stakeholder contracting efforts and facilitate contract tradability; (3) meet regulatory requirements; and (4) implement a standard RA Capacity product promptly, *i.e.*, in time to apply for the 2010 RA Compliance Year.

The CAISO submits that the SCP proposed herein achieves each of the aforementioned objectives. The SCP proposal contains the following features:

- Availability Standards. To ensure there is sufficient generation capacity to meet the CAISO's reliability needs, and given that RA Resources receive capacity payments for providing RA Capacity, the CAISO expects that the full amount of a resource's RA Capacity will be available to the CAISO, unless the resource is on a forced equipment outage or derate, including a temperature related ambient derate, that diminishes its ability to provide the full amount of its contractual capacity. The SCP accordingly includes provisions to encourage and measure the availability of RA Capacity as well as financial Non-Availability Charges and Availability Incentive Payments to discourage poor operating performance and reward high availability. Under the SCP, the monthly operating status of non-exempt RA Resources will be compared against a monthly Availability Standard (12 specific monthly targets during the course of a Compliance Year). The Availability Standards are based on the availability of the RA Resource fleet that is providing reliability to the CAISO system during the Availability Assessment Hours (the pre-defined peak hours of that respective month) for the previous three years. However, non-resource specific RA imports, which are not associated with specific generating resources and do not have outages comparable to those affecting specified individual generating resources, will have a target availability of 100%, *i.e.*, they are expected to offer 100% of their RA Capacity into the CAISO markets in all hours for which they are contracted. This 100% availability target recognizes that RA Capacity from non-resource specific RA imports, unlike RA Capacity provided by individual RA resources, is not provided by a single specified resource that that could be unavailable due to a Forced Outage or derate. Rather, the RA Capacity for a non-resource specific import can be provided by any resource available to the RA provider either directly or through a trading partner. This lack of dependence of the RA Capacity on any specific physical resource provides sufficient flexibility to the RA provider to enable full delivery of the RA Capacity in all hours for which it is designated as an RA Resource.
- Availability Incentives. The SCP proposal will provide financial incentives for each RA Resource to meet or exceed the monthly Availability Standard. On a

monthly basis, the CAISO will assess Non-Availability Charges to resources whose availability falls short of the Availability Standard and applicable deadband, and will provide Availability Incentive Payments to resources whose availability exceeds the Availability Standard and applicable deadband. Availability Incentive Payments will be paid only from the revenues the CAISO receives from imposition of Non-Availability Charges on the resources that do not meet the Availability Standard for that Trade Month. This will ensure that the SCP program is revenue neutral and does not depend on revenues from other sources.

- Deferral of SCP Availability Standards and Incentives for Certain RA Resource Types. The CAISO will not initially apply the SCP Availability Standards to resources whose RA Qualifying Capacity (“QC”) is determined by historical output from the California Public Utilities Commission (“CPUC”) or a Local Regulatory Authority that does not adjust the historical output data to correct for the potential double counting of Outages. Currently, such resources include wind and solar resources, and Qualifying Facilities (“QFs”) resources. The CAISO maintains that it is inappropriate to apply the SCP Non-Availability Charges to these resources at this time given the current CPUC rules for determining a resource’s RA QC. In that regard, unlike thermal resources, the CPUC bases the RA QC value for wind, solar and QFs resources on historical performance. Thus, to the extent these resources experience Forced Outages or derates, any resulting reduction in availability is reflected in their QC values for the following RA Compliance Year. In other words, an outage will result in a reduced QC for RA purposes which, if combined with a CAISO-imposed financial charge due to a Forced Outage or derate, would essentially result in a “double penalty.” In addition, the CAISO will not initially apply the SCP Availability Standards to demand response (“DR”) resources. The CAISO maintains that it is inappropriate to apply the SCP Non-Availability Charges to these resources at this time given that initiatives are underway at both the CPUC and CAISO to change the manner in which DR is treated in the California market. Further, the manner in which these resources are currently participating in the power system does not readily allow imposition of the Availability Standards.<sup>6</sup> Accordingly, the CAISO does not propose to assess a Non-Availability Charge at this time to wind, solar, QF, and DR resources. The CAISO intends to revisit this issue at a later date, in conjunction with working with the CPUC and stakeholders to consider revisions to the DR program and the CPUC’s procedures for determining RA QC in order to eliminate the possibility of the double counting of outages described above.
- Unit Substitution. An RA provider will be able to substitute non-RA Capacity for RA Capacity on forced outage in order to avoid the outage being counted against the RA Resource’s availability. Substitute capacity for an RA Resource on forced

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<sup>6</sup> For example, the majority of DR resources do not schedule using Resource IDs; hence, these resources do not report availability and the CAISO has no ability to track the status of these resources.

outage must be provided by capacity that is not already designated RA for the compliance period. Substitute capacity may be offered in a MW quantity that is less than the RA Capacity of the resource on forced outage, in which case the RA provider would receive partial credit against its availability score. This substitution option benefits RA providers by enabling them to avoid a reduction in their monthly availability score. The CAISO and other Market Participants benefit to the extent such substitution enables the CAISO to avoid the need to engage in backstop procurement. The rules for substitution will recognize the distinct need for local versus system RA Capacity. A key principle behind the design of these rules is that an acceptable substitute for an RA Resource having an outage should enable the CAISO to avoid having to procure backstop capacity to replace the services of the original RA Resource. This straightforward principle is intended to ensure that electricity customers do not pay twice for the same RA Capacity services, once through the LSE's procurement of RA Capacity and again through the CAISO's procurement of backstop capacity.

The CAISO's proposed substitution provisions provide two separate opportunities for resources to qualify for substitution. First, a provider of local RA Capacity can pre-qualify a substitute resource in advance of the start of the RA Compliance Year by proposing to the CAISO a specific replacement resource that is located at the same bus as the Local RA Resource and has similar operational characteristics. Once this substitute is approved by the CAISO, if the original Local RA Resource then suffers a forced outage during the Compliance Year, the RA Provider may offer the pre-qualified substitute at that time and the CAISO will automatically accept it. This prequalification approach allows substitute resources that are essentially "electrically equivalent" to the resource they are replacing to automatically qualify for substitution. Under these circumstances, the CAISO can be ensured that in all day-to-day operating conditions that might arise, the CAISO will not have to procure backstop capacity because the substitute unit was not an adequate replacement for the original resource. Second, even if a resource does not satisfy the prequalification standard, the provider of Local RA capacity may offer a non-pre-qualified substitute resource within the same Local Capacity Area at the time of the outage of its Local RA Resource, and the CAISO may (or may not) accept it depending on how well it meets the CAISO's effectiveness and operational needs compared to the original resource, as determined by the CAISO based on prevailing system conditions at the time of the outage. In contrast, a provider of system RA Capacity that does not count towards meeting the requirements of any Local Capacity Area will be able to offer any available non-RA Capacity to substitute for its unavailable RA Resource, subject only to the CAISO's deliverability requirements, and the CAISO will accept it if prevailing system conditions allow.

- Transition to SCP. The CAISO recognizes that until the SCP was well-defined, parties did not have the ability to reflect SCP requirements in their RA Contracts. Accordingly, the SCP proposal includes a grandfathering provision so that capacity under contracts either executed prior to January 1, 2009 or submitted to

the appropriate Local Regulatory Authority for approval prior to that date, and which otherwise would be subject to the SCP Availability Standards and incentives, will be exempt from those Standards and Incentives for the remainder of current contract period. Upon expiration of the current contract period (even if there is a subsequent right of extension), the contract is no longer eligible for grandfathering and will be fully subject to the SCP requirements. In the event that a pre-existing agreement is assigned or undergoes novation during the grandfathered period, it will be exempt from SCP only to the extent of the initial contract period and MW quantity, and for the resource specified in the agreement in effect on December 31, 2008. The novation or contract amendment cannot extend or expand the scope of the exemption that existed on December 31, 2008. This grandfathering proposal respects existing contractual arrangements and will ensure that such contracts are not subject to “duplicative” or potentially conflicting availability standards. The CPUC supports the CAISO’s proposed end date for existing contracts to be eligible for grandfathering.<sup>7</sup> The December 31, 2008 eligibility end date for grandfathering is appropriate market participants have been on notice since August 2008 that the CAISO was intending to implement an SCP that would enforce availability standards for RA Resources commencing with the 2010 RA Compliance Year. In addition, the December 31, 2008 end date is necessary to deter a rush by parties, before SCP becomes effective, to enter into new RA contracts with extended multi-year terms for the purpose of avoiding SCP availability obligations. The use of this end date for eligibility to be grandfathered will also promote reliability and limit the ability of LSEs and poor-performing resources to essentially “lean” on other resources because their recently negotiated contracts do not have any availability standards (or have availability standards that are less stringent than those proposed with SCP). The December 31, 2008 end date is also reasonable because LSEs are now beginning the process of negotiating new RA contracts for the 2010 RA Compliance Year. An eligibility end date during the second or third quarter of 2009 would potentially result in some new RA contracts for 2010 being subject to SCP, but others being subject only to the availability provisions, if any, of contained in individual contracts. A December 31, 2008 eligibility end date makes it more likely that the same availability standard will apply all new 2010 RA Compliance Year contracts.

- Applicability of SCP to Load Following Metered Subsystem (“MSS”) LSEs and Modified Reserve Sharing LSE (“MRS LSE”). The CAISO proposes to apply the SCP program to the Local Capacity Resources of Load Following MSS LSEs and

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<sup>7</sup> As the CPUC recognized in its February 23, 2009 comments submitted in the SCP stakeholder process:

“The CPUC Staff support the CAISO’s suggested grandfathering date of January 1<sup>st</sup>, 2009. This strikes the proper balance between acceptance of the need for stability in legacy contracts and the need to avoid an incentive for continued reliance on contracts without SCP terms.”

Modified Reserve sharing LSEs. The capacity nominated by these entities is essential to the CAISO's local reliability needs, and these entities may be subject to any charge the CAISO might impose if it needs to procure backstop capacity in a local area. Thus, it is important that all capacity nominated as LCA capacity be treated the same, regardless of what type of LSE nominates it. With respect to non-local capacity of these entities, they have strong financial incentives to provide fully for their share of system needs in every operating hour, so the SCP incentives are unnecessary, inappropriate and potentially duplicative.

The proposed SCP is an important first step forward in streamlining and enhancing the benefits of California's RA program. The CAISO stresses that the instant SCP proposal is only an initial step. The CAISO anticipates making additional enhancements to the SCP in future tariff filings as the CAISO works with stakeholders, the CPUC, and Local Regulatory Authorities to develop and implement a comprehensive long-term RA framework.

In addition to the SCP, the CAISO is separately proposing a critical enhancement to the existing RA Must Offer Obligation ("RA MOO") for RA Resources. Under the current tariff, certain RA Resources have an RA MOO for Energy. The proposed amendment recognizes that grid reliability and market efficiency require that Ancillary Services ("A/S") certified RA Resources have an A/S Must Offer Obligation ("A/S MOO") as well as an Energy Must Offer Obligation. The A/S MOO would apply to all RA Resources currently subject to the RA MOO and which are also certified to provide A/S. An A/S MOO will enable the CAISO to optimize use of Energy and A/S capabilities of RA Capacity in its markets and ensure that the CAISO Balancing Authority Area A/S requirements are met. The proposed A/S MOO has the following key features:

- All RA Resources, subject to the RA MOO, would submit to the Day Ahead Market: (a) Economic Bids for Energy and/or Self-Schedules for all of their RA Capacity that is not offered in a Submission to Self-Provide A/S, and (b) Economic Bids for A/S and/or Submissions to Self-Provide A/S for all of their RA Capacity certified to provide A/S. For RA Capacity covered by Economic Bids for A/S, the resource must provide bids for each service for which the resource is certified. Comparable bidding/scheduling requirements are carried over to the Real-Time Market to the extent the RA Resource is subject to real-time RA MOO. The A/S MOO also applies to the Local Capacity Area Resources of Modified Reserve Sharing Load Serving Entities ("MRS LSEs"). The Local Capacity Area Resources of MRS LSEs are already subject to a must offer obligation comparable to the RA MOO.
- If an RA Resource subject to the RA MOO fails to submit A/S bids for RA Capacity that is certified and physically capable of providing A/S and for which the resource has not made a Submission to Self Provide A/S, the CAISO will insert default A/S capacity bids at the price of \$0 per MW-hour for each service for which the resource is certified. (This is analogous to the existing provision of the RA MOO that authorizes the CAISO to insert Generated Bids for an RA

- Those RA Resources with capacity certified to provide A/S, with the exceptions discussed below, will be considered for Energy and A/S in the IFM and Real-Time Energy and A/S co-optimization.
- The CAISO will honor RA Capacity Energy self-schedules unless the CAISO is unable to procure 100% of its A/S requirements. In such cases, the CAISO would be able to curtail an energy self-schedule or portion thereof, with the exceptions as discussed below, to allow certified A/S capacity to be used for A/S. The Scheduling Coordinators (“SCs”) whose RA Capacity self-schedules are cut to provide A/S will not be financially harmed. In particular, the RA Capacity so utilized to provide A/S will be paid in accordance with the CAISO’s existing provisions governing the calculation of Ancillary Service Marginal Prices, which take account of the Energy opportunity costs such capacity incurs by not earning the Energy price for the curtailed MWh of the self-schedule. Because self-schedules are submitted without associated Economic Bids, the CAISO proposes to utilize the RA Resource’s Generated Bid for purposes of the opportunity cost calculation, and also offers RA providers the option to request Commission approval of additional opportunity cost compensation if the calculation based on the Generated Bid is not sufficient to cover actual opportunity costs incurred.
- In accordance with the principle that the A/S MOO proposal does not expand the coverage of the existing RA MOO provisions, the CAISO will not insert generated A/S capacity bids for Hydroelectric RA resources and Use-Limited RA Resources. These resources are required under the current RA MOO only to offer Energy and capacity as available consistent with their submitted use plans, and the present A/S MOO proposal does not intend to modify those provisions. In addition, the CAISO will not curtail, for the purpose of meeting A/S requirements, the energy self-schedule of an RA resource that is submitted by the SC for an MSS and is internal to that MSS.

The A/S MOO will not alter the applicability of the existing RA MOO, and it is not dependent on whether the RA Capacity is subject to the SCP availability provisions. Rather, the A/S MOO would simply allow the CAISO to utilize the certified A/S capability of RA Capacity that is already subject to RA MOO. An A/S MOO will enable the CAISO to utilize both the Energy production and A/S capabilities of RA Capacity in an optimal manner, thereby resulting in the most efficient use of the RA Capacity that has been procured. Further, because the CAISO is required to procure 100% of its forecasted Real-Time A/S requirements in the IFM, if the RA MOO were limited to Energy, the CAISO could find itself in a position where it has more Energy Bids than it needs, but insufficient A/S supply being offered to meet applicable Reliability Requirements, even though there is sufficient available RA Capacity to provide those A/S. The CAISO believes that such an outcome would undermine the main purpose of the RA program, which is to ensure that sufficient capacity is available to the CAISO to meet demand and operational requirements. An A/S MOO for RA Resources mitigates the possibility of such an outcome.



## II. BACKGROUND

### A. The Commission's Prior Guidance On Generator Performance Standards

In response to the CAISO's MRTU Tariff Filing, several parties suggested that the CAISO should develop performance criteria for RA requirements. In its September 21 Order, the Commission agreed with these parties and urged the CAISO to implement such requirements as soon as that task could be accomplished.<sup>8</sup> The Commission stated that, given that planning reserve margins depend on generation performance, Local Regulatory Authorities will have a better ability to determine adequate reserve margins once the performance criteria are in place.<sup>9</sup> The SCP proposal is responsive to the Commission's direction and the existing tariff requirement to institute performance standards for RA Resources.<sup>10</sup>

### B. The Stakeholder Process

At the request of the CPUC, stakeholders, and in accordance with its tariff requirements, the CAISO initiated a stakeholder process in the summer of 2008 to design an SCP that would augment the RA program by establishing a standardized product to facilitate bilateral contracting for RA Capacity and further enhance reliable CAISO grid operations and market efficiency. The stakeholder process involved multiple meetings and conference calls with stakeholders, workshops at the CPUC, issuance of several white papers discussing the design of an SCP and A/S MOO, and numerous opportunities for stakeholders to provide input into the development of the SCP and A/S MOO.<sup>11</sup>

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<sup>8</sup> September 21 Order at P. 1218.

<sup>9</sup> *Id.*

<sup>10</sup> Section 40.4.5 of the CAISO Tariff states as follows:

No later than 12 months after the effective date of this Section 40, the CAISO will issue a report outlining a proposal with respect to performance criteria for Resource Adequacy Resources. The CAISO will collaborate with the CPUC and other Local Regulatory Authorities to develop the performance criteria to be submitted to FERC. The Scheduling Coordinator for a Resource Adequacy Resource shall provide or make available to the CAISO, subject to the confidentiality provisions of this CAISO Tariff, all documentation requested by the CAISO to determine, develop or implement the performance criteria, including, but not limited to, NERC Generating Availability Data System data.

This filing is meant to fulfill the commitment in Section 40.4.5.

<sup>11</sup> The complete SCP and A/S MOO stakeholder record can be found at: <http://www.caiso.com/2030/2030/a6e025550.html> This record includes all of the CAISO's Issues Papers, initial as well as revised, CAISO SCP and A/S MOO proposals, all comments submitted by stakeholders during the stakeholder process, all stakeholder meeting presentations, and the draft SCP and A/S MOO tariff language.

The CAISO began the stakeholder process by publishing an issue paper which described the breadth of issues associated with designing an SCP. Stakeholders responded with extensive comments on the topic. In November 2008, the CAISO published a straw proposal, based on those comments, that described a set of principles to define the product, proposed availability standards that would use each specific resource's forced outage data, and suggested inclusion of a performance incentive structure, established either on a financial basis (apply charges and payments) or physical basis (limit the resource's future RA Capacity). Stakeholders (including Calpine, State Water Project ("SWP"), California Energy Resources Scheduling ("CERS"), California Forward Capacity Market Advocates ("CFCMA"), California Municipal Utility Association ("CMUA"), CPUC, and The Utility Reform Network ("TURN")) preferred financial charges because the impact was more immediate and direct.

Based on stakeholder input on the initial straw proposal the CAISO, in December 2008, produced an updated straw proposal that further streamlined and clarified the elements of the SCP. One significant change in this proposal, based on overwhelming stakeholder agreement, was adoption of a single availability target based on the historic performance of the RA Resource fleet during peak hours of the previous year, rather than a unit-specific metric for each resource or a category-specific metric for certain types of resources. Many stakeholders (including Calpine, CFCMA, California Wind Energy Association ("CalWEA"), Alliance for Retail Energy Markets ("AREM"), Pacific Gas & Electric ("PG&E"), and Mirant) commented that the standard should be calculated in this manner because the resource specific proposal treated poorer performing units in the same manner as high performing resources. A "stellar" performer could be charged for performing a little worse than last year while a "poor" performer may not be charged at all for providing the same poor performance. Another key revision in the updated straw proposal was inclusion of performance incentives with financial impact rather than adjustments to a resource's ability to provide future RA Capacity. The CAISO opted for this approach based on tremendous stakeholder input that preferred financial charges as a more immediate and direct impact than physical consequences, and the CAISO's own concern over the potential effect on reliability of reducing the amount of capacity eligible to provide RA Capacity in the future. The CAISO also added a new unit substitution feature to the proposal to increase flexibility for resource owners to avoid financial charges while on a forced outage or derate.

Many stakeholders were concerned that the implementation of the SCP could conflict with provisions of existing contracts and sought assurance there would be no overlap in performance requirements. Thus, in January of this year, the CAISO issued a *Draft Final Proposal* that, among other things, outlined rules for contract holders that wished to grandfather their existing RA Capacity contracts.

Another significant change in the *Draft Final Proposal* was a recommendation to defer implementing the SCP for RA Resources whose qualifying capacity, as determined by the CPUC, was based on historic actual output data. The CAISO determined that these types of resources may be double-penalized if performance

standards were applied to their already limited capacity. These types of resources currently include wind, solar and QFs.<sup>12</sup> The CAISO also proposed to defer implementing the SCP for DR resources until the initiatives underway at the CAISO and CPUC to revise DR are completed. Based on stakeholder input, the CAISO also refined the availability standard to change the performance metric to be based on three years of historic data rather than a single year.

In early February 2009, the CAISO produced a white paper targeting specific issues for further discussion, and then published its final proposal -- the *2<sup>nd</sup> Draft Final Proposal* -- on February 27, 2009.<sup>13</sup> This final paper further refined the SCP proposal, based on additional stakeholder discussions and input, by expanding the grandfathering proposal to allow contract holders to exempt any contract signed prior to January 1, 2009 from application of the SCP availability standard and incentive provisions. Also, the CAISO made the Availability Standards more specific by establishing a target availability value for *each month* based on the actual fleet forced outage data during each respective month over the last three years, rather than a single target for the entire compliance year. Finally, the CAISO further defined the Availability Standards related to ambient outages and further refined the unit substitution proposal.

The SCP and A/S MOO proposals were presented to the CAISO Governing Board on March 26, 2009 and the Board authorized this filing.<sup>14</sup>

The CAISO posted draft tariff language for SCP on April 9, 2009. Stakeholders submitted comments on the draft language on April 16, 2009, and these comments were discussed during a stakeholder conference call on April 23, 2009.

### **III. THE STANDARD CAPACITY PRODUCT**

#### **A. The Purpose of SCP in the RA Process**

Each year the CAISO's RA process begins with the publication of the Locational Capacity Technical Study and the Deliverability Study. The Locational Capacity Technical Study determines the minimum capacity needed in each identified transmission constrained "load pocket" or Local Capacity Area to ensure reliable grid operations. The Deliverability Study establishes the deliverability of generation in the CAISO Balancing Authority Area and the total import capability for each import path allocated to each LSE. The information contained in these reports, along with generator data, is used to compile the annual Net Qualifying Capacity ("NQC") Report, which lists

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<sup>12</sup> The CAISO plans to revisit the treatment of these resource types in conjunction with future changes to the CPUC counting rules.

<sup>13</sup> The 2<sup>nd</sup> Draft Final Proposal is provided in Attachment C hereto.

<sup>14</sup> The Memorandum presented to the CAISO Board of Governors regarding the *Decision on Standard Resource Adequacy Capacity Product and Resource Adequacy Must Offer Obligation* is provided as Attachment D hereto.

the NQC of all Participating Generators and other Generating Units that request inclusion in the RA program for the next RA Compliance Year.

LSEs use the NQC report to identify resources available to contract for RA Capacity to satisfy the LSE's RA requirement. These requirements consist of the Reserve Margin established by the Local Regulatory Authority and the Local Capacity Area Resource requirement. Scheduling Coordinators for LSEs must make these RA Resources available to the CAISO in accordance with the requirements of either Section 40.5 for Modified Reserve Sharing LSEs or Section 40.6 for non-Modified Reserve Sharing LSEs.<sup>15</sup> Currently, there are no provisions to establish performance charges or payments for resources that fail to meet or exceed the expected availability requirements for RA Capacity, and consequently, because contracting parties must agree on such provisions themselves, the terms and conditions can vary among the contracts. Also, that can make RA contracting more difficult. The proposed SCP tariff provisions will establish uniform metrics though the proposed Availability Standard and incentives that can be incorporated by reference into the bilateral RA contracts.

In the year-ahead and month-ahead timeframes, LSEs are required to provide RA Plans to the CAISO demonstrating that their RA requirements will be met for that reporting period. Scheduling Coordinators for these RA Resources also submit year-ahead and monthly Supply Plans to the CAISO verifying the commitment to make available the RA Capacity. The CAISO then cross-validates the RA Plans and Supply Plans.

All RA Capacity that is confirmed through the Supply Plans will be subject to the SCP provisions, including the Availability Standards and incentives, unless otherwise expressly exempt or deferred from application of the provisions during initial implementation (discussed further below). The RA Capacity subject to SCP will be tracked by the CAISO for availability during specified Availability Assessment Hours of each month (*i.e.*, the extent to which the total amount of a resource's RA Capacity is available and not on a forced equipment outage or derate), and will be subject to Non-Availability Charges or Availability Incentive Payments depending on direction and number of MWs by which the resource deviates from the SCP Availability Standard. It is important to note that the CAISO will assess availability on only the amount of capacity that a resource has sold as RA Capacity, *i.e.*, if a resource with a 100 MW maximum capacity has sold only 50 MW as RA Capacity, then the CAISO will, for purposes of the SCP availability calculation, will consider only the availability of that 50 MW from the resource.

## **B. SCP Design Principles and Objectives**

In the course of the CAISO's SCP stakeholder process, stakeholder comments and input made clear that two elements were key to the SCP design: (1) designation of Availability Standards for RA Capacity and associated incentives for suppliers of such

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<sup>15</sup> There are special provisions for Load-Following MSS entities.

capacity to comply with those standards, to be incorporated into the CAISO tariff; and (2) specification of the applicability of the SCP standards and incentives, including potential exemption or “grandfathering” of certain types of RA Capacity to facilitate transition to the SCP requirements. In addition, stakeholders expressed broad consensus that the adoption of SCP should change the current RA process as little as possible and that SCP should be implemented for use in procurement for the 2010 RA Compliance Year.

With the framework created by CAISO and stakeholders, the CAISO developed its SCP proposal based on the following overarching design principles and objectives:

- (1) *Improve grid reliability* – The proposal should enhance grid reliability through an accepted set of standards and incentives in the tariff that will increase the availability of RA Resources;
- (2) *Streamline stakeholder contracting and contract tradability* – The proposal should facilitate stakeholder negotiations of RA contracts through a common set of standards in the CAISO Tariff;
- (3) *Meet regulatory requirements* – The proposal should address regulatory requirements of both the Commission and the CPUC. In its September 21 Order, the Commission required the CAISO to create performance criteria for RA Resources within 12 months of the start up MRTU. Further, in Phase 2 of its RA proceeding in Docket No. 08-01-25, the CPUC requested that parties submit proposals for a standard RA Capacity product. The CAISO submitted its SCP and A/S MOO proposals in that proceeding to inform the Commission’s decision making.; and
- (4) *Implement a standard RA Capacity product promptly* – The proposal should account for implementation constraints that will enable implementation in time for 2010 RA showings (in September 2009)

The CAISO submits that its SCP proposal achieves each of these objectives. It utilizes the existing resource adequacy framework as reflected in Section 40 of the CAISO Tariff and the existing CAISO Outage reporting systems. It develops a self-contained system of charges and incentive payments so that under-performing resources are penalized and good performance is rewarded. As such, the SCP proposal is just and reasonable and enhances the existing requirements designed to ensure that sufficient supply is available when and where needed by the CAISO to sustain reliable grid operations.

### **C. SCP Provisions**

The SCP proposal establishes:

1. The RA Resources that will be subjected to the SCP program and those that will be exempt (Section 40.9.2);
2. The Availability Assessment Hours during which the CAISO will track the availability of RA Resources (Section 40.9.3);
3. The manner in which the Availability Standards will be established and posted (Section 40.9.4);
4. The methodology for calculating the performance of RA Resources against the Availability Standards (Section 40.9.4.2);
5. How SCs for RA Resources can substitute non-RA Capacity for unavailable RA Capacity (Section 40.9.4.2.1);
6. The process for reporting Outages of RA Resources (Section 40.9.5);
7. The means for Assessing Non-Availability Charges and Availability Incentive Payments (40.9.6);
8. Special provisions regarding the SCP program for Non-Resource Specific System Resources providing RA Capacity (Section 40.9.7); and
9. Reporting obligations of the CAISO concerning the SCP program (Section 40.9.8).

The CAISO will explain the basis for these provisions in the following sections. The CAISO will then discuss the comments of the Market Surveillance Committee (“MSC”) on the proposal.

**1. The RA Resources that will be subjected to the SCP program and those that will be exempt (Section 40.9.2)**

The CAISO supports the ultimate development and implementation of a long-term RA framework in which there is a uniform Availability Standard applicable to all RA Resources. As discussed in greater detail *infra*, the CAISO understands the concerns expressed by the MSC (and some stakeholders) that this initial SCP proposal exempts certain resources and adopts a separate set of Availability Standards for Non-Resource Specific System Resources. As recognized by the MSC, this SCP proposal is only an initial step in the development of a long-term RA framework and an SCP that eventually can be applied to a broader set of RA Resources. For the reasons discussed below, the specific deferrals, exemptions and variations that the CAISO is proposing at this time are all just and reasonable, and not unduly discriminatory, given the specific circumstances that exist today.

**a. Exemption for Resources with Capacity of 1 MW or Less (Section 40.9.2(1))**

Resources with a capacity less than 1 MW are exempt under Section 40.9.2.1 because of the small size and the absence of operating data for many of these resources.

**b. Transition Issues -- Applicability of SCP to Existing Contracts (Section 40.9.2(2))**

As described above, an important purpose of the proposed Availability Standard and associated payment incentives is to standardize, via the CAISO tariff, performance criteria that currently vary on an RA-contract-by-RA contract basis. While most stakeholders support the concept of a uniform availability standard in the CAISO Tariff, some parties raised concerns that upon implementation of the proposed tariff provisions parties with existing RA contracts could be exposed to conflicting or duplicate availability standards and incentives due to the existence of availability provisions in their existing contracts.

Accordingly, the CAISO sought input from stakeholders as to whether it would be appropriate to structure a transition period for existing contracts before the capacity currently covered by such contracts would become subject to SCP. After taking into consideration stakeholder comments and data regarding existing contracts gathered from stakeholders in response to a questionnaire distributed in December 2008, the CAISO proposed to permit contracts executed or submitted to the CPUC or other Local Regulatory Authority for approval prior January 1, 2009 to be “grandfathered”, in accordance with the terms of Section 40.9.2(2).

Specifically, Section 40.9.2(2) provides that:

- Capacity that would otherwise be subject to the Availability Standards and Incentives but is being provided under a contract executed prior to January 1, 2009, or submitted to a Local Regulatory Authority for execution approval prior to January 1, 2009, will not be subject to the Availability Standards and incentives. Such capacity will however be included in the development of the applicable Availability Standard each year.
- The exemption from application of the Availability Standard applies only for the initial term of the contract, and only for the amount of MW capacity and resources under the contract prior to January 1, 2009. The exemption will terminate at the end of the initial term of the contract, and the capacity will be subject to the Availability Standard.<sup>16</sup>
- Exempt contracts may be re-assigned or undergo novation on or after January 1, 2009, but the exemption shall not apply for any extended contract term,

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<sup>16</sup> Several stakeholders raised expressed concern that contractual “evergreen” and renewal periods will not be exempt from the availability standards. For example, Mirant stated that “eliminating” renewal provisions could potentially upset the negotiated balance of a contract. However, renewal periods are included in the exemption, it is likely that significant amounts of RA resources would not be subject to the availability standard for undefined periods of time. Given stakeholder support for the concept, the CAISO has attempted to balance all stakeholder interests by “drawing a line in the sand” at which point the standard will be applied to RA resources under contract.

increased capacity quantity or additional resources beyond those specified in the contract prior to January 1, 2009.

- Scheduling Coordinators for RA Capacity contracts eligible for exemption must provide certification of the start and end dates of the contract, the Resource ID and the amount of MW capacity that will be grandfathered.

The proposed cut-off date for the transition of existing contracts to the availability standards is reasonable for several reasons. As noted by the CPUC staff in comments submitted on February 23, 2009, this date “strikes the proper balance between acceptance of the need for stability in legacy contracts and the need to avoid an incentive for continued reliance on contracts without (uniform availability standard) terms.”

Stakeholders have had ample notice since the start of the stakeholder process in August 2009 that the CAISO intended to implement SCP effective for the 2010 RA Compliance Year. Indeed, in the January 8, 2009 SCP White Paper the CAISO specifically proposed a January 1, 2009 cutoff date for existing RA contracts.<sup>17</sup> A January 1, 2009 cut-off date will effectively deter efforts by parties to rush out before SCP becomes effective and negotiate long-term contracts for poor performing units in order to avoid the SCP availability obligations. Thus, the specific grandfathering proposal promotes reliability and limits the ability of market participants to “lean” on other market participants because their recently negotiated RA contracts do not contain any standards or contain availability standards that are less stringent than the SCP Availability Standards.

January 1, 2009 is a reasonable transition date because LSEs will have completed their annual RA showings for the 2009 compliance year by that date and then will have begun to turn their focus to negotiating contracts for the 2010 RA procurement period. In that regard, annual RA showings for the 2010 compliance year are due on September 30, 2009. Under these circumstances, a January 1, 2009 cutoff date should ensure that most new RA Capacity contracts for the 2010 RA Compliance Year will have consistent standards, *i.e.*, the SCP Availability Standards. On the other hand, a later cut-off date some time in the second or third quarter of 2009 is more likely to result in a situation where a number of new contracts for 2010 are subject to the SCP but a number of others being subject to different availability standards, if any, contained in individual contracts. A January 1, 2009 date makes it more likely that the same availability standard -- SCP -- will apply to most if not all new 2010 RA contracts.

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<sup>17</sup> The link to the January 8, 2009 Whitepaper can be found at:  
<http://www.caiso.com/2331/2331d22415d0.pdf>



**c. Temporary Exemption for Resources Whose RA Qualifying Capacity Is Determined Based On Historical Output That Does Not Correct For Outages**

The CAISO proposes that the Availability Standard and Incentives initially will not apply to RA Resources whose QC value for RA purposes is calculated based on historical actual hourly output data that may include Outage hours occurring during the period when actual output is measured. Currently, such resources include wind resources, solar resources, and QFs. An exemption for these resources is appropriate at this time because the Availability Standard counts Forced Outages, non-ambient de-rates, and ambient de-rates due to temperature against a resource's availability, resulting in a financial charge if a Forced Outage, non-ambient de-rate, or temperature-related ambient de-rate causes a resource's availability to drop below the Availability Standard and deadband. However, under the CPUC's existing rules for determining QC for RA purposes, the QC values for wind and solar resources and QFs are based on these resources' availability over the past three years. Stated another way, the QC values for these types of resources are based on actual availability. As such, Forced Outages, non-ambient de-rates, and temperature related de-rates experienced during the course of a year can result in a lower QC for the next RA Compliance Year. Application of Non-Availability Charges -- in addition to a QC reduction -- for non-availability would result in these resources essentially being penalized twice for their non-availability due to Forced Outages, non-ambient de-rates and temperature-related ambient de-rates: once in the form of a financial charge and then again in the form of a QC reduction.

Although some stakeholders argued that all resources should be treated identically with respect to SCP penalties for Forced Outages, the fact is that wind and solar resources and QFs are not similarly situated to thermal generation.<sup>18</sup> This is because the QC of thermal resources is not determined based on historical performance. Thus, such resources do not receive a (downward) QC adjustment for the next RA Compliance Year based on their outages over the past three years. Accordingly, it is appropriate to assess thermal resources a financial charge for unavailability due to Forced Outages, non-ambient de-rates and temperature-related de-rates.

Fundamental fairness requires that RA Resources be "charged" only once for a Forced Outage or de-rate (either in the form of a financial charge or a downward QC adjustment, depending on the methodology used by the Local Regulatory Authority to determine the RA Resource's RA Capacity value).

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<sup>18</sup> For example, J.P. Morgan, in comments submitted to the CAISO on March 6, 2009, urges that the CAISO work with the CPUC and other parties to ensure that Forced Outages not be included in the historic data used to establish QC values for intermittent resources.

The CAISO intends to revisit the issue of the applicability of SCP to wind and solar resources and QFs at a later date, but will first need a change in the CPUC's counting rules in order to eliminate the possibility of "double counting" of outages and de-rates. However, until the wind, solar and QF resources counting rules change, it is just and reasonable, and not unduly discriminatory to only apply a downward QC adjustment to these and any other similarly situated resources and not to impose financial charges on them for their non-availability.

#### **d. Temporary Exemption for DR Resources**

The CAISO proposes to temporarily exempt DR resources from application of the Availability Standards and incentives because of efforts currently underway at the CPUC and at the CAISO to better align these resources with the CAISO's post-MRTU market design. For example, in Phase 3 of CPUC Docket R.07-01-041, the CPUC is considering how the investor-owned utilities' reliability-based DR programs can be integrated into the CAISO's Day-Ahead market.<sup>19</sup> Traditionally, certain of these resources have been considered primarily as a means of reducing the amount of load to which RA Requirements will be applied rather than capacity that can be called upon and dispatched to meet system needs.

The CPUC has acknowledged that changes to these resources would likely be phased in during the 2009-2011 RA procurement cycle.<sup>20</sup> Additionally, in 2008 the CAISO initiated a stakeholder process to consider the following DR enhancements that will enable greater participation in the CAISO's wholesale market: (1) a refinement to existing participating load functionality for a single integrated DR resource that may be co-optimized in the CAISO Energy and A/S markets; and (2) a new DR product called Proxy Demand Resource that is designed to meet FERC Order 719 requirements and help integrate demand response programs.<sup>21</sup> These enhancements are scheduled to be presented to the CAISO Board in conceptual design form in May 2009, and are intended for implementation in 2010 as part of the CAISO's MAP (Market And Performance) Process (formerly referred to as MRTU Release 1A).

Accordingly, efforts are under way to transition from the historic treatment of DR resources into one in which they participate more fully in the CAISO markets. It is important for the CAISO to coordinate with the CPUC and stakeholders as to how DR resources are treated for RA purposes. Given these ongoing activities, the CAISO believes it is reasonable to defer applicability of the SCP Availability Standards and incentives for DR. The CAISO intends to revisit the applicability of the SCP Availability

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<sup>19</sup> See Scoping Memo for R.07-01\_041 (accessible at <http://docs.cpuc.ca.gov/efile/RULC/85507.pdf>) at 4.

<sup>20</sup> R.07-11-041, July 18, 2008 Assigned Commissioner/Administrative Law Judge Amended Scoping Memo at 3.

<sup>21</sup> Further information regarding the CAISO's DR Initiative can be found on the CAISO's Web site at <http://www.aiso.com/1893/1893e350393b0.html>.

Standards and incentives to DR RA Resources in a future SCP stakeholder process, the timing of which will be dictated by progress in both the CPUC proceeding and the CAISO's DR stakeholder initiatives.

**e. Exemption for RA Contracts for Non-Resource Specific Energy Delivered within the CAISO Balancing Authority Area [Section 40.9.2(4)]**

As approved by the Commission, Section 40.2 of the CAISO Tariff requires the CAISO to defer to the determinations of Local Regulatory Authorities regarding the qualifications of RA Resources. Certain Local Regulatory Authorities permit contracts for non-resource specific Energy delivered within the CAISO Balancing Authority to be considered as RA Capacity. These are essentially financial contracts that are not tied to a specified physical resource, and in some cases reflect a provision of "sellers choice" that allows the supplier to provide the Energy from a source of its choice, *i.e.*, it could provide the Energy from its own resource or it could procure Energy from some other source and provide it in lieu of the Energy from its resource. In some cases these contracts do not require the supplier to provide any physical energy or capacity at all and may, for example, be fulfilled by the supplier buying energy from the CAISO spot markets.

Because Energy provided under these types of contracts does not use a single, unique CAISO Resource ID if the transaction occurs within the CAISO Balancing Authority Area,<sup>22</sup> the CAISO cannot identify the specific source of the Energy associated with this type of an arrangement. Under these circumstances, the CAISO is unable to apply the Availability Standard and incentives to the underlying RA Capacity because the CAISO has no information about the physical resource.

In its reply comments on the MRTU filing, the CAISO stated it agreed with the CPUC's statement in Decision 05-10-042 that these types of liquidated damage contracts are incompatible with the objectives of a physical capacity based RA program, because the failure to identify a specific resource that backs a capacity obligation could undermine the integrity of the program.<sup>23</sup> The CAISO notes that with respect to the Midwest ISO's RA program the Commission determined that "in order to meet the definition of Capacity Resources, these agreements should be backed by resources that can be verified."<sup>24</sup>

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<sup>22</sup> In contrast, non-resource specific RA imports are required have a Resource ID to participate in the CAISO markets because, the CAISO knows that they are being sourced from outside the CAISO Balancing Authority Area and being delivered to a specific scheduling point.

<sup>23</sup> Reply Comments of the CAISO in Docket No. ER06-615 dated 5/16/2006 at 199.

<sup>24</sup> *Midwest Independent Transmission System Operator*, 122 FERC ¶ 61,283 (2008) at P 275.

Fortunately, the quantity of RA Capacity being supplied by non-resource specific contracts for delivery within the CAISO Balancing Authority Area has decreased each year for the last three years, because the CPUC phased out the use of most of these contracts for RA purposes over a three year period ending in 2008; although, the long-term contracts that were executed by the California Department of Water Resources (“DWR”) during 2000-2001 California Energy Crisis will continue. In any event, the DWR contracts would be exempt from the SCP Availability Standards and incentives under the proposed grandfathering provisions.<sup>25</sup>

Section 40.9.2(4) recognizes the possibility that a non-CPUC Local Regulatory Authority could continue to find the use non-resource specific contracts for delivery within the CAISO Balancing Authority Area to be a satisfactory method of procuring RA Capacity. Until the use of such arrangements is prohibited, the CAISO has no choice but to exempt this RA Capacity from the SCP program.

The fact that the CAISO must exempt Non-Resource Specific contracts for delivery *within* the CAISO should not be used as an excuse for exempting Non-Resource Specific contracts for delivery at the CAISO Balancing Authority Area border. In contrast to the internal deliveries, RA Contracts for delivery at the CAISO Balancing Authority Area border are required to have Resource IDs and can be tracked for purposes of SCP program compliance because the contracts are delivered to specific scheduling points. In other words, the CAISO knows that the Non-Resource Specific import is being sourced from a specified scheduling point at the border of the CAISO Balancing Authority Area. Most importantly, the existence of an energy schedule under the appropriate Resource ID at the appropriate scheduling point reflects an actual delivery of energy to the CAISO Balancing Authority Area under the RA contract. On the other hand, internal delivery under such a contract may be a purely financial transaction that does not actually deliver any energy to the CAISO system, and even if the supplier does provide energy behind its financial contract, the CAISO does not know where such Non-Resource Specific Energy delivered within the CAISO Balancing Authority Area is being sourced. Further, given that the RA import allocation for 2009 was 16,604 MW (and the RA Capacity needed for a peak month is approximately 57,500 MW) it is clear that a substantial portion of RA requirements are being met by Non-Resource Specific System Resources. Given the magnitude and importance of Non-Resource Specific imports, in order for the SCP program to be viable, these external RA Resources must be included or else there will be a significant gap in the program.

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<sup>25</sup> Stakeholders have sought clarification as to whether novation or renegotiation of the DWR contracts for (internal) Non-Resource Specific Energy would affect the Section 40.9.2(4) exemption from the Availability Standard and incentives. Because, at the present time, this internal Non-Resource Specific energy cannot be sourced to a specific resource, changes to these contracts would not affect the status of the exemption.

**f. Resource Adequacy Resources of a Modified Reserve Sharing LSE or a Load Following MSS**

The CAISO proposes that RA Resources of a Modified Reserve Sharing LSE (if in the future any are established) or a Load following MSS would be used to determine the Availability Standards and will be subject to any Outage reporting requirements necessary to develop Availability Standards, in a manner consistent with how these provisions will apply to the RA Resources of other LSEs. In addition, the designated Local Capacity Resources of a Modified Reserve Sharing LSE or a Load following MSS would be subject to the SCP program, including the Non-Availability Charges or Availability Incentive Payments.

The capacity of the Local Capacity Area Resources nominated by these entities is essential to meeting the CAISO's local reliability needs and is utilized by the CAISO to calculate any cost responsibility such entities may have for CAISO backstop procurement due to insufficient provision of Local Capacity Area RA Capacity. Thus, it is important that all capacity nominated as Local Capacity Area capacity be treated in a similar manner, regardless of what type of LSE nominates it. With respect to non-local capacity of these entities, the CAISO Tariff provides that the Modified Reserve Sharing LSEs and Load Following MSSs are subject to a different set of RA availability requirements and which already contain penalties for the entities failure to provide sufficient resources to meet their hourly loads. Thus, they have strong financial incentives to provide fully for their share of system needs in every operating hour, and the SCP program should not be necessary to ensure availability of the non-Local Capacity Area Resources.

**2. The Availability Assessment Hours During Which the CAISO Will Track the Availability of RA Resources (Section 40.9.3)**

The Availability Assessment Hours used for purposes of calculating the monthly Availability Standard will be established by the CAISO pursuant to Section 40.9.3. The Availability Assessment Hours will be based on a pre-defined set of consecutive hours in each month that correspond to the operating periods when high demand conditions typically occur and when the availability of RA Capacity is most critical to maintaining system reliability. By assessing performance during the hours when the system is most likely to be capacity-constrained, this approach provides appropriate incentives for resources to take actions to improve peak-period availability. The Availability Assessment Hours will be comprised of five consecutive hours of each weekday that is not a holiday, and will vary by season, based on historical actual load data, so that the coincident peak load hour typically falls within the five-hour range each day during the month. The CAISO will determine the Availability Assessment Hours on an annual basis prior to the start of each RA Compliance Year.

### **3. The Manner in Which the Availability Standards Will Be Established and Posted (Section 40.9.4);**

CAISO Tariff Section 40.9.4.1 provides that the CAISO will establish a unique target availability value for each month of the upcoming Compliance Year, calculated based on the historic actual availability of the RA Resource fleet during the Availability Assessment Hours during each respective month over each of the past three years. As part of the transition to SCP, the monthly Availability Standards for the 2010 RA Compliance Year will be based on a slightly shorter period -- the monthly availability of RA Resources from June 2006 through December 2008 -- to reflect historical performance of RA Resources since implementation of the RA program in mid-2006. For subsequent years, the monthly Availability Standards will be based on historical availability over the previous three years.

The monthly Availability Standard will be a target percentage of availability based on the total available RA Capacity of certain RA Resources across the Availability Assessment Hours of the month, divided by the total designated RA Capacity for the same set of hours and resources. The following RA Resources will be excluded from the calculation of the Availability Standards: (1) certain exempt RA Resources specified in Section 40.9.2, (2) Non-Resource-Specific System Resources<sup>26</sup>; (3) resources between 1 MW and 10 MW until such time as the CAISO has received the outage reports and can begin to utilize the data; and, (4) Use-Limited Resources for Compliance Years 2010 and 2011.<sup>27</sup> The CAISO is proposing a unique Availability Standard value for each month of the year in order to establish an equitable target for resources to be measured against since different months of the year have different outage profiles. Because a single annual target value with monthly assessments of monthly actual performance compared to the single annual target value might not be revenue neutral to an RA Resource that actually achieves an actual annual availability that is equal to the target annual availability, the CAISO elected to adopt the proposed approach. Monthly Availability Standards with monthly assessments of actual monthly

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<sup>26</sup> The CAISO is not taking into account the availability of Non-Resource-Specific System Resources for purposes of calculating this availability target because these resources have their own separate availability metric, *i.e.*, they must offer 100% of their RA Capacity into the market. These RA Resources do not identify specific generators, so the Forced Outage metric for individual generators cannot be applied to them. As a surrogate, the CAISO measured by their availability by determining the percentage of time they bid their capacity into the Day-Ahead market. It would not be an “apples-to-apples” comparison to include the performance of these RA “resources” for purposes of determining the applicability of the general Availability Standards applicable to individual generation resources.

<sup>27</sup> The Availability Standards will first incorporate the applicable Outage data of Use Limited Resources in the monthly values that it posts on June 1, 2011 for RA Compliance Year 2012. The data used in the June 1, 2011 posting will be for the years of 2008, 2009 and 2010. Once the Commission issues its decision on this SCP filing, the CAISO will need to modify its systems to correctly calculate the availability relative to the SCP provisions of Use Limited Resources. This likely will not happen until late 2009 or early 2010. Thus, the Availability Standards posting of June 1, 2011 will include as many months of data from 2010 where the ULR data is comparable with other data used in calculating the Availability Standards.

performance compared to the monthly target value will increase the likelihood that the availability standard will be revenue neutral to a RA Resource that actually achieves an actual monthly availability that is equal to the target monthly availability.

In calculating the Availability Standards, the CAISO will determine the available RA Capacity in each month using the Outage information in its Outage Scheduling and Logging system, commonly referred to as “SLIC”, which is a system used by market participants to report to the CAISO changes in the status/capability of their resources, and, when it becomes available, the monthly Outage reports submitted pursuant to Section 40.9.5. To ensure consistency between the calculation of the monthly Availability Standards and the calculation of each resource’s monthly availability, the data utilized for both calculations will be in accordance with the provisions of Sections 40.9.2 and 40.9.3.

The Availability Standards calculated by the CAISO, and expressed as a percentage target for each month of the RA Compliance Year, will then be compared to each non-exempt RA Resource’s availability during the Availability Assessment Hours. Under CAISO Tariff Section 40.9.4.2, the CAISO will calculate the monthly availability percentage for each RA Resource based on its total hourly available RA Capacity over all Availability Assessment Hours of the month, divided by its total hourly RA Capacity designated in the Supply Plan for those hours.

An RA Resource will be determined to be less than 100% available in a month if it has any Forced Outages, non-ambient de-rates or temperature-related ambient de-rates that impact the availability of its designated RA Capacity during the Availability Assessment Hours of that month. RA Resources that do not report Outages for SCP through SLIC (*e.g.*, those with a PMax between 1 and 10 MW) will provide similar information via the monthly report to the CAISO specified in Section 40.9.5.

Under Section 40.9.4.2, temperature related ambient de-rates also will be included in the calculation of the RA Resource’s availability. Capacity de-rates submitted through SLIC that are due to temperature, *i.e.*, ambient conditions, will be counted against the hourly availability of the resource under the Availability Standards. Normal weather fluctuations such as temperature are reasonably predictable by the resource owner. Because normal weather patterns are predictable, the resource owner should be able to anticipate these conditions and should sell a commensurate amount of RA Capacity that reflects those conditions.

For a Use-Limited Resource, Section 40.9.4.2 provides that temperature related ambient de-rates will be counted against its availability, but only until the Use-Limited Resource reaches an energy limit constraint, following which temperature-related ambient de-rates will no longer count against the availability of the Use-Limited Resource for the relevant month. The rationale for this limitation is that Use Limited Resources provide monthly advisory use plans to the CAISO that indicate their energy limitations, and the CAISO uses this information to determine how (and when) best to utilize the resources to meet system needs. These resources are expected to provide

the full amount of RA Capacity that they are contracted to supply within the energy limit constraints of the resource. Therefore, until an energy limit constraint is encountered, the resource is expected to provide the full amount of RA Capacity that it has sold.

For purposes of calculating the availability of each resource each month, Outages will be measured using the reported Outage start times and end times in accordance with Section 40.9.4.2. or Section 40.9.5 (for specified resources that do not report Outages in SLIC). The use of the reported start times and end times will capture the time the resource was actually operational and also available to the CAISO as RA Capacity. If an Outage has ended but has not been reported to the CAISO, the RA Capacity cannot be dispatched and so it is effectively unavailable.

The start time will be the time the Outage actually occurred (the availability point), consistent with reporting in the SLIC system. The end time will be the time the Outage was scheduled to end, based on the most recent update to that Outage in the SLIC system, or through the alternative reporting process of Section 40.9.5 for resources not included in the SLIC system. Under this process, Scheduling Coordinators for Generating Units or Resource-Specific System Resources that are also RA Resources with a maximum output capability of 1 MW or more, and that not required to provide information to the CAISO on Forced Outages in accordance with Section 9.3.10, will provide equivalent availability-related information in the form and on the schedule specified in the Business Practice Manuals. This information will identify all Forced Outages, non-ambient de-rates and temperature-related ambient de-rates that have occurred over the previous calendar month and contain all relevant details needed to enable the CAISO to perform the availability calculation for the resource in accordance with Section 40.9.4, including but not limited to: the start and end times of any Outages or de-rates, the MW availability in all Availability Assessment Hours, and the causes of any Forced Outages, non-ambient de-rates and temperature-related ambient de-rates. Scheduling Coordinators for RA Resources whose maximum output capability is 10 MW or more shall report Outage-related information in accordance with the reporting obligations in Section 9.3.10.

Finally, because Forced Outages affect the actual availability of resources and low actual availability can result in Non-Availability Charges, the CAISO also proposes to amend the CAISO Tariff to address situations where a resource is out on a Forced Outage, and subsequently contacts the ISO and requests that the CAISO convert the Forced Outage to a Maintenance Outage. The current CAISO Tariff allows this type of conversion, but under current procedures, a conversion from a Forced Outage to a Maintenance Outage eliminates any record in SLIC that the Outage for the resource was initially a Forced Outage; thus, when converted the entire duration of the Outage would be recorded as a Scheduled Outage. That is not appropriate under the SCP regime where financial charges are being imposed as the result of a resource's unavailability due to a Forced Outage. The CAISO believes that under the SCP framework, the appropriate approach is to record the Outage as a Forced Outage up until the time that the Outage is approved by the CAISO as a Maintenance Outage (assuming the CAISO approves such conversion). This revised rule is particularly



important under SCP given that there is an Availability Standard, and each resource's actual availability will be calculated each month. The CAISO is not adopting a total prohibition against permitting resources to convert Forced Outages to Maintenance Outages, and proposes to allow conversions under SCP provided that (1) system conditions allow for approval of a Scheduled Outage, and (2) at the time the CAISO considers a conversion request, the CAISO determines that the Outage will not require the CAISO to engage in backstop procurement. These revisions are reflected in CAISO Tariff Section 9.3.3 and 40.9.4.2.

The CAISO proposes that a Forced Outage can be terminated coincident with the beginning of a new Outage (*i.e.*, after 3 business days). At that time, if there are available resources that could reliably replace the resource on the Forced Outage (*i.e.*, if the CAISO would have approved an Outage submitted with appropriate advance notice), without requiring the CAISO to engage in backstop procurement, then the second Outage would be approved as a Maintenance Outage. If the resource situation is such that from a reliability perspective, the second Outage would not be approved on a scheduled (planned) basis, then that Outage request too would be labeled as a Forced Outage. In this case, the CAISO would simply continue the original Forced Outage.<sup>28</sup>

#### **4. Substitution of Resource Adequacy Capacity**

The CAISO proposes to allow the Scheduling Coordinator for a supplier of RA Capacity that is tied to a specific generating resource to substitute, subject to CAISO approval, alternative non-RA Capacity in the event the RA Resource is on an Outage. Such substitution will enable the supplier to avoid having the outage of the RA Resource count toward the monthly availability assessment. The CAISO will also allow, subject to approval in each instance, substitution of non-RA Capacity of a specific generating resource internal to the CAISO Balancing Authority Area for RA Capacity provided by a non-Resource Specific System Resource.

This proposal provides benefits for both Scheduling Coordinators and the CAISO. Scheduling Coordinators can potentially avoid non-availability charges by requesting substitution, and the CAISO may be able to avoid procurement of backstop capacity because the unit substitution alleviates the supply insufficiency. The CAISO proposal permits the substitution of both Local Capacity Area Resources,<sup>29</sup> and RA

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<sup>28</sup> For example, a resource experiences a Forced Outage that is expected to last two weeks. A Forced Outage starts immediately. Once it is determined that the Forced Outage will last longer than three days, the resource may submit (but is not required to) a Scheduled Outage request for the same work with a start date no less than three business days from the submittal of the request. If that request can be approved on a reliability basis it will be approved, and then at the start-time of the new Outage the Outage will become a Scheduled Outage. If the Outage cannot be approved on a reliability basis, the request to change the Forced Outage to a Scheduled Outage would be rejected, and the original Forced Outage would continue.

<sup>29</sup> According to Tariff Appendix A, "Local Capacity Area Resources" consist of Resource Adequacy Capacity from a Generating Unit listed in the technical study or Participating Load that is located within a

Resources designated for system reliability that are not designated as meeting the RA requirements of any Local Capacity Area. Proposed tariff section 40.9.4.2.1 sets forth the criteria for capacity substitution. There are different requirements for substitution of Local Capacity Resources and System Resources. The rules for substitution do not require that the substitute capacity be in the same MW quantity as the RA resource on outage, but if the substitute capacity is of a smaller MW quantity than the original RA resource, the supplier will receive only proportional credit towards its availability metric for the month.

Section 40.9.4.2.1(1) sets forth the requirements for substituting Local Capacity Area Resources. The CAISO's proposed substitution provisions for Local Capacity Area Resources reflect an enhancement to the substitution provisions under the Reliability Capacity Services Tariff ("RCST") and Transitional Capacity Procurement Mechanism ("TCPM") -- both found in Section 43.5.2 of the CAISO's pre-MRTU Tariff -- that the Commission found to be just and reasonable. Unlike the RCST and TCPM which provided SCs for resources only one opportunity for substitution, the CAISO is proposing to provide two separate opportunities for resources subject to SCP to qualify for substitution. First, a provider of local RA Capacity can pre-qualify a substitute resource in advance of the start of the RA Compliance Year by proposing to the CAISO a specific replacement resource that is located at the same bus as the Local RA Resource and has similar operational characteristics. The RCST and TCPM substitution provisions approved by the Commission did not contain a pre-qualification opportunity. Once this substitute is approved by the CAISO, if the original Local RA Resource then suffers a forced outage during the Compliance Year, the RA Provider may offer the pre-qualified substitute at that time and the CAISO will automatically accept it.

This prequalification approach allows substitute resources that are essentially "electrically equivalent" to the resource they are replacing to automatically qualify for substitution. Under these circumstances, CAISO Grid Operators can be assured that in *all* day-to-day operating conditions that might arise during the course of an RA Compliance Year, the substitute resource will serve as an effective replacement and that the CAISO will not have to procure backstop capacity, at least not for the MW quantity of the substitute, because the substitute unit was not an effective replacement for the original resource given the specific operating conditions that exist at the time of the actual outage. Pre-qualification is appropriate under these circumstances where the substitute resource will always be an effective replacement for the original resource.

The CAISO is also proposing a second opportunity for substitution in those instances where a resource does not satisfy the prequalification standard. Specifically, if a Local Capacity Resource has an Outage that would count against availability, the

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Local Capacity Area capable of contributing toward the amount of capacity required in a particular Local Capacity Area.

supplier may at the time of the outage request the substitution of a resource that has not been pre-qualified. Under such circumstances, the CAISO will grant the request for substitution if (1) the alternate resource is located at the same bus and meets the CAISO's operational needs; or (2) if not located at the same bus, is in the same Local Capacity Area and meets operational and effectiveness needs, as determined by the CAISO within its reasonable discretion. This substitution standard is based on the substitution standard reflected in the Commission-approved RCST and TCPM tariff provisions. This second substitution opportunity allows the supplier and the CAISO to effectuate a substitution if the replacement resource meets the CAISO's effectiveness and operational needs compared to the original resource based on prevailing system conditions at the time of the outage.

Some stakeholders have asked that the CAISO permit pre-qualification of substitute Local Capacity Area Resources that are not located at the same bus as the original resource but are located in the same Local Capacity Area. The CAISO considered this issue and it was fully vetted with CAISO Grid Operations Staff. Based on discussions with Grid Operations Staff, the CAISO determined that it would not be appropriate to pre-qualify -- in the year-ahead timeframe -- substitute resources that are not located at the same bus as the original resource and which are not electrically equivalent to the original resource. Pre-qualification of such resources could lead to situations where, given the prevailing conditions on a given day where there is an outage, the replacement resource would not be an effective substitute for the original resource and the CAISO would have to procure backstop capacity that is effective in addressing operating conditions. This would essentially result in duplicative capacity payments being made to two resources to address the same operational concern. Thus, CAISO Grid Operations has concluded that it is not appropriate to pre-qualify local resources that are not known to be electrically equivalent. Absent such a limitation there are numerous variations of operating conditions that might arise during the course of the year that could lead to a substitute that was pre-qualified under less restrictive standards being less than fully effective in providing services equivalent to the RA resource on outage, and therefore requiring the CAISO to procure additional backstop capacity. Moreover, just because a resource does not pre-qualify for substitution does not mean that it is ineligible to be substituted at the time of an actual outage. In those circumstances, the CAISO will evaluate the effectiveness of the substitute resource given the specific operating conditions that exist at the time.<sup>30</sup>

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<sup>30</sup> There is an additional factor underlying the CAISO's unwillingness to allow suppliers to be able to automatically pre-qualify any non-RA Resource located in the same Local Capacity Area as the original resource. This is because, in reviewing the annual RA showings, the CAISO evaluates all of the Local Capacity Resources that have been procured in each Local Capacity Area, to determine not only whether each LSE has procured its allocated share of Local Capacity Requirements, but also whether the total Local Capacity that has been procured for each area constitutes the "right mix" of resources in order to satisfy the CAISO's Local Capacity Requirements. When an SC seeks to substitute a new resource for an existing Local Capacity Area Resource, the CAISO must evaluate whether the alternate resource also contributes to the "right mix" of resources and will not create a collective deficiency where one did not exist following the CAISO's evaluation of the annual Supply Plans. Therefore, Section 40.9.4.2.1(1) provides criteria for this evaluation, depending on whether the alternative resource is located at the same

Again, the CAISO notes that the proposed substitutability provision is comparable to the substitutability provision that the Commission approved as part of the RCST and TCPM tariff provisions (*i.e.*, Section 43.5.2), but contains an enhancement in the form of pre-qualification for certain resources. For the same reason the Commission found the RCST and TCPM substitutability provisions to be just and reasonable, it should find the enhanced SCP substitution provisions to be just and reasonable.

Section 40.9.4.2.1(2) provides that RA Resources designated only for system RA needs will neither be required nor allowed to pre-qualify alternate resources for substitution. If a system RA Resource has an outage that will count against its availability, the supplier, prior to the close of the IFM, may request the use of specific non-RA Capacity within the CAISO Balancing Authority Area to be used in the place of the original unit, with no *ex ante* restrictions on the location of the substitute resource. The CAISO will make every effort to accommodate these requests to the extent that the substitute capacity is deliverable and the CAISO is not required to procure backstop capacity after accepting the substitution.

## **5. The process for reporting Outages of RA Resources (Section 40.9.5)**

In order to develop the Availability Standards and administer the SCP program the CAISO will need to have appropriate information on Outages and derates of RA Resources. Much of the needed information is already provided through the CAISO's SLIC. SLIC is a logging application that allows Market Participants to notify the CAISO when a Generating Unit's properties change due to physical problems. Users can modify the maximum and minimum output of a unit, as well as a unit's ramping capability. Where this information is available, the CAISO will utilize the SLIC data and does not propose to require additional information to be reported.

However, currently Resource-Specific System Resources that are RA Resources greater than 10 MW do not need to report Outage information through SLIC. Accordingly, the CAISO proposes to amend Section 9.3.10.3 to require Outage reporting of these resources similar to that required of internal RA resources.

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bus. If a resource proposed for substitution is not located at the same bus, the CAISO may exercise its reasonable discretion to determine whether the proposed substitute has operating characteristics sufficiently equivalent to the Local Capacity Area Resource to meet operational and effectiveness needs. These criteria provide a balance between the desire of RA suppliers for *ex ante* certainty regarding their substitution possibilities and stakeholder concerns that the CAISO's proposed requirements place an undue burden on Scheduling Coordinators seeking to substitute resources to avoid a Non-Availability Charge assessment. The guiding principle behind the design of the substitution rules for local resources is that a substitute should enable the CAISO to avoid having to procure backstop capacity to replace the service provided by the original RA resources. This will ensure that electricity customers do not pay multiple times for the same RA Capacity in instances where it can be avoided, once through the LSEs' procurement of RA Capacity and again through the CAISO's procurement of backstop capacity.

SCs for Generating Units or Resource-Specific System Resources that are also RA Resources with a maximum output capability of 1 MW or more, but which do not meet the requirement to provide information on Forced Outages in accordance with Section 9.3.10, shall provided monthly Outage reports containing the needed availability-related information.

**6. The means for Assessing Non-Availability Charges and Availability Incentive Payments (Section 40.9.6);**

In order to determine whether an RA Resource will be credited with an Availability Incentive Payment or assessed a Non-Availability Charge, the calculated percentage of each non-exempt RA Resource's actual availability during the Availability Assessment Hours will be compared to the Availability Standard percentage calculated by the CAISO for each month of the Compliance Year. Under Section 40.9.6, a non-exempt RA Resource whose monthly availability is more than 2.5 percent above the monthly Availability Standard will be eligible for an Availability Incentive Payment for that month, while a non-exempt RA Resource whose monthly availability is more than 2.5 percent below the monthly Availability Standard will be subject to a Non-Availability Charge for the month. The CAISO is proposing financial incentive payments and charges -- rather than QC reductions for availability levels below the target Availability Standard -- based on (1) overwhelming stakeholder input that financial penalties have a more immediate and direct impact than QC reductions and (2) the CAISO's own concern that penalizing the poor performance of RA Resources by reducing their eligible RA Capacity in the following RA Compliance Year could have the unintended consequence of impairing system reliability in the future. Use of the dead band of 5.0% around the Availability Standard (2.5% on either side of the target availability value) will ensure that Availability Incentive Payments and Non-Availability Charges will only be assessed when RA Resources perform materially better or worse when compared to the established Availability Standard.

The Non-Availability Charge rate, as set forth in Section 40.9.6.2, will be equal to the monthly ICPM capacity payment price as specified in Schedule 6 of Appendix F. The Non-Availability Charge for a non-exempt Resource Adequacy Resource will be determined by multiplying the resource's capacity subject to the Non-Availability Charge calculated in accordance with Section 40.9.1 by the Non-Availability Charge rate.

Availability Incentive Payments will be funded entirely through the monthly Non-Availability Charges collected in the same Trade Month. The monthly Availability Incentive Payment rate will equal the total Non-Availability Charges assessed for the Trade Month divided by the total RA Capacity that is eligible to receive the Availability Incentive Payment that month -- the eligible capacity is that capacity that has exceeded the Availability Standard plus 2.5%. The Availability Incentive Payment in a given month shall not exceed three times the Non-Availability Charge rate. The purpose of the maximum rate is to avoid windfall payments to a limited set of RA Resources. While the CAISO intends to provide an incentive to RA Resources to strive to achieve an availability level greater than the target availability, the CAISO recognizes that there

could be instances where, in a particular month, a number of RA Resources could be assessed a Non-Availability Charge and one or very few RA Resources might have exceeded the Availability Standard. This situation could result in disproportionately large payments being made to those limited RA Resources. Accordingly, the CAISO proposes to “cap” the potential availability payments each month. Any excess Non-Availability Charges will be allocated to measured demand on a load-ratio share basis through the Real-Time neutrality charge for that Trade Month in accordance with Section 11.5.2.3. In order to avoid this allocation, in turn, becoming an incentive for LSEs to procure poor performing resources to provide RA Capacity because of the potential for receiving Non-Availability Charges, the CAISO proposes to allow the Availability Incentive Payment for a single RA Resource to reach three times the Non-Availability Charge rate. The CAISO believes that these measures will provide a strong incentive to RA Resources to strive to exceed the target availability, while at the same time striking a balance between the competing goals of avoiding windfall payments to resources and discouraging LSEs from purposely procuring poor performing resources.

Under Section 40.9.6.1, the amount of RA Capacity of an RA Resource that is subject to the Non-Availability Charge will be determined as follows:

- (1) If an RA Resource’s actual availability is less than 50% for a given month, the RA Resource’s entire RA Capacity will be subject to the Non-Availability Charge.
- (2) If an RA Resource’s availability is greater than 50% but less than the Availability Standard minus 2.5% for a given month, the resource will be assessed the Non-Availability Charge for that portion of the RA Resource’s RA Capacity equal to the Availability Standard percent minus 2.5 percent minus the resource’s actual availability for the month, as calculated in accordance with Section 40.9.4.2.
- (3) If an RA Resource’s availability is equal to or greater than the Availability Standard less 2.5%, it will not be subject to the Non-Availability Charge.
- (4) Any Forced Outage, non-ambient de-rate, or temperature-related de-rate of a resource that the CAISO has accepted as a substitute for an RA Resource in accordance with Section 40.9.4.2.1 will be applied in calculating the availability of the resource for which it is substituting.

Section 40.9.6.4 provides that the CAISO will calculate and settle Non-Availability Charges and Availability Incentive Payments on a Trade Month basis so that all Non-Availability Charges collected for a Trade Month are allocated in accordance with Section 40.9.6.3 for that same Trade Month.

**7. Special provisions regarding the SCP program for Non-Resource Specific System Resources providing RA Capacity (Section 40.9.7)**

Non-Resource-Specific System Resources that provide RA Capacity that are not tied to a specific resource pose a unique set of issues for the CAISO's SCP program. Similar to the Non-Resource Specific RA contracts that deliver internal to the CAISO Balancing Authority Area, as discussed *supra*, this type of RA Capacity does not report Outage information and therefore the CAISO does not have Outage data upon which to measure availability and apply the financial incentives. Nevertheless, because of the role of such resources in meeting overall RA requirements, the CAISO would prefer to apply the SCP provisions to all such resources if there were a meaningful and feasible way to do so. As explained earlier, for the internal Non-Resource Specific RA Resources there is simply no way to do this, because, as noted, such RA capacity does not even need to supply any actual physical power into the CAISO Controlled Grid. In contrast to internal Non-Resource Specific RA resources, however, the CAISO Tariff requires the non-Resource Specific System Resources supplying RA Capacity to establish and use a Resource ID to conduct those transactions. As a result the CAISO knows, unlike internal Non-Resource Specific RA resources, the location on the CAISO Controlled Grid at which the supplier is required to offer its capacity to the CAISO markets, and thus has a way to measure on an hourly basis whether these resources have offered the full amount of their RA Capacity into the Day-Ahead Market ("DAM"). In recognition of the specific circumstances of these resources, the CAISO has developed a reasonable means by which to measure availability for this category of RA Capacity that will provide appropriate incentives to maximize availability, despite the absence of a resource-specific associated physical supply resource and lack of outage data.

Because these Non-Resource Specific RA Resources are scheduled under a specific Resource ID, the CAISO will be able to track the capacity each such RA Resource offers into the DAM for the purposes of applying the Availability Standards and incentives. However, given certain essential differences between such RA Resources and the RA Capacity provided by specific generating resources internal to the CAISO Balancing Authority Area, the CAISO proposes to establish a separate and distinct availability standard for Non-Resource Specific System Resources that supply RA Capacity, with its own metrics and a separate funding mechanism for managing the incentive charges and payments. The specific elements of the CAISO's proposal regarding Non-Resource Specific RA imports are as follows:

- Section 40.9.7: For determination of compliance with Availability Standards, Non-Resource Specific RA imports will be separated into a category where monies from Non-Availability Charges will be used to fund Availability Incentive Payments only for those resources.
- Section 40.9.7.1: The monthly target availability will be set at 100% with no dead band. This availability target is appropriate because Non-Resource

Specific imports can draw from a wide range of resources without having their ability to deliver being subject to the possible Forced Outages incurred by any specific generating resource. Non-Resource Specific System Resources providing RA Capacity will not be included in the calculation of availability standards for other resources.

- Section 40.9.7.2: Availability of Non-Resource Specific System Resources providing RA Capacity will be measured by their offer of capacity into the DAM at the resource's appropriate scheduling point. Per the 100% standard, such resources will be required to offer the full amount of their designated RA Capacity in each hour. Sufficient transmission rights to deliver these import offers to the CAISO border must be secured by the Scheduling Coordinator. If the SC for such a resource offers its full capacity amount into the CAISO market and the CAISO does not fully accept the offer, this does not count against the resource's availability calculation.
- Section 40.9.7.3: The monthly Non-Availability Charge will be equal to the monthly ICPM capacity payment price as specified in Schedule 6 of Appendix F, multiplied by the amount of unavailable capacity.<sup>31</sup> Funds collected from Non-Availability Charges will be used to provide Availability Incentive Payments for those resources that achieve 100% availability for the same month on a pro-rata basis.<sup>32</sup> Incentive payments will be capped at three times the Non-Availability Charge rate. Monthly surpluses of Non-Availability Charges will be credited against the Real-Time neutrality charge for that month, thus paying the funds back to measured demand. Thus, RA Resources that exceed the target availability never get paid more per MW than three times the non-availability charge rate, but may get less if not enough non-availability charges funds are collected.

The CAISO has designed this metric to address stakeholder concerns with the treatment of Non-Resource Specific System Resources providing RA Capacity. For example, and for the reason discussed above with respect to resource specific RA Resources, incentive payments have been capped so that a few resources will not reap a windfall in instances where very few resources achieve the 100% availability level.

During the stakeholder process, some parties objected to the CAISO's proposal to establish a different Availability Standard for non-resource specific RA imports than was being established for resource specific RA capacity. The 100% availability target that SCP applies to non-resource specific RA imports recognizes that RA Capacity from these resources, unlike resource-specific RA Resources, is not provided by a single

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<sup>31</sup> The ICPM tariff, including the pricing provisions, sunsets on December 31, 2010, at which point the successor "back-stop" capacity charge will be used in the calculation.

<sup>32</sup> The pro-rata allocation will be developed on the basis of the percentage of capacity of the specific RA import to the total RA import capacity.



specified resource that that could be unavailable due to a forced outage. Rather, the RA Capacity from imports can come from any (unspecified) source. Obviously, RA Capacity that can be provided by a much broader pool of resources, thus relieving the supplier of any risk of being unable to supply its RA Capacity due to a resource outage, provides flexibility for the supplier that should be accompanied by a higher standard of availability. In other words, it would not be just and reasonable to apply the same Availability Standard to RA Capacity that is provided by a single resource and RA Capacity that allows the supplier broad flexibility in how to meet its supply obligations.

It should be noted that any resource-specific system resources that provide RA capacity will be treated like internal RA resources for purposes of the Availability Standards. Such resources will participate in the CAISO markets in a manner comparable to internal resources and will use SLIC to report Outages, including possible path or branch de-rates that limit their ability to fully deliver their designated RA Capacity.

#### **8. Reporting obligations of the CAISO concerning the SCP program (Section 40.9.8).**

Under the proposed Section 40.9.8, the CAISO will provide an informational report that will be posted on the CAISO Website and include: (1) the Availability Standards value for each month of the year and (2) information on the average actual availability each month of Resource Adequacy Resources, the total amount of Non-Availability Charges assessed and the total amount of Availability Incentive Payments made.

#### **9. Opinion of the CAISO Market Surveillance Committee**

On March 12, 2009, the CAISO's MSC issued an Opinion entitled *The California ISO's Standardized Resource Adequacy Product Proposal*.<sup>33</sup> The MSC's Opinion recognizes that the existing CAISO Tariff provisions do not specify any RA performance standards or compliance incentives to ensure the availability of RA Capacity and that the CAISO's SCP proposal addresses this gap and therefore "is a timely and important step" toward strengthening the must offer obligation and defining a standardized RA product.<sup>34</sup> The MSC identifies three areas of concern with the present proposal: (1) separate standards applied to different resource types; (2) the hours over which performance is measured; and (3) what it characterizes as the relatively mild financial incentives provided by the overall mechanism. However, the MSC recognizes that these elements will likely be revisited in developing a comprehensive policy for long-term resource adequacy.<sup>35</sup>

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<sup>33</sup> A copy of the MSC's Opinion is provided as Attachment E.

<sup>34</sup> MSC Opinion at 1.

<sup>35</sup> *Id.*

The MSC is correct in its observation that the elements of SCP will be revisited. The instant SCP proposal is only the initial step in the development of a comprehensive policy for long-term resource adequacy.<sup>36</sup> The proposal is intended to lay the foundation for implementation of SCP and to get that framework in place in time for the 2010 RA compliance year. The CAISO expects that the SCP will be refined and augmented in the future as experience with the provisions is gained and issues are resolved. Accordingly, most of the SCP enhancements that the MSC discusses were not considered for the initial implementation of SCP. They are best addressed in the context of development of a long-term RA framework and go far beyond the specific (and more fundamental) SCP conceptual proposals that were discussed during the course of this stakeholder process (e.g., the MSC's recommendations for a market-based approach to unit substitution and financial penalties, financial approaches to resource adequacy, and the definition of the must offer obligation as an Ancillary Service). The CAISO anticipates that future stakeholder processes will address, *inter alia*, the long-term RA issues raised by the MSC.

In any event, the CAISO submits that the SCP proposal is a just and reasonable foundation for the SCP product. It received broad stakeholder support, is consistent with the existing regulatory framework, including the CPUC's treatment of certain resources for RA purposes, and works with existing CAISO systems. During the stakeholder process, numerous stakeholders urged the CAISO to (1) focus narrowly on the basic elements of a SCP in the initial SCP release and pursue enhancements of the basic product in a later release, and (2) file the basic SCP proposal with the Commission in a timely manner so that an approved SCP framework would be in effect for the 2010 RA Compliance Year. The CAISO's proposal achieves these objectives.

The CAISO also offers the following specific comments in response to certain of the issues raised in the MSC Opinion.

With respect to the MSC's concern that SCP is not being applied to intermittent resources and QFs, the CAISO notes that it is merely deferring the applicability of SCP to these resources (and any other resource whose Qualifying Capacity is determined based on historical performance) and will revisit this issue at a later date. The CAISO's ultimate goal is to apply the SCP availability standards to all resource types. However, in order for that to occur, the CPUC's counting rules for intermittent resources and QFs must first be modified so that they are coordinated with the SCP program. As discussed *supra*, until such alignment occurs, it is inappropriate to apply the SCP financial charges to these resources at this time. Applying SCP to these resources would result in them being penalized twice for outages, once in the form of an SCP financial charge and again in the form of a QC reduction. That is not appropriate, and that is why an exemption of these resources from SCP is appropriate at this time.

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<sup>36</sup> The CAISO notes that the CPUC has an ongoing proceeding addressing the long-term RA framework. Following the issuance of a decision in that proceeding, the CAISO will work with stakeholders to develop a comprehensive long-term RA program.

The MSC also mentions the different standard for non-resource specific RA imports under the SCP proposal. As discussed *supra*, the CAISO believes that its proposed treatment of RA imports is appropriate for the nature of that supply. The 100% availability target that SCP applies to RA imports recognizes that RA Capacity from these resources, unlike other RA Resources, is not provided by a single specified resource that that could be unavailable due to a forced outage. Rather, the RA Capacity from imports can come from any (unspecified) source. Obviously, RA Capacity that can be provided by a much broader pool of resources should have a higher expectation of being available than RA capacity which is provided only by a single resource. Thus, it would not be just and reasonable to apply the same availability standard to both types of resources at this time. In future iterations of SCP, the CAISO can explore this issue further with stakeholders, but the clear fact is that non-resource specific RA Capacity is not similarly situated to RA Capacity being provided by a single specific RA Resource.

The MSC also suggests that the CAISO should consider (1) changing the level of the financial charge for non-availability on an annual basis, and (2) setting the level of penalties in the future based on a market pricing mechanism. The CAISO notes that the proposed non-availability charge is based on the Commission-approved \$41/kW-year price of backstop capacity under the Interim Capacity Procurement Mechanism (“ICPM”). Basing the non-availability charge on the same ICPM price is just and reasonable for an initial release of SCP. The ICPM price is currently the only transparent price for capacity in the CAISO markets. Further, it is the price that the CAISO would have to pay if RA Resources were unavailable and the CAISO had to procure ICPM Capacity as a backstop. Under these circumstances, basing financial charges on the ICPM capacity price is just and reasonable at this time. The MSC Opinion further suggests that the ICPM price is likely to change.<sup>37</sup> However, the CAISO notes that the Commission-approved ICPM price is effective until the expiration of the ICPM, which is currently set for 24 months after MRTU go-live.<sup>38</sup> This price should serve as the basis for the SCP non-availability charge until the ICPM program is terminated or modified. The CAISO recognizes the MSC’s concern that the “ISO should be able to change [the values of SCP penalties and availability targets] at any time if the existing values are determined to hinder efficient system operation.” To the extent problems arise, the CAISO will be able to use its Section 205 authority to propose tariff revisions to address any specific issues that arise.

#### **IV. THE A/S MOO PROPOSAL**

Under the current provisions of Section 40.6 of the CAISO Tariff, RA Resources (except units on an outage and certain Use Limited Resources) have an obligation to

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<sup>37</sup> MSC Opinion at 4.

<sup>38</sup> In its February 20, 2009 Exceptional Dispatch Order, the Commission revised the ICPM so that it would sunset 24 months after MRTU implementation. *California Independent System Operator Corporation*, 126 FERC ¶ 61,150 at P 247 (2009).

submit in the Integrated Forward Market (“IFM”) self-schedules and/or Economic Bids<sup>39</sup> for all of their RA Capacity, and to be available for the Residual Unit Commitment Procedure and, with certain qualifications, in the Real Time Market.<sup>40</sup> This obligation is referred to as the Resource Adequacy Must Offer Obligation (“RA MOO”).<sup>41</sup> As currently constituted, the RA MOO provisions do not specifically require RA Resources that are certified to provide A/S to offer *both* energy and A/S, nor do they specifically allow RA Resources to fulfill their RA MOO through self-provision of A/S.<sup>42</sup> This omission unreasonably limits the CAISO’s ability to co-optimize the capabilities of RA Capacity, which may increase unnecessarily the cost of procuring A/S and, in extreme cases, may prevent the CAISO from fully procuring required A/S. The CAISO believes that such outcomes would undermine a key goal of the RA program, which is to ensure that sufficient capacity is available to the CAISO in all hours to meet the demand for electricity as well as the operating requirements of the transmission grid. Accordingly, the CAISO proposes to modify the RA MOO to require those RA resources that are *already subject to the RA MOO* to submit both (a) Economic Energy Bids and/or Self-Schedules for all of their RA Capacity, except for RA Capacity that is included in a Submission to Self-Provide A/S, and (b) A/S bids and/or Submissions to Self-Provide Ancillary Services for all of their A/S certified RA capacity. This will allow the CAISO markets to co-optimize the use of RA capacity that is subject to the RA MOO to provide Energy, A/S or a combination of both, in accordance with the RA Resource’s physical capability (*i.e.*, to the extent the RA resource is certified to provide A/S) and the needs

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<sup>39</sup> Economic bids can be offers to supply Energy or Ancillary Services or both.

<sup>40</sup> Section 40.5 of the CAISO Tariff specifies the requirements for Modified Reserve Sharing (“MRS”) LSEs to make their RA Capacity available to the CAISO. Although no LSE has elected MRS status to date, the current CAISO proposal preserves this option and makes corresponding changes to this section to incorporate the A/S MOO as appropriate, consistent with the original design of the MRS option. Specifically, the original Section 40.5.1 requires the MRS to offer the full amount of its designated Local Capacity Area RA Capacity. into the day-ahead market in each hour. The proposed revisions to this section stay within the framework of the original by applying the A/S MOO only to the Local Capacity Area RA capacity of the MRS LSE and only to the day-ahead market. The CAISO believes such revisions are appropriate given the responsibility of an MRS LSE for Local Capacity Area RA procurement comparable to that of the Reserve Sharing LSEs, and the existing tariff provisions subjecting such capacity to the RA MOO in the day-ahead market.

<sup>41</sup> The RA MOO entails obligations for a resource to participate with all of its RA capacity in the Day Ahead Market, which includes the IFM and RUC, and with certain qualifications, in the Real Time Market as well. For example, Resource Adequacy Resources that were committed in the IFM or RUC must remain available through Real-Time. Short Start Units that supply Resource Adequacy capacity subject to the RA MOO and are not scheduled in either the IFM or RUC are still subject to the RA MOO in the next day’s Real Time Market and must submit Economic Bids or Self-Schedules into that market. Special provisions apply to RA resources that are use-limited to take into account their legitimate use limitations related to, for example, water availability, environmental requirements, or emissions limits.

<sup>42</sup> Although not discussed further in this filing, the proposed tariff revisions for the A/S MOO also clarify the ability of RA Resources to satisfy their RA MOO through Submissions to Self-Provide Ancillary Services. This option has been an operative element of the RA MOO under both the previous CAISO market design and the current one, but is not sufficiently clear in the current language of Section 40.6 and must be clarified in association with the A/S MOO to eliminate any possible ambiguities regarding how RA Resources may fulfill their RA MOO.

of the grid for energy and reserves in each market interval. The A/S MOO will thereby ensure that the buyers of RA Capacity obtain the full value of the capacity they procure by enabling the CAISO to make the most efficient use of the available RA Capacity and by preventing unnecessary A/S shortages in the CAISO markets that may occur if A/S-certified RA Capacity were able to choose not to offer A/S.

The specific features of the A/S MOO are as follows:

- 1) The CAISO is revising Section 40.6.1 to provide that RA Resources subject to the RA MOO must submit, to the Day Ahead Market: (a) Economic Bids for Energy and/or Self-Schedules for all of their RA Capacity that is not included in a Submission to Self-Provide A/S, and (b) A/S bids and/or Submissions to Self-Provide Ancillary Services for all of their A/S certified RA capacity.<sup>43</sup> For RA capacity that is certified to provide more than one type of A/S and included in a Submission to Self-Provide A/S the SC may elect which type of A/S it wishes to self-provide, but for RA capacity covered by Economic Bids for A/S the resource must provide bids for each A/S for which the resource is certified. Also, as explained below, the CAISO is revising Section 40.5.1 to apply the A/S MOO to the Local Capacity Area Resources of Modified Reserve Sharing LSEs, which are already subject to the RA MOO under the existing tariff provisions.
- 2) The CAISO is proposing to revise Section 40.6.2 to apply the A/S MOO for the Real Time Market to the extent the RA Resource is subject to real-time RA MOO and provided the use of such capacity to provide A/S instead of energy would not lead to a real-time shortfall in energy supply.<sup>44</sup>

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<sup>43</sup> The RA MOO provisions also apply to RA resources that cannot be committed by the CAISO in the Day Ahead Market due to their long start-up characteristics (i.e., Extremely Long Start or “ELS” Resources), as well as to RA resources that can participate in the day-ahead and real-time market unit commitment processes. Pursuant to Section 40.6.1 (2), once an ELS Resource is committed by the CAISO, it is subject to the provisions of Section 40.6.1 regarding Day-Ahead availability and Section 40.6.2 regarding Real Time availability for the Trading Day for which it is committed. ELS Resources are those resources that are flagged in the master file and have a start-up time that is greater than 18 hours. Such resources must be given start-up instructions prior to the close of the Day Ahead Market in order to be available as needed during the next operating day. ELS resources can also be system resources that have contractual provisions that require the energy to be committed prior to the publishing of the Day-Ahead Market results. For these resources a special Extremely Long Start Commitment process is used. This process is described in Section 6.8 of the BPM for Market Operations.

<sup>44</sup> The relative priorities of Energy and A/S procurement in the IFM are reversed in the RTM. In the IFM the procurement of A/S has higher priority than Energy because the CAISO is required to procure 100 percent of its forecasted A/S requirements in the IFM, and because the scheduling of load at less than 100 percent of its forecasted level does not affect either system reliability or the ability of that load to be fully served in real time. In the RTM, however, Energy has higher priority than A/S procurement because insufficient energy supply in real time could lead to involuntary curtailment of load. Thus, the RTM may relax an A/S procurement requirement in order to ensure sufficient energy supply to meet demand, and it would not be appropriate to reduce an energy self-schedule in the RTM to obtain A/S if that action would lead to an insufficiency in energy supply.

- 3) Pursuant to Sections 40.6.1 (1) and 40.6.8, if an RA Resource subject to the A/S MOO fails to submit A/S bids for RA Capacity that is certified and physically capable of providing A/S and that is not included in a Submission to Self-Provide A/S, the CAISO will insert generated A/S capacity bids at the price of \$0 per MW-hour for each A/S for which the resource is certified. Under Section 40.5.1, a comparable requirement applies to the Local Capacity Area Resources of MRS LSEs. (This proposed A/S MOO provision is analogous to the existing provision of the RA MOO that authorizes the CAISO to insert Generated Bids for an RA resource that fails to submit energy bids or self-schedules for the full amount of its subject RA capacity.)
- 4) All RA Resources subject to the A/S MOO with A/S certified capacity would be considered for energy and A/S in the IFM and RTM energy and A/S co-optimization.
- 5) Pursuant to Section 40.6.1(4) the CAISO would honor Resource Adequacy Capacity energy self-schedules unless it is unable to procure 100% of its A/S requirements. In such cases, the CAISO would be able to curtail the energy self-schedule or portion thereof, to allow certified A/S capacity to be used to meet A/S requirements.<sup>45</sup> RA Capacity whose self-schedule is cut to provide A/S will be paid for the A/S in accordance with the CAISO's existing provisions governing the calculation of Ancillary Service Marginal Prices, which take account of the Energy opportunity costs such capacity incurs by not earning the Energy price for the curtailed MWh of the self-schedule. Because self-schedules are submitted without associated Economic Bids, the CAISO proposes to utilize the RA Resource's Generated Bid for purposes of the opportunity cost calculation, and also offers RA providers the option to request Commission approval of additional opportunity cost compensation if the calculation based on the Generated Bid is not sufficient to cover actual opportunity costs incurred. In Section 40.5.1 (iv), the CAISO is proposing a similar provision applicable to the Local Capacity Resources of an MRS LSE.
- 6) Consistent with the principle that the A/S MOO will not extend the applicability of the RA MOO to capacity that is not already subject to the RA MOO under existing tariff provisions; the A/S MOO proposal provides appropriate exemptions. For example, hydroelectric RA Resources and other Use Limited RA Resources which are governed by alternative RA offer provisions specified in Section 40.6.4, will not be subject to insertion of Generated Bids by the CAISO.

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<sup>45</sup> In response to a concern raised by some stakeholders, the CAISO will not curtail, for the purpose of meeting A/S requirements, a self-schedule submitted by the SC for an MSS utilizing the RA capacity of a resource internal to that MSS. The arrangements for MSS provide that the CAISO markets will not manage congestion or losses internal to the MSS network "bubble," and that the MSS Operator will be responsible for managing such congestion and losses. The CAISO understands that self-scheduling of resources internal to the MSS may be necessary for this purpose.

In implementing the A/S MOO the CAISO would still allow RA Capacity to self-schedule Energy in the IFM and the RTM, and the market optimization would try to procure all required A/S from resources that offer A/S through their Economic Bids or A/S self-provision. In the event that the market cannot procure all required Ancillary Services from economic A/S bids and A/S self-provision, the A/S MOO would allow the CAISO to reduce the Energy self-schedule of subject Resource Adequacy Capacity to provide A/S as needed to meet A/S procurement requirements that cannot otherwise be met by economic bids.<sup>46</sup> In such instances, the compensation for providing the Ancillary Service would be determined based on the Ancillary Services Marginal Prices as specified in the tariff. In the RTM, however, the CAISO would not reduce an energy self-schedule to procure A/S if that would lead to a shortfall in energy supply.

### **1. The A/S MOO Is Needed For Reliability And Market Efficiency.**

There are four primary reasons why the CAISO is proposing an A/S MOO for RA Resources, including the Local Capacity Area Resources of a MRS LSE. First, the A/S MOO is needed to support the primary goal of the RA program, which is to ensure that sufficient capacity is available to the CAISO in all hours to meet system demand plus the operating requirements of the transmission grid. The need for this provision was identified in the expert testimony of Dr. Lorenzo Kristov (PP. 54-55) submitted to the Commission as part of the CAISO's filing of the MRTU Tariff in February 2006. In that testimony Dr. Kristov explained how the A/S MOO applicable to A/S-certified RA Capacity, in combination with the economic incentives designed into the market payment structure for A/S, would ensure that sufficient A/S supplies would be offered to the CAISO markets.<sup>47</sup> Absent the A/S MOO, providers of A/S certified RA Capacity could create artificial shortages of A/S simply by meeting their RA MOO through submission of energy bids only.

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<sup>46</sup> The present A/S MOO proposal does not alter existing tariff provisions regarding the possible reduction of self-provided A/S in order to provide energy. Section 31.3.1.3 of the MRTU Tariff permits the CAISO to reduce A/S Self-Provision to provide Energy in certain instances. The Commission approved revisions to this provision in its February 19, 2009 Order approving the CAISO's market parameters tariff amendment. *California Independent System Operator Corporation, Inc.*, 126 FERC 61,147 (2009). That tariff amendment set forth rules and parameter values governing the adjustment in the CAISO markets of non-priced quantities, such as transmission flow limits, A/S procurement requirements, and submitted self-schedules, in situations where reliance solely on submitted economic bids to clear the market would not yield a feasible or operationally reasonable solution. Under the A/S MOO proposal the CAISO anticipates using a comparable parameter-based approach, which will be fully detailed in the Business Practice Manuals, to reduce Energy self-schedules when necessary to meet A/S procurement requirements that cannot be met by Economic Bids and A/S self-provision. The CAISO emphasizes that the A/S MOO proposal does not modify any of the provisions addressed in the February 19 market parameters order, such as the protections or priorities that the Commission approved to protect holders of Existing Transmission contracts, Transmission Ownership Rights and Converted Rights from self-schedule adjustment in the Day-Ahead market.

<sup>47</sup> See California Electric System Operator Corporation Electric Tariff Filing To Reflect Market Redesign and Technology Upgrade, Prepared Direct Testimony of Lorenzo Kristov at 54-55, Exhibit No. ISO-1, Docket No. ER06-615 (Feb. 9, 2006). The relevant excerpts from Dr. Kristov's testimony are attached hereto as Attachment F.

The second reason, which adds further significance to the first, is that the CAISO is required to procure, in the IFM, 100% of its forecasted Real-Time A/S requirements which are driven by WECC Reliability Criteria. During the development of the MRTU market design it was decided through the stakeholder process that the IFM should not provide any elasticity to these IFM A/S procurement requirements. If the RA MOO is limited to Energy, then the CAISO could find itself in a position where it has more energy supply than it needs, including energy from A/S certified RA Capacity, but insufficient A/S supply being offered to meet the applicable Reliability Criteria, even though there is more than enough available RA Capacity on the system to provide the A/S requirements fully. In such circumstances, A/S prices would likely increase significantly and unnecessarily, and possibly force the CAISO to go out-of-market to procure additional A/S supplies to meet reliability requirements, in spite of the existence of sufficient A/S capable RA Capacity that has elected not to offer A/S. The A/S MOO proposal can prevent this situation by helping to ensure A/S supply sufficiency and market liquidity. Indeed, as noted above in the testimony of Dr. Kristov, in designing the MRTU markets and agreeing to procure 100% of its A/S requirements in the Day-Ahead, the CAISO was expecting that an A/S MOO for RA resources would be implemented.

Third, the A/S MOO will ensure that the buyers of RA Capacity receive the full reliability benefits of their expenditure. Given the primary goal of the RA program mentioned above, the CAISO believes that it would be counter-productive to allow LSEs to incur the expense of procuring RA Capacity to meet carefully calculated requirements and then allow the suppliers of that capacity to offer it into the CAISO markets in such a way as to artificially reduce the supply of A/S and drive up A/S procurement costs.

Fourth, the A/S MOO is necessary to enable the CAISO market participants to fully realize the benefits of co-optimization inherent in the design of the new markets. Under the prior market structure, the CAISO procured A/S in a less efficient manner, through separate A/S markets that were totally separate from unit commitment, energy scheduling and dispatch decisions. Given the fundamental fact that Energy and A/S are provided by the same supply resources in most cases, segregating the procurement of A/S from energy is artificial and can lead to a less than optimal deployment of supply capacity. The new CAISO markets address this deficiency in the CAISO's former market structure by creating an IFM in the day-ahead timeframe and a Real-Time Unit Commitment process in the real-time time frame, both of which co-optimize the procurement of energy and A/S, scheduling each participating resource in the manner that best supports a minimum bid-cost solution. Co-optimization results in a more efficient and, therefore, lower cost mix of resources to meet customer demand and system reliability needs. The benefits of co-optimization of A/S and energy will be severely undercut, however, if A/S certified RA Capacity procured by LSEs is allowed to stay out of the A/S market and thereby reduce market liquidity. The RA MOO should therefore be explicitly extended to cover the A/S for which the RA capacity is certified.



## 2. The A/S MOO Proposal Is Just and Reasonable

The A/S MOO proposal will not impose any additional burden or costs on either Load Serving Entities (“LSEs”) or suppliers of RA Capacity. For an LSE that is paying for the capacity of a resource under a bilateral RA contract, the A/S MOO will enable the LSE to obtain all of the capacity services that the resource is capable of providing, not just energy, and would prevent the supplier of that capacity from meeting its RA offer obligation in such a manner as to create artificial scarcity of A/S supply. Through the market co-optimization processes, the CAISO will determine how much it needs of energy or A/S from the procured RA Capacity of each RA Resource.

The CAISO emphasizes that its A/S MOO proposal *does not* impose any additional procurement obligation on LSEs, either in terms of an aggregate capacity requirement or the composition of their RA portfolio to include an explicit mix of A/S certified resources. Specifically, implementation and successful operation of the A/S MOO does not require the CPUC or any Local Regulatory Authorities to modify in any way the RA requirements they establish for their regulated LSEs. Nor does the A/S MOO proposal extend the RA MOO to any RA resources that are not already subject to the RA MOO. Rather, the proposal is simply limited to ensuring that RA resources procured by LSEs for the purpose of complying with their RA requirements make their A/S capacity available to the CAISO if they are already subject to the RA MOO and are certified to provide A/S.

Similarly, suppliers of RA capacity should be financially indifferent to complying with the A/S MOO. Tariff section 27.1.2 specifies the calculation of the Ancillary Service Marginal Prices (“ASMPs”) that are used to settle suppliers of A/S capacity through the CAISO markets. The ASMP is a market-clearing price that reflects both the A/S capacity bid prices of capacity accepted in the market as well as the energy opportunity costs incurred by resources that forego earning their locational energy prices because of their provision of A/S. The design of the ASMP, as approved by the Commission ensures that suppliers who offer both energy and A/S for optimization by the market will be financially indifferent to being scheduled for whatever combination of energy and A/S results from the market optimization. Thus, the A/S MOO proposal will not trigger additional supplier costs that must either be passed through to LSEs or absorbed as a loss to suppliers. The A/S offer obligation may therefore be imposed on all currently contracted RA capacity that is subject to the current RA MOO without altering the balance of benefits and burdens of the RA contracts.

In the specific situation where an RA resource’s energy self-schedule is curtailed to enable the CAISO to meet its A/S requirements, the CAISO must insert an appropriate energy bid for the energy opportunity cost calculation because there is no energy bid submitted with an energy self-schedule. For this purpose the CAISO proposes to use the formulaic generated bid described in the BPM for Market Instruments. The generated bid is calculated to reflect the short-run marginal cost of the resource and should be a close approximation of the operating cost avoided if the

resource does not generate energy. Because the energy opportunity cost for the ASMP calculation is the difference between the energy LMP at the resource's location and its submitted energy bid, using the generated bid in lieu of a submitted energy bid is expected to maximize the potential foregone margin the resource would have earned by generating energy instead of providing A/S. The CAISO believes that in nearly all cases this should be fully compensatory, but the proposal recognizes that there may be factors invisible to the CAISO, such as bilateral contract provisions, that may result in higher opportunity costs if an RA resource has its energy self-schedule curtailed to provide A/S. Therefore, the CAISO has included an option for the SC to submit a claim with supporting evidence to the Commission to obtain additional opportunity cost compensation upon Commission approval.

On January 15, 2009, and again on February 17, 2009, the CAISO submitted its A/S MOO proposal in the course of the CPUC's RA Phase 2 proceeding in CPUC Rulemaking 08-01-025 in order to inform that process. No party in that proceeding filed comments opposing adoption of an A/S MOO for RA Resources.

The CAISO notes that some stakeholders expressed concern that the CAISO's A/S MOO proposal exempts hydroelectric resources. They suggested that the A/S MOO requirement should apply to all RA suppliers capable of providing Ancillary Services. These parties ignore the fact that the RA offer obligation does not apply to hydroelectric resources or other Use Limited Resources in the same manner as it applies to other RA resources. In that regard, Section 40.6.1 of the CAISO Tariff exempts hydroelectric and other Use-Limited Resources which are subject to Section 40.6.4 from the must offer obligations set forth elsewhere in Section 40.6. In its February 6, 2006 MRTU Tariff filing, the CAISO did not propose to make RA hydroelectric resources (or other Use-Limited Resources) subject to the RA must offer obligation. As indicated in the Prepared Direct Testimony of Mark Rothleder:

Because of its multi-purpose limitations (e.g., irrigation, recreational, and power production), and the fact that the Hydro is generally a Use-Limited Resource, the CAISO has concluded that Hydro should be scheduled or offered in the Day-Ahead Markets based on expected deliveries for the next trading day. For these reasons, Hydro Resource Adequacy Resources will not be obligated to offer into RUC and must only offer into Real-Time to the extent possible.<sup>48</sup>

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<sup>48</sup> *California Independent System Operator Corporation Electric Tariff Filing To Reflect Market Redesign and Technology Upgrade*, Prepared Direct Testimony of Mark Rothleder at 58, Exhibit No. ISO-5, Docket No. ER06-615 (Feb. 6, 2006). In his testimony, Mr. Rothleder also noted that Non-Dispatchable Resources are resources that only deliver Energy on an as-available basis. Mark Rothleder Testimony at 58. Examples of Non-Dispatchable resources include Qualifying Facilities, Participating Intermittent Resources, and solar resources. Mr. Rothleder noted that Non-Dispatchable Resources that are RA resources are expected to schedule in the Day-Ahead Market and Hour Ahead Scheduling Process only their expected as-available level of Energy and are exempt from offering in the RUC and Real-Time Market. *Id.* at 58-59. These limited obligations are reflected in Section 40.6.4.3.2 of the MRTU tariff which was approved by the Commission in the September 21 Order.

The limited bidding obligation for hydro resources is reflected in Section 40.6.4.3.2 of the MRTU Tariff. Further, in the September 21 Order, the Commission recognized the different treatment that the CAISO was proposing for Hydro and other Use Limited Resources (e.g., hydro resources and non-dispatchable use-limited resources are only required to self-schedule or submit bids in the Day-Ahead Market for their expected energy to be delivered the next trading day),<sup>49</sup> and the Commission approved the tariff provisions in Section 40.6.4 reflecting the different treatment to be accorded these resources. Because hydro resources and Use Limited Resources are not subject to the RA MOO, the CAISO is not proposing to make them subject to the A/S MOO. The CAISO is simply carrying over these resources' Commission-approved exemption from the RA MOO to apply to A/S MOO as well.

Some parties have acknowledged the distinct treatment of Hydro and other Use Limited Resources described above, but argue further that to the extent such a resource offers Economic Bids for energy into the market, the CAISO should be able to apply the A/S MOO provisions to schedule that capacity optimally for energy or A/S. The CAISO understands the rationale for this argument, but finds the suggestion inappropriate for two reasons. First, the multiple operating requirements to which Hydro resources are typically subject (*i.e.*, water management and other environmental objectives beyond power production) may require the resource to offer either Energy or A/S but not both. Hydro resources may, for example, offer only operating reserves under a contingency-only designation when it has limited ability to be dispatched for Energy, knowing that the reserves will only be dispatched under contingency conditions. Thus, the ability to offer either Energy or A/S but not both can be important to such resources. Second, the CAISO markets provide for a daily energy limit that a resource can use to specify a maximum MWh quantity that it can deliver over a 24-hour period, which the market will then allocate over that time period in an optimal fashion. This functionality, adopted early in the MRTU design process, was recognized by stakeholders as an essential feature to enable Hydro and other use-limited dispatchable resources to offer Economic Bids for Energy into the markets for all hours of the day and allow the CAISO to optimize the scheduling of that energy, without any risk that the maximum available energy will be exceeded. At this time, the CAISO knows of no way to combine an A/S MOO feature with the daily energy limit into a 24-hour co-optimization process, because Energy and A/S are not simply interchangeable for a Use Limited Resource. For example, one MWh of energy is not simply equal to one MW-hour of A/S capacity for such a resource, because a one-MWh energy schedule is a financial commitment to generate one MWh of energy, whereas a one-MW A/S schedule for one hour has only a small probability of being converted into a MWh of energy, and to a use-limited resource this distinction can have significant bearing on its daily energy limit.

Some stakeholders also stated that if the CAISO reduces self schedules, it will be necessary to compensate SCs whose Energy Self Schedules are reduced to provide A/S, in order to keep them whole in terms of the costs of procuring replacement energy

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<sup>49</sup> September 21 Order at P 1290.

to serve their load. These parties indicated that it was not clear under the CAISO's proposal that the payment for A/S will be equal to or greater than the cost of replacement energy for the LSE. This concern is based on a misunderstanding of how the CAISO markets work, and in particular an inappropriate carry-over of the concept of "replacement energy" from the former CAISO market structure based on balanced SC schedules to the new market structure. In response, the CAISO first clarifies that any reduction to a supply resource self-schedule to procure A/S will not in itself affect the price at which the load is settled. Unlike the CAISO's former market structure that settled with Scheduling Coordinators based on their balanced schedules, the current CAISO market will settle load at a price that is indifferent to any change in the Scheduling Coordinator's supply self-schedule. Stated differently, such Scheduling Coordinators will not incur higher energy costs to serve their load as a result of the curtailment of their energy supply self-schedule. The only potential impact will be on the price paid to the generation resource to provide A/S instead of energy. In that regard, however, the Scheduling Coordinator will not be adversely impacted because, as described earlier, the Ancillary Services Marginal Price that the A/S supplier is paid includes the opportunity cost suppliers incur by not providing energy. For those Scheduling Coordinators whose Energy Self-Schedules are curtailed so the CAISO can use the capacity for A/S, the opportunity cost will be calculated as the applicable LMP minus the resource's Generated Bid, which should leave the resource financially indifferent to providing either energy or A/S from the capacity. To the extent a Scheduling Coordinator does not believe that this is sufficient to cover its opportunity cost, the Scheduling Coordinator may file with the Commission to justify a higher opportunity cost payment, and upon Commission approval the CAISO will pay the higher amount. The CAISO believes that this formula should adequately cover Scheduling Coordinators' opportunity costs because the Generated Bid is based on a resource's marginal cost of producing electricity, which is avoided by the resource when it provides A/S instead of energy.

Certain stakeholders also expressed concern that the LSE whose resource self-schedule is curtailed may be exposed to additional charges from the CAISO, such as real-time imbalance charges, deviation penalties or IFM uplift. With regard to real-time imbalance charges or deviation penalties, this concern is misplaced because curtailment by the CAISO of a resource self-schedule in the IFM does not create any real-time imbalance or need for real-time deviation. Curtailing the resource self-schedule does not affect the load self-schedule, as noted above, so the LSE will retain whatever load self-schedule it submitted to the IFM unless it is curtailed for a different reason. On the resource side, a resource whose self-schedule is reduced in the IFM to provide A/S can simply comply with its resulting IFM schedule and follow any real-time dispatch instructions issued for the A/S and thereby avoid any real-time deviations.

With regard to the IFM uplift, it is a correct observation that an SC's share of the IFM uplift is proportional to its scheduled IFM load minus its accepted IFM self-schedules for generation and imports. Thus, an SC that submits both load and self-schedules for supply and then has some of its supply self-schedules reduced by the IFM for any reason will be exposed to a larger share of the IFM uplift in proportion to the

reduction in its submitted supply self-schedules. Although this cost impact is a potential outcome when energy self-schedules are reduced, the CAISO believes that the impact will be both insignificant and reasonable. First, as with other adjustments to non-priced quantities as discussed in great detail in the CAISO's November 4, 2008 market parameters filing in Docket No. ER09-240 and the Commission's February 19, 2009 order accepting that filing, adjustments such as self-schedule curtailments occur only when the market exhausts the available effective economic bids to reach a feasible solution. In the case of A/S procurement, the impact of the A/S MOO is expected primarily to create a more liquid market in economic bids for A/S, and only as a last resort to provide a way for the CAISO to utilize energy self-schedules of RA capacity if A/S supply is still short. Second, given the last-resort nature of self-schedule curtailments, the CAISO expects that curtailment of energy self-schedules to provide A/S would occur only when A/S supplies are extremely short, which means that A/S prices would be high. In such cases the A/S capacity payments to the resource that is curtailed to provide A/S will provide revenues to the SC that reflect the shortage situation and should mitigate any increased exposure to the IFM uplift. Third, SCs that wish to self-schedule supply to serve their load and minimize the risk of self-schedule curtailment to provide A/S can do so simply by submitting A/S bids at the bid cap (\$250 per MW-hour) for their A/S certified RA capacity. Thus if the IFM needs to reduce any self-schedules to procure additional A/S, it will first utilize self-schedules that either provide lower A/S bids or that fail to provide A/S bids and have \$0 bids inserted by the CAISO. Finally, the CAISO believes that any increased exposure to the IFM uplift that may occur even after the above mitigations play out in the market would be reasonable in view of the overall benefits to the market – including the SCs directly affected by occasional increased shares of IFM uplift – of having more liquid A/S market supply, more efficient scheduling of RA capacity for energy and A/S, and enhanced reliability due to increased A/S supplies. These benefits will be realized by LSEs, who ultimately are responsible for the costs of A/S, in all hours of the markets to more than offset small and infrequent cost impacts due to the IFM uplift.

In conclusion, the CAISO requests that the Commission approve the proposed requirement that resources offering RA Capacity and that are certified to provide A/S make those A/S products available to be co-optimized by the CAISO markets. By imposing such obligation on suppliers of RA Capacity, the CAISO is not in any way creating any new or additional procurement obligations for LSEs to procure A/S-capable capacity to meet their RA requirements or to otherwise modify their RA portfolios.

## **V. EFFECTIVE DATE AND REQUEST FOR WAIVER**

The CAISO proposes an effective date of January 1, 2010 for the A/S MOO and SCP tariff provisions other than Sections 40.9.2 (2); 40.9.4.1, and 40.9.4.2.1 (1). Because these provisions contemplate potential CAISO or Market Participant action prior to January 1, 2010, the CAISO requests an effective date for these tariff provisions on the date of the Commission's order approving the SCP for such resources. The CAISO requests that the Commission grant all necessary waivers, including a waiver of Section 35.3 of the Commission's Regulations, to permit the proposed tariff sheets to

become effect on these dates.

In addition, the CAISO requests that the Commission issue an order approving the SCP and A/S MOO proposals by June 27, 2009. The CAISO understands that, given the proposed effective dates of the tariff sheets submitted herewith, the Commission is not compelled to take any action within the 60-day time frame prescribed by the Federal Power Act. Although the Commission is not compelled to take action within this timeframe, the CAISO respectfully requests the Commission issue an order in this docket within 60-days of this filing. A timely order will allow the SCP to be implemented in time to apply to the 2010 RA Compliance Year. In that regard, LSEs' annual showings for the 2010 RA Compliance Year are due to the CAISO by September 30, 2009. Issuance of a Commission order in June 2009 should provide sufficient time for LSEs and resource owners to negotiate capacity contracts for the 2010 RA Compliance Year with knowledge of what the new rules are for those contracts.<sup>50</sup> However, any delay in issuance of a Commission order could result in a delay in SCP implementation until the 2011 RA Compliance Year. As the Alliance for Retail Energy Markets stressed in its comments during the SCP stakeholder process:

AReM urges the CAISO to complete the remaining SCP steps as scheduled to ensure implementation of this important market improvement by no later than summer, 2009 for 2010 RA compliance. A FERC filing by early April is crucial to ensure that the FERC approval remains on a timeline that is consistent with the CPUC's Final Decision in Phase 2 of R.08-01-025 approving the use of SCP for its load serving entities (LSEs) in RA compliance. The CPUC Final Decision is scheduled for June 18, 2009.<sup>51</sup>

Issuance of a Commission Order by June 27, 2009 is also necessary to provide the CAISO with sufficient time to make the necessary systems and software changes so that the A/S MOO can be implemented by January 1, 2010.

## **VI. EXPENSES**

No expense or cost associated with this filing has been alleged or judged in any judicial proceeding to be illegal, duplicative, unnecessary, or demonstratively the product of discriminatory employment practices.

## **VII. COMMUNICATIONS**

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<sup>50</sup> LSE RA showings are due by September 30, 2009.

<sup>51</sup> AReM Comments, February 20, 2009. See also Letter from Alliance for Retail Energy Markets to CAISO Board of Governors dated March 16, 2009, which is available at: <http://www.caiso.com/2391/2391abb9adhb0.pdf>

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## VIII. SERVICE

The CAISO has served copies of this filing on the Public Utilities Commission of the State of California, the California Energy Commission, and all parties with Scheduling Coordinator Agreements under the CAISO Tariff. In addition, the CAISO has posted a copy of the filing on the CAISO Website.

## IX. CONTENTS OF THIS FILING

This filing comprises:

This Transmittal Letter

Attachment A: Clean Tariff Sheets from the MRTU Tariff

Attachment B: Blacklined Tariff Sheets showing changes from the MRTU Tariff

Attachment C: CAISO's 2<sup>nd</sup> Draft Final Proposal Standard Resource Adequacy Capacity Product

Attachment D: Memorandum to the ISO Board of Governors Re Decision on Standard Resource Adequacy Product and Resource Adequacy Must Offer Obligation.

Attachment E: MSC Opinion on SCP Proposal

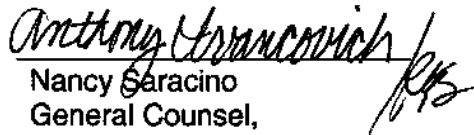
Attachment F: California Electric System Operator Corporation Electric Tariff Filing To Reflect Market Redesign and Technology Upgrade, Excerpts from Prepared Direct Testimony of

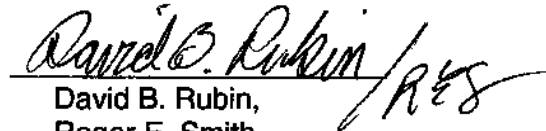
Lorenzo Kristov at 54-55, Exhibit No. ISO-1, Docket No. ER06-615 (Feb. 0. 2006).

Attachment G Chart of Revised Tariff Provisions

**X. CONCLUSION**

The CAISO respectfully requests that the Commission approve the proposed SCP and A/S MOO proposals, without modification, suspension, or hearing by June 26, 2009 so they can be implemented to go effective January 1, 2010.

  
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Counsel for the California Independent System Operator Corporation

April 28, 2009



**Attachment A – Clean Sheets**  
**Standard Capacity Product Amendment Filing**  
**ER09-\_\_\_\_-000**  
**Fourth Replacement CAISO Tariff**  
**April 28, 2009**

- (e) The CAISO will process any Outage that CDWR-SWP submits in an Outage schedule, Outage request, or request to change or cancel an Approved Maintenance Outage, that is not timely, does not contain a cause code identifying the Outage as a CDWR-SWP Statutory Compliance or Water System Reliability Outage or does not include a description of the requirement or constraint, under the otherwise applicable provisions of Section 9.3 and CAISO Operating Procedures.

### **9.3.2 Requirement for Approval.**

An Operator shall not take: (i) facilities that comprise the CAISO Controlled Grid or (ii) Generating Units of Participating Generators out of service for the purposes of planned maintenance or for new construction or other work except as approved by the CAISO Outage Coordination Office. The information relating to each Maintenance Outage submitted by a Participating Generator in accordance with Section 9.3.5 or by a Participating TO in accordance with Section 9.3.5 constitutes a request for a long-range Maintenance Outage and is not considered an Approved Maintenance Outage until the CAISO has notified the Participating Generator of such approval pursuant to Section 9.3.6 or the Participating TO pursuant to Section 9.3.6.

### **9.3.3 Requests for Outages in Real-Time Operation.**

Requests for Outages of: (i) facilities that comprise the CAISO Controlled Grid or (ii) Generating Units of Participating Generators in Real-Time operation shall be made by the Operator to the CAISO Control Center. The CAISO will not approve any Outage request made within seventy-two (72) hours of the requested Outage start time unless: (i) the requested Outage could not have been reasonably foreseen and scheduled through the Outage coordination process provided in Section 9.3, (ii) the requested Outage will not compromise CAISO Controlled Grid reliability and (iii) with respect to requests to convert from a Forced Outage to a Maintenance Outage for Resource Adequacy Resources subject to the Availability Standards of Section 40.9, the CAISO determines, in its reasonable discretion, that the Outage does not require the CAISO to implement backstop procurement measures to replace the capacity at the time of the Outage request.

**9.3.10.2** Each Participating TO shall report any change or potential change in equipment status of the Participating TO's transmission assets turned over to the control of the CAISO or in equipment that affects transmission assets turned over to the control of the CAISO immediately upon discovery to the CAISO (this will include line and station equipment, line protection, Remedial Action Schemes and communication problems, etc.). Each Participating TO shall also keep the CAISO immediately informed upon discovery as to any change or potential change in the Participating TO's transmission system that could affect the reliability of the CAISO Controlled Grid. This would include, but is not limited to, adverse weather conditions, fires, bomb threats, system failures, etc. To the extent possible, the CAISO shall reflect all transmission Outages in the Integrated Forward Market, HASP, and Real-Time Market.

**9.3.10.3** Any Operator, upon identification of a situation likely to result in a Forced Outage within the next twenty-four (24) hours unless immediate corrective action is taken, where such action requires the removing from service or reducing the maximum output capability of a Generating Unit or a Resource-Specific System Resource by ten (10) MW or more from the value most recently recorded in SLIC, or removing a transmission facility from service, shall communicate directly with the CAISO Control Center. All such notifications of Forced Outages shall be communicated to the CAISO Control Center with as much notice as possible in order that the necessary security analysis and CAISO Controlled Grid assessments may be performed. If prior notice of a Forced Outage cannot be given, the Operator shall notify the CAISO of the Forced Outage within thirty (30) minutes after it occurs. Any Operator, upon identification of a situation likely to result in a Forced Outage but of a nature not requiring a removal from service until some time more than twenty-four (24) hours in the future will be subject to the provisions of Section 9 with respect to any necessary Outage except the requirements imposing time limits for notification will be waived and the request will be expedited by the CAISO provided notice is given as soon as possible.

**9.3.10.3.1** If prior notice of a Forced Outage cannot be given, the Operator of a Generating Unit or a Resource-Specific System Resource is required to notify the CAISO within sixty (60) minutes after discovering any change in the maximum output capability of at least ten (10) MW or five percent (5%) of the value registered in the Master File, whichever is greater, from the value registered in SLIC that lasts for fifteen (15) minutes or longer.

**9.3.10.4** The CAISO Control Center shall coordinate any operational changes necessary to accommodate a Forced Outage and Market Participants shall comply with the CAISO's instructions given for that purpose.

**9.3.10.5** All Forced Outages shall be communicated by the CAISO Control Center to Operators likely to be affected by the Outage using the same procedures adopted for Maintenance Outage coordination procedures.

**9.3.10.6** With respect to Forced Outages of Generating Units that result in a reduction in maximum output capability that lasts fifteen (15) minutes or longer of 40 MW or more below the value registered in the Master File and ten percent (10%) of the value registered in the Master File, the Operator shall provide to the CAISO an explanation of the Forced Outage and the estimated return time, within two (2) Business Days after the Operator initially notifies the CAISO pursuant to Section 9.3.10.2.1 of the change in maximum output capability. The explanation shall include a description of the equipment failure or other cause and a description of all remedial actions taken by the Operator. Upon request of the CAISO, Operators, and where applicable, Eligible Customers, Scheduling Coordinators, UDCs and MSS Operators promptly shall provide information requested by the CAISO to enable the CAISO to review the changes made to the maximum output capability or to provide further information relative to the explanation of the Forced Outages submitted by the Operator and to prepare reports on Forced Outages. If the CAISO determines that any Forced Outage may have been the result of gaming or other questionable behavior by the Operator, the CAISO shall submit a report describing the basis for its

**ARTICLE V – RESOURCE ADEQUACY**

**40 RESOURCE ADEQUACY DEMONSTRATION FOR ALL SCHEDULING COORDINATORS BIDDING AND SCHEDULING DEMAND IN THE CAISO BALANCING AUTHORITY AREA.**

**40.1 Applicability.**

A Load Serving Entity, and its Scheduling Coordinator, shall be exempt from this Section 40 during the next Resource Adequacy Compliance Year, if the metered peak Demand of the Load Serving Entity did not exceed one (1) MW during the twelve months preceding the last date on which the Load Serving Entity can make the election in Section 40.1.1 for the next Resource Adequacy Compliance Year. This Section 40 shall apply to all other Load Serving Entities and their respective Scheduling Coordinators. For purposes of Section 40, a Load Serving Entity shall not include any entity satisfying the terms of California Public Utilities Code Section 380(j)(3).

**40.1.1 Election of Load Serving Entity Status.**

On an annual basis, in the manner and schedule set forth in the Business Practice Manual, the Scheduling Coordinator for a Load Serving Entity, not exempt under Section 40.1, shall inform the CAISO whether each such LSE elects to be either: (i) a Reserve Sharing LSE or (ii) a Modified Reserve Sharing LSE. A Scheduling Coordinator for a Load following MSS is not required to make an election under this Section. Scheduling Coordinators for Load following MSSs are subject solely to Sections 40.2.4, 40.3, and with respect to their Local Capacity Area Resources identified in accordance with Section 40.2.4, Section 40.9.

The CAISO may confirm with the CPUC, Local Regulatory Authority, or federal agency, as applicable, the accuracy of the election by the Scheduling Coordinator for any LSE under its respective jurisdiction, or, in the absence of any election by the Scheduling Coordinator, the desired election for any LSE under its jurisdiction. The determination of the CPUC, Local Regulatory Authority, or federal agency will be deemed binding by the CAISO on the Scheduling Coordinator and the LSE. If the Scheduling Coordinator and CPUC, Local Regulatory Authority, or federal agency, as appropriate, fail to make the election on behalf of an LSE in accordance with the Business Practice Manual, the LSE shall be deemed a Reserve Sharing LSE.

Coordinator. The annual Resource Adequacy Plan must, at a minimum, set forth the Local Capacity Area Resources, if any, procured by the Modified Reserve Sharing LSE as described in Section 40.3. The monthly Resource Adequacy Plan must identify the resources the Modified Reserve Sharing LSE will rely upon to satisfy its forecasted monthly Demand and Reserve Margin as set forth in Section 40.2.3.1, for the relevant reporting period and must utilize the Net Qualifying Capacity requirements of Section 40.4.

#### **40.2.4 Load Following MSS.**

A Scheduling Coordinator for a Load following MSS must provide an annual Resource Adequacy Plan that sets forth, at a minimum, the Local Capacity Area Resources, if any, procured by the Load following MSS as described in Section 40.3. The annual Resource Adequacy Plan shall utilize the annual coincident peak Demand determination provided by the California Energy Commission for such Load following MSS using Demand Forecast data submitted to the California Energy Commission by the Load following MSS, or, if the California Energy Commission does not produce coincident peak Demand Forecasts for the Load following MSS, the annual coincident peak Demand Forecast produced by the CAISO for such Load following MSS in accordance with its Business Practice Manual using Demand Forecast data submitted to the CAISO by the Load following MSS. The Local Capacity Area Resources identified by the annual Resource Adequacy Plan submitted by the Load following MSS shall be subject to the Availability Standards, Non-Availability Charge, and Availability Incentive Payment specified in Section 40.9.

#### **40.3 Local Capacity Area Resource Requirements Applicable to Scheduling Coordinators for All Load Serving Entities.**

##### **40.3.1 Local Capacity Technical Study.**

On an annual basis, pursuant to the schedule set forth in the Business Practice Manual, the CAISO will, perform, and publish on the CAISO Website the Local Capacity Technical Study. The Local Capacity Technical Study shall identify Local Capacity Areas, determine the minimum amount of Local Capacity Area Resources in MW that must be available to the CAISO within each identified Local Capacity Area, and identify the Generating Units within each identified Local Capacity Area. The CAISO shall

**40.4            General Requirements on Resource Adequacy Resources.**

**40.5 Requirements Applicable to Modified Reserve Sharing LSEs Only.**

**40.5.1 Day Ahead Scheduling and Bidding Requirements.**

- (1) Scheduling Coordinators on behalf of Modified Reserve Sharing LSEs serving Load within the CAISO Balancing Authority Area for whom they submit Demand Bids shall submit into the IFM Bids or Self-Schedules for Demand equal to one hundred percent (100%) and for Supply equal to one hundred and fifteen percent (115%) of the hourly Demand Forecasts for each Modified Reserve Sharing LSE it represents for each Trading Hour for the next Trading Day. Subject to Section 40.5.5, the resources included in a Self-Schedule or a Bid in each Trading Hour to satisfy one hundred and fifteen percent (115%) of the Modified Reserve Sharing LSE's hourly Demand Forecasts will be deemed Resource Adequacy Resources and (a) shall be comprised of those resources listed in the Modified Reserve Sharing LSE's monthly Resource Adequacy Plan and (b) shall include all Local Capacity Area Resources listed in the Modified Reserve Sharing LSE's annual Resource Adequacy Plan, if any, except to the extent the Local Capacity Area Resources, if any, are unavailable due to any Outages or reductions in capacity reported to the CAISO in accordance with this CAISO Tariff.



- (i) Local Capacity Area Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity that is not covered by a Submission to Self-Provide Ancillary Services, and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Local Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide. However, to the extent the Generating Unit providing Local Capacity Area Resource capacity constitutes a Use-Limited Resource under Section 40.6.4, the provisions of Section 40.6.4 will apply.
- (ii) Resource Adequacy Resource must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity that was offered into the IFM and is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using zero dollar (\$0/MW-hour) RUC Availability Bid.

- (iii) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.
- (iv) Through the IFM co-optimization process, the CAISO will utilize available Local Capacity Area 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. In so doing the IFM will honor submitted Energy Self-Schedules of the Local Capacity Area Resource Adequacy Capacity of the Modified Reserve Sharing LSE unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Local Capacity Area Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.5.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Modified Reserve Sharing LSE's Resource Adequacy Resource believes that the opportunity cost of

Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service. The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay the higher opportunity costs after those amounts have been approved by FERC.

- (2) Resource Adequacy Resources of Modified Reserve Sharing LSEs that do not clear in the IFM or are not committed in RUC shall have no further offer

requirements in HASP or Real-Time, except under System Emergencies as provided in this CAISO Tariff.

- (3) Resource Adequacy Resources committed by the CAISO must maintain that commitment through Real-Time. In the event of a Forced Outage on a Resource Adequacy Resource committed in the Day-Ahead Market to provide Energy, the Scheduling Coordinator for the Modified Reserve Sharing LSE will have up to the next HASP bidding opportunity, plus one hour, to replace the lesser of: (i) the committed resource suffering the Forced Outage, (ii) the quantity of Energy committed in the Day-Ahead Market, or (iii) one hundred and seven percent (107%) of the hourly forecast Demand.

#### **40.5.2 Demand Forecast Accuracy.**

On a monthly basis, the CAISO will review Meter Data to evaluate the accuracy or quality of the hourly Day-Ahead Demand Forecasts submitted by the Scheduling Coordinator on behalf of Modified Reserve Sharing LSEs. If the CAISO determines, based on its review, that one or more Demand Forecasts materially under-forecasts the Demand of the Modified Reserve Sharing LSEs for whom the Scheduling Coordinator schedules, after accounting for weather adjustments, the CAISO will notify the Scheduling Coordinator of the deficiency and will cooperate with the Scheduling Coordinator and Modified Reserve Sharing LSE(s) to revise its Demand Forecast protocols or criteria. If the material deficiency affects ten (10) hourly Demand Forecasts over a minimum of two (2) non-consecutive Business Days within a month, the CAISO may: (i) inform State of California authorities including, but not necessarily limited to the California Legislature, and identify the Modified Reserve Sharing LSE(s) represented by the Scheduling Coordinator and (ii) assign to the Scheduling Coordinator responsibility for all tier 1 RUC charges as specified in Section 11.8.6.5 to address the uncertainty caused by the Scheduling Coordinator's deficient hourly Demand Forecasts until the deficiency is addressed.

**40.5.3 Requirement to Make Resources Available During System Emergencies.**

Scheduling Coordinators for Modified Reserve Sharing LSEs that are MSS Operators shall make resources available to the CAISO during a System Emergency in accordance with the provisions of their Metered Subsystem Agreement. Scheduling Coordinators for all other Modified Reserve Sharing LSEs

Entities in proportion to each such Scheduling Coordinator's Measured Demand during the relevant Trading Hour(s) to the aggregate CAISO Measured Demand during the relevant Trading Hour(s).

**40.5.5 Substitution of Resources.**

Subject to the provisions of this Section 40.5, the Scheduling Coordinator for a Modified Reserve Sharing LSE may substitute for its Resource Adequacy Resources listed in its monthly Resource Adequacy Plan provided:

- (1) Substitutions must occur no later than the close of the IFM; and
- (2) Resources eligible for substitution are either imports or capacity from non-Resource Adequacy Resources or Resource Adequacy Resources with additional available capacity defined as Net Qualifying Capacity in excess of previously sold Resource Adequacy Capacity; however a Local Capacity Area Resource may be substituted only with capacity from non-Resource Adequacy Resources located in the same Local Capacity Area.

**40.6 Requirements Applicable to Scheduling Coordinators for Reserve Sharing LSEs and Resources Providing Resource Adequacy Capacity to Reserve Sharing LSEs.**

This Section 40.6 does not apply to Resource Adequacy Resources of Load following MSSs and those entities that participate in the Modified Reserve Sharing LSE program under Section 40.5. Scheduling Coordinators supplying Resource Adequacy Capacity shall make the Resource Adequacy Capacity listed in the Scheduling Coordinator's monthly Supply Plans under Section 40.4.7 available to the CAISO each hour of each day of the reporting month in accordance with this Section 40.6.

**40.6.1 Day-Ahead Availability.**

Scheduling Coordinators supplying Resource Adequacy Capacity shall make the Resource Adequacy Capacity, except for that subject to Section 40.6.4, available Day-Ahead to the CAISO as follows:

- (1) Resource Adequacy Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity that is not covered by a Submission to Self-Provide Ancillary Services, and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services in the IFM for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.

- (2) Resource Adequacy Resources that are Extremely Long-Start Resources must make themselves available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable. Once the ELS Resource is committed by the CAISO, it is subject to the provisions of this Section 40.6.1 regarding Day-Ahead Availability and Section 40.6.2 regarding Real-Time Availability for the Trading Days for which it was committed.
- (3) Resource Adequacy Resources must be 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.



- (4) Through the IFM co-optimization process, the CAISO will utilize available 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. In so doing, the IFM will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.6.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service.

The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay any higher opportunity costs approved by FERC.

- (5) A Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy 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.
- (6) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

#### **40.6.2 Real-Time Availability.**

Resource Adequacy Resources that have received an IFM Schedule for Energy or Ancillary Services or a RUC Schedule for all or part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time, including any Resource Adequacy Capacity of such resources that is not included in an IFM Schedule or RUC Schedule, except for Resource Adequacy Capacity that is subject to Section 40.6.4.

Resource Adequacy Resources that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour may be required to be available to the CAISO through Real-Time as specified in Sections 40.6.3 and 40.6.7. Resource Adequacy Resources with Resource Adequacy Capacity that is required to be available to the CAISO through Real-Time and does not have an IFM Schedule or a RUC Schedule for a given Trading Hour must submit to the RTM for that Trading hour: (a) Energy Bids and Self-Schedules for the full amount of the available Resource Adequacy Capacity, including capacity for which it has submitted Ancillary Services Bids or Submissions to Self-Provide Ancillary Services; and (b) Ancillary Services Bids and Submissions to Self-Provide Ancillary Services for the full amount of the available Ancillary Service-certified Resource Adequacy Capacity and

for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids and Self-Schedules. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.

The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.

#### **40.6.3 Additional Availability Requirements for Short Start Units.**

A Short Start Unit that is a Resource Adequacy Resource and that does not have an IFM Schedule or a RUC Schedule for any of its capacity for a given Trading Hour is required to participate in the Real Time Market in accordance with Section 40.6.2. Such a resource that is also a Use-Limited Resource subject to Section 40.6.4 is required, consistent with their applicable use plan, to submit Economic Bids or Self Schedules for Resource Adequacy Capacity into the Real Time Market.

The CAISO may waive these availability obligations for a Short Start Unit that does not have an IFM Schedule or a RUC Schedule based on the procedure to be published on the CAISO Website.

#### **40.6.4 Additional Availability Requirements for Use-Limited Resources.**

##### **40.6.4.1 Registration of Use-Limited Resources.**

Hydroelectric Generating Units and Participating Load, including Pumping Load, are deemed to be Use-Limited Resources for purposes of this Section 40 and are not required to submit the application described in this Section 40.6.4.1. Scheduling Coordinators for other Use-Limited Resources, must provide the CAISO an application in the form specified on the CAISO Website requesting registration of a specifically identified resource as a Use-Limited Resource. This application shall include specific operating data and supporting documentation including, but not limited to;

- (1) a detailed explanation of why the resource is subject to operating limitations;
- (2) historical data to show attainable MWhs for each 24-hour period during the preceding year, including, as applicable, environmental restrictions for NO<sub>x</sub>, SO<sub>x</sub>, or other factors; and
- (3) further data or other information as may be requested by the CAISO to understand the operating characteristics of the unit.

Within five (5) Business Days after receipt of the application, the CAISO will respond to the Scheduling Coordinator as to whether or not the CAISO agrees that the facility is eligible to be a Use-Limited

in recognition of the System Reliability concern, to the extent that the change is possible without violating a Use-Limited Resource's operating criteria.

**40.6.4.3.2 Hydro and Non-Dispatchable Use-Limited Resources.**

Hydroelectric Generating Units, Pumping Load, and Non-Dispatchable Use-Limited Resources shall submit Self-Schedules or Bids in the Day-Ahead Market for their expected available Energy or their expected as-available Energy, as applicable, in the Day-Ahead Market and HASP. Such resources shall also revise their Self-Schedules or submit additional Bids in HASP based on the most current information available regarding expected Energy deliveries. Hydroelectric Generating Units, Pumping Load, and Non-Dispatchable Use-Limited Resources will not be subject to commitment in the RUC process. The CAISO will retain discretion as to whether a particular resource should be considered a Non-Dispatchable Use-Limited Resource, and this decision will be made in accordance with the provisions of Section 40.6.4.1.

**40.6.4.3.3 Availability of Use-Limited Resources During System Emergencies.**

All Use-Limited Resources remain subject to Section 7.7.2.3 regarding System Emergencies to the extent the Use-Limited Resource is owned or controlled by a Participating Generator.

**40.6.4.3.4 Availability of Intermittent Resources.**

Any Eligible Intermittent Resource that provides Resource Adequacy Capacity may, but is not required to, submit Bids in the Day-Ahead Market.

**40.6.5 Additional Availability Requirements for System Resources.**

In the IFM, the multi-hour block constraints of a System Resource, other than a System Resource capable of submitting a Dynamic Schedule or a Resource-Specific System Resource, are honored in the optimization. Such a resource that is also a Resource Adequacy Resource must be capable of hourly scheduling by the CAISO in RUC if it is not fully scheduled in the IFM. If such a Resource Adequacy Resource is scheduled in the RUC, the CAISO will schedule the resource in the HASP for each hour of the resource's RUC schedule without regard to the multi-hour block constraint that was submitted to the IFM. For an existing System Resource that provides Resource Adequacy Capacity through a call-option that expires prior to the close of the IFM, such a System Resource listed on a Resource Adequacy Plan must be reported to the CAISO for consideration in the Extremely Long-Start Commitment Process.

**40.6.5.1 Additional Availability Requirements for Dynamic and Non-Dynamic Resource-Specific System Resources.**

A Dynamic or Non-Dynamic Resource-Specific System Resource that supplies Resource Adequacy Capacity, and is not otherwise a Use-Limited Resource under Section 40.6.4, will be subject to the requirements of Sections 40.6.1, 40.6.2 and either Section 40.6.3 as a Short Start Unit or Section 40.6.7 as a Long Start Unit based upon the Dynamic Resource-Specific System Resource's registered physical operating characteristics.

**40.6.5.2 Dynamic Non-Resource-Specific System Resources**

A Dynamic non-Resource-Specific System Resource that provides Resource Adequacy Capacity will be subject to the provisions of 40.6.1 and 40.6.2.

**40.6.6 Availability Requirements for Partial Resource Adequacy Resources.**

Only that output of a Partial Resource Adequacy Resource that is designated by a Scheduling Coordinator as Resource Adequacy Capacity in its monthly or annual Supply Plan shall have an availability obligation to the CAISO. Exports being supported by non-Resource Adequacy Capacity from a Partial Resource Adequacy Resource that becomes unavailable or unusable shall be considered as an export of non-Resource Adequacy Capacity based on the pro-rata allocation of derated capacity of the Partial Resource Adequacy Resource as follows:

- (a) Resource Adequacy Capacity –  $[(\text{Resource Adequacy Capacity}/\text{PMax Capacity of Resource Adequacy Resource}) \times \text{MW Derate or Outage}]$ ; or
- (b)  $[1 - (\text{Resource Adequacy Capacity}/\text{PMax Capacity of Resource Adequacy Resource})] \times \text{De-rated PMax}$ .

**40.6.7 Release of Long Start Units.**

Long Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submitting a Self-Schedule for Wheeling-Out in the HASP, unless precluded by terms of their contracts.

**40.6.8 Use of Generated Bids.**

Prior to completion of the Day-Ahead Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Sections 40.5.1 or 40.6.1 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the CAISO Day-Ahead Market. Prior to running the Real-Time Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.2 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the Real-Time Market. In addition, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, is reflected in a Bid into the Real-Time Market and will insert a Generated Bid for any remaining dispatchable Resource Adequacy Capacity for which the CAISO has not received notification of an Outage. A Generated Bid for Energy will be calculated as provided in the Business Practice Manuals. A Generated Bid for Ancillary Services will equal zero dollars (\$0/MW-hour). Notwithstanding any of the provisions of Section 40.6.8 set forth above, the CAISO will not insert any Bid for a Resource Adequacy Resource that is a Use-Limited Resource.

**40.6.9 Availability Requirements for Grandfathered Firm Liquidated Damages Contracts.**

Resource Adequacy Capacity represented by a Firm Liquidated Damages Contract and relied upon by a Scheduling Coordinator in a monthly or annual Resource Adequacy Plan shall be submitted as a Self-Schedule or Bid in the Day-Ahead IFM to the extent such scheduling right exists under the Firm Liquidated Damages Contract.



**40.6.10 Exports of Energy from Resource Adequacy Capacity.**

Resource Adequacy Capacity may be utilized to serve an Export Bid. An Export Bid may be submitted into the CAISO Markets and be cleared by the Energy being provided by Resource Adequacy Capacity.

**40.6.11 Curtailment of Exports in Emergency Situations.**

At its sole discretion, the CAISO may curtail exports from Resource Adequacy Capacity to prevent or alleviate a System Emergency. An Export Bid or a Self-Schedule to provide exports included in a binding Schedule accepted in the IFM or HASP will not be distinguished from a Demand Bid or Self-Schedule to serve Load within the CAISO Balancing Authority Area included in a binding Schedule accepted in the IFM or HASP for purposes of curtailment under this Section, except as consistent with Good Utility Practice.

**40.9. Availability Standards, Non-Availability Charges, and Availability Incentive Payments.**

**40.9.1 General.**

Except for the exemptions specified in Section 40.9.2, the CAISO will track the availability of Resource Adequacy Capacity during the Availability Assessment Hours of each month, as specified in Section 40.9.3, in order to determine the amount of Resource Adequacy Capacity that was available to the CAISO. Each non-exempt Resource Adequacy Resource will be subject to the Availability Standards determined in accordance with either Section 40.9.4 or 40.9.7, whichever is applicable, for each month during each Resource Adequacy Compliance Year, starting with the 2010 Resource Adequacy Compliance Year. Scheduling Coordinators for Resource Adequacy Resources will be subject to Non-Availability Charges or Availability Incentive Payments as specified in either Section 40.9.4 or Section 40.9.7, whichever is applicable. MW values or percentages used by the CAISO in this Section 40.9 will be calculated to no less than two decimal places.

**40.9.2 Exemptions.**

The following exemptions apply to the CAISO's Availability Standards program of this Section 40.9:

- (1) Resources with a Pmax less than one (1.0) MW will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9.

- (2) Capacity under a resource specific power supply contract that existed prior to January 1, 2009 and Resource Adequacy Capacity that was procured under a contract that was either executed or submitted to the applicable Local Regulatory Authority for approval prior to January 1, 2009, and is associated with specific Generating Units or System Resources, will not be subject to Non-Availability Charges or Availability Incentive Payments. Such contracted Resource Adequacy Capacity, except for non Resource-Specific System Resources, will be included in the development of Availability Standards and will be subject to any Outage reporting requirements necessary for this purpose. The exemption will apply only for the initial term of the contract and to the MW capacity quantity and Resource Adequacy Resources specified in the contract prior to January 1, 2009. The exemption shall terminate upon the conclusion of the initial contract term. Exempt contracts may be re-assigned or undergo novation on or after January 1, 2009, but the exemption shall not apply for any extended contract term, increased capacity quantity or additional resource(s) beyond those specified in the contract prior to January 1, 2009. Scheduling Coordinators for Resource Adequacy Resources subject to these contracts will be required to certify the start date of the contract, the expiration date, the Resource ID(s), and the amount of Resource Adequacy Capacity associated with each Resource ID included in the contract.
- (3) Demand response resources and resources whose Qualifying Capacity value is determined by historical output from the CPUC or a Local Regulatory Authority that does not adjust the historical output data to correct for the possible double-counting of Outages will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9.

- (4) Resource Adequacy Capacity provided through contracts for Energy from non-specified resources delivered within the CAISO Balancing Authority Area will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9; and
- (5) Resource Adequacy Resources of a Modified Reserve Sharing LSE or a Load following MSS will be used to determine the Availability Standards and will be subject to any Outage reporting requirements necessary for this purpose. Non-Local Capacity Area Resource Adequacy Resources of a Modified Reserve Sharing LSE or a Load following MSS will not be subject to Non-Availability Charges or Availability Incentive Payments, but those entities shall remain responsible for any other applicable deficiency payments under this CAISO Tariff or the applicable MSS Agreement.

Exclusions from the Availability Standards and Outage reporting requirements established in this Section 40.9 are for this Section 40.9 alone and do not affect any other obligation arising under the CAISO Tariff.

#### **40.9.3 Availability Assessment Hours.**

The CAISO shall establish Availability Assessment Hours applicable for each month of each Resource Adequacy Compliance Year, which shall be applied starting with Resource Adequacy Compliance Year 2010, in order to assess the extent to which each Resource Adequacy Resource has met the Availability Standards of this Section 40.9. The Availability Assessment Hours shall be a pre-defined set of hours in each month corresponding to the operating periods when high demand conditions typically occur and when the availability of Resource Adequacy Capacity is most critical to maintaining system reliability. The Availability Assessment Hours shall be comprised of five consecutive hours of each non-weekend, non-federal holiday day. The five hour period will vary by season as necessary such that, based on historical actual load data, the coincident peak load hour typically falls within the five-hour range each day during the month. The CAISO shall annually determine the five hour range for the Availability Assessment Hours for each month of the next Resource Adequacy Compliance year prior to the start of each Resource Adequacy Compliance Year and shall specify them in the Business Practice Manual.

**40.9.4 Availability Determinations.**

This Section 40.9.4 addresses availability assessment for all Resource Adequacy Capacity, including the Resource Adequacy Capacity of Resource-Specific System Resources, subject to the Section 40.9 Availability Standards program; however, this Section 40.9.4 does not apply to Resource Adequacy Capacity provided by non-Resource-Specific System Resources which are addressed in Section 40.9.7.

**40.9.4.1 Availability Standard.**

The CAISO shall calculate and publish the monthly Availability Standards for Resource Adequacy Compliance Year 2010 no later than forty five (45) days after a FERC order approving this section and by July 1 prior to each Resource Adequacy Compliance Year thereafter. For Resource Adequacy Compliance Year 2010, the monthly Availability Standards applicable to Resource Adequacy Resources subject to this Section 40.9.4 will be based on the historical availability of Resource Adequacy Resources during the Availability Assessment Hours of the corresponding months during the period from June 2006 through December 2008. For subsequent years, the monthly Availability Standards will be based on historical availability for the Availability Assessment Hours over the previous three years. Each monthly Availability Standard will be calculated as the sum of the available Resource Adequacy Capacity of the included Resource Adequacy Resources across all the Availability Assessment Hours of the month, divided by the sum of the designated Resource Adequacy Capacity for the same set of hours and resources, and multiplied by 100 to obtain a number between zero (0) and one hundred percent (100%). For the purpose of determining the available Resource Adequacy Capacity in each month, the CAISO will use the Outage information reported in SLIC and, when available, the Outage reports submitted pursuant to Section 40.9.5. To ensure consistency between the calculation of the monthly Availability Standard and the calculation of each resource's monthly availability, the data utilized for both calculations will be in accordance with the provisions of Sections 40.9.4.2. All Resource Adequacy Resources except for the following will be included in the calculation of the Availability Standards:

- (1) Resource Adequacy Resources exempted in Section 40.9.2;
- (2) Non-Resource-Specific System Resources;
- (3) Resources between one (1) MW and ten (10) MW subject to the reporting requirements of Section 40.9.5, until such time that the CAISO has received the outage reports and can begin to utilize the data; and
- (4) Use-Limited Resources for Compliance Year 2010 and 2011.

**40.9.4.2 Availability Calculation for a Resource Adequacy Resource.**

The CAISO will calculate the monthly availability for each Resource Adequacy Resource subject to this Section 40.9.4 as the sum of the hourly available Resource Adequacy Capacity of the resource over all Availability Assessment Hours of the month, divided by the sum of the hourly Resource Adequacy Capacity of the resource as designated in the Supply Plan for the resource for those hours, and multiplied by 100 to obtain a number between zero percent (0%) and one hundred percent (100%).

A Resource Adequacy Resource will be determined to be less than one hundred percent (100%) available in a given month if it has any Forced Outages, non-ambient de-rates, or temperature-related ambient de-rates that impact the availability of its designated Resource Adequacy Capacity during the Availability Assessment Hours of that month. If the SC for the Resource Adequacy Resource requests to convert from a Forced Outage to a Maintenance Outage in accordance with Section 9.3.3, the SC must terminate the existing Forced Outage and submit a new request for a Maintenance Outage. In the event the CAISO rejects the request to convert from a Forced Outage to a Maintenance Outage due to reliability criteria, the Outage will not be converted and the Forced Outage will continue. Outages properly submitted for temperature-related ambient derates for a Use Limited Resource will be counted against its availability only until such time as the Use Limited Resource reaches its energy limit constraint, at which time such Outages or derates will no longer count against the availability of the Use Limited Resource for the relevant month.

The start and end times used in calculating the availability of each resource each month will be the Outage time reported in the SLIC system or through the alternative reporting process of Section 40.9.5 for resources not included in the SLIC system.

**40.9.4.2.1 Substitute Capacity.**

A Scheduling Coordinator may substitute capacity that is not Resource Adequacy Capacity for its Resource Adequacy Capacity that is on a Forced Outage or de-rate in order to mitigate the impact of the Forced Outage or de-rate on its availability calculation. Such substitution will be accepted by the CAISO in accordance with the following procedures.

- (1) For Local Capacity Area Resources. A Scheduling Coordinator providing Resource Adequacy Capacity to satisfy a Local Capacity Area requirement may pre-qualify alternate resources by providing a prequalification request in accordance with the form and schedule specified in the Business Practice Manual. If the alternate resource is located at the same bus as the Resource Adequacy Resource it would replace and has similar operational characteristics, the CAISO will approve the pre-qualification request as a substitute resource for use in the subsequent Resource Adequacy Compliance Year. Additionally, when a Local Capacity Area Resource Adequacy Resource subsequently has a Forced Outage or de-rate, the Scheduling Coordinator may, prior to the close of IFM, request to substitute a non-pre-qualified resource. The CAISO will grant the request if the alternate resource is (i) located at the same bus and meets the CAISO's operational needs, or (ii) if not located at the same bus, is located in the same Local Capacity Area, and which meets the CAISO's effectiveness and operational needs, including size of resource, as determined by the CAISO in its reasonable discretion.

(2) Non-Local Capacity Area Resources (Resource Adequacy Resources designated to meet system requirements). If a Resource Adequacy Resource that is not also a Local Capacity Area Resource has an outage that would count against its availability, the Scheduling Coordinator for that resource may, prior to the close of the IFM, request to substitute a non-Resource Adequacy Resource to be used in the place of the original resource. The CAISO shall approve the request if the substitute resource provides the same MW quantity of deliverable capacity as the original Resource Adequacy Resource.

**40.9.4.2.2 Accounting for De-Rates.**

In accounting for a de-rate of a unit that has not committed one hundred percent (100%) of its Net Qualified Capacity in its Monthly Supply Plan, the CAISO will follow the following principles:

- (1) Any de-rate will be applied first to any non Resource Adequacy Capacity of the resource; and
- (2) Any de-rate to Resource Adequacy Capacity will be applied pro-rata to any contract capacity exempt under Section 40.9.2(2) and any non-exempt Resource Adequacy Capacity commitment from that resource.

**40.9.5 Outage Reporting.**

Scheduling Coordinators for Generating Units or Resource-Specific System Resources that are also Resource Adequacy Resources with a maximum output capability of one (1) MW or more, but which do not meet the requirement to provide information on Forced Outages in accordance with Section 9.3.10, shall provide equivalent availability-related information in the form and on the schedule specified in the Business Practice Manuals. This information shall identify all Forced Outages, non-ambient de-rates, and temperature-related ambient de-rates that have occurred over the previous calendar month and shall contain all relevant details needed to enable the CAISO to perform the availability calculation for the resource in accordance with Section 40.9.4, including: the start and end times of any Outages or de-rates, the MW availability in all Availability Assessment Hours, and the causes of any Forced Outages or



de-rates. Scheduling Coordinators for Resource Adequacy Resources whose maximum output capability is ten (10) MW or more shall report Outage-related information in accordance with the reporting obligations in Section 9.3.10.

**40.9.6 Non-Availability Charges and Availability Incentive Payments.**

A Resource Adequacy Resource that is subject to the availability assessment in accordance with Section 40.9.4 and whose monthly availability calculation under Section 40.9.4.2 is more than two and a half percent (2.5%) below the monthly Availability Standard will be subject to a Non-Availability Charge for the month. A Resource Adequacy Resource subject to Section 40.9.4 whose availability calculation under Section 40.9.4.2 is more than two and a half percent (2.5%) above the monthly Availability Standard will be eligible for an Availability Incentive Payment for the month.

**40.9.6.1 Determination of Resource Adequacy Capacity Subject to Non-Availability Charge.**

The amount of Resource Adequacy Capacity of a Resource Adequacy Resource subject to the Non-Availability Charge will be determined as follows:

- (1) A Scheduling Coordinator for a Resource Adequacy Resource with actual availability calculated in accordance with Section 40.9.4.2 that is less than fifty percent (50%) for a given month will have the Non-Availability Charge applied to the entire Resource Adequacy Capacity of the resource.
- (2) A Resource Adequacy Resource with actual availability calculated in accordance with Section 40.9.4.2 that is greater than fifty percent (50%) but less than the Availability Standard minus two and a half percent (2.5%) for a given month will have the Non-Availability Charge assessed to that portion of its Resource Adequacy Capacity equal to the Availability Standard minus two and a half percent (2.5%) minus the resource's actual availability for the month calculated in accordance with Section 40.9.4.2.

- (3) No Non-Availability Charge will be applied when a Resource Adequacy Resource's actual availability, calculated in accordance with Section 40.9.4.2 for a given month, is equal to or greater than the Availability Standard less two and a half percent (2.5%).
- (4) Any Forced Outage, non-ambient de-rate, or temperature-related ambient de-rates of a resource that the CAISO has accepted as a substitute for a Resource Adequacy Resource in accordance with Section 40.9.4.2.1 will be applied in calculating the availability of the Resource Adequacy Resource for which it is substituting.

#### **40.9.6.2 Determination of the Non-Availability Charge.**

The per-MW Non-Availability Charge rate will be the Monthly ICPM Capacity Payment price as specified in Schedule 6 of Appendix F of this CAISO Tariff. The Non-Availability Charge for a Resource Adequacy Resource shall be determined by multiplying the resource's capacity subject to the Non-Availability Charge calculated in accordance with Section 40.9.6.1 by the Non-Availability Charge rate.

#### **40.9.6.3 Availability Incentive Payment.**

Scheduling Coordinators for Resource Adequacy Resources that achieve monthly availability that is more than two and a half percent (2.5%) above the monthly Availability Standard are eligible to receive the monthly Availability Incentive Payment. This payment will be funded entirely through the monthly Non-Availability Charges assessed for the same month. For each resource eligible for the Availability Incentive Payment, its eligible capacity will be that portion of its designated Resource Adequacy Capacity equal to its actual availability calculated in accordance with Section 40.9.4.2 minus the Availability Standard percent minus two and a half percent (2.5%). The monthly Availability Incentive Payment rate will equal the total Non-Availability Charges assessed for the month divided by the total Resource Adequacy Capacity eligible to receive the Availability Incentive Payment that month, provided that the Availability Incentive Payment rate shall not exceed three times the Non-Availability Charge rate. The Availability Incentive Payment the CAISO shall pay to each eligible resource will equal the product of its eligible capacity and the Availability Incentive Payment rate. Any remaining Non-Availability Charge funds that are not distributed to eligible Resource Adequacy Resources will be credited against the Real-Time neutrality charge for that Trade Month in accordance with Section 11.5.2.3.

**40.9.6.4 Monthly Settlement.**

The CAISO shall calculate and settle Non-Availability Charges and Availability Incentive Payments on a Trade Month basis so that all Non-Availability Charges collected for a Trade Month are allocated in accordance with Section 40.9.6.3 for that same Trade Month.

**40.9.7 Availability Assessment for Resource Adequacy Capacity Provided by Non Resource-Specific System Resources.**

Non-Resource-Specific System Resources that provide Resource Adequacy Capacity will comprise a distinct category for purposes of the CAISO's Availability Standards program. This category will have its own Availability Standards and availability calculations, as well as a separate account for setting Non-Availability Charges and Availability Incentive Payments.

**40.9.7.1 Availability Standard for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

The monthly Availability Standard for a non-Resource-Specific System Resource will be on hundred percent (100%) of the resource's designated Resource Adequacy Capacity for the month, to be provided in the form of Economic Bids or Self-Schedules at the resource's designated Scheduling Point submitted to the IFM for all Availability Assessment Hours. Resources that achieve less than the one hundred percent (100%) Availability Standard will be subject to Non-Availability Charges. Resources that achieve the one hundred percent (100%) target will be eligible for Availability Incentive Payments. Non-Resource-Specific System Resources will not be included in the calculation of the Availability Standards for other Resource Adequacy Resources as determined in Section 40.9.4.

**40.9.7.2 Availability Calculation for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

The availability of Resource Adequacy Capacity provided by a non-Resource-Specific System Resource will be measured by its hourly offers of Economic Bids or Self-Schedules to provide Energy or, if certified to provide Ancillary Services, Bids for or submissions to Self-Provide Ancillary Service capacity into the CAISO Day-Ahead Market in accordance with the requirements of Section 40.6, for all of the Availability Assessment Hours. Specifically, the resource's availability will be calculated as the sum of the MW-hours reflected in the resource's submitted Day-Ahead Economic Bids and Self-Schedules over all Availability Assessment Hours, divided by the sum of the resource's designated Resource Adequacy Capacity for all Availability Assessment Hours, times one hundred (100) to obtain a number between zero (0) and one hundred percent (100%). The Scheduling Coordinator for Resource Adequacy Capacity provided by non-Resource-Specific System Resources is expected to secure sufficient transmission rights to deliver the Resource Adequacy Capacity to its designated CAISO Scheduling Point. If in any given Availability Assessment Hour, the CAISO does not fully accept the Economic Bids or Self-Schedules submitted by the Scheduling Coordinator for the Resource Adequacy Capacity provided by non-Resource-Specific System Resources, the Scheduling Coordinator for that resource shall be deemed to have met its availability obligation for that hour.

**40.9.7.3 Determination of Non-Availability Charges and Availability Incentive Payments for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

Non-Resource-Specific System Resources that provide Resource Adequacy Capacity and that fail to meet the one hundred percent (100%) Availability Standard for a given month shall be assessed a Non-Availability Charge. This charge for a resource shall apply to that portion of the resource's designated Resource Adequacy Capacity equal to one hundred percent (100%) minus its actual availability calculated in accordance with Section 40.9.7.2. The Non-Availability Charge will then equal the resource's applicable capacity that is unavailable multiplied by the a Non-Availability Charge rate equal to the Monthly ICPM Capacity Payment price as specified in Schedule 6 of Appendix F of this CAISO Tariff. Funds collected for Non-Availability Charges pursuant to this Section 40.9.7.3 in a Trade Month will be used to provide Availability Incentive Payments to non-Resource-Specific System Resources providing

Resource Adequacy Capacity that achieve on hundred percent (100%) availability for that same Trade Month. The funds will be distributed to each such resource in proportion to the resource's share of the total Resource Adequacy Capacity provided by non-Resource-Specific System Resources that achieve the one hundred percent (100%) Availability Standard.

Any Availability Incentive Payment to a non-resource specific System Resource providing Resource Adequacy Capacity under this Section 40.9.7 3 will be capped at three times the Non-Availability Charge rate multiplied by the amount of the resource's Resource Adequacy Capacity. Any remaining monthly surplus of Non-Availability Charges from non-Resource-Specific System Resources providing Resource Adequacy Capacity in a Trade Month will be credited against the Real-Time neutrality charge for that Trade Month in accordance with Section 11.5.2.3. Only revenues received from the assessment of Non-Availability Charges to non-Resource-Specific System Resources providing Resource Adequacy Capacity will be used to fund Availability Incentive Payments for non-Resource-Specific System Resources providing Resource Adequacy Capacity.

#### **40.9.8 Reporting**

By July 1 of each year, the CAISO will provide an informational report that will be posted on the CAISO Website and include the following information: (1) the Availability Standard value for each month of the year and (2) information on the average actual availability each month of Resource Adequacy Resources, the total amount of Non-Availability Charges assessed and the total amount of Availability Incentive Payments made.

<b>Area Control Error (ACE)</b>	The sum of the instantaneous difference between the actual net Interchange and the scheduled net Interchange between the CAISO Balancing Authority Area and all interconnected Balancing Authority Areas, taking into account the effects of the CAISO Balancing Authority Area's frequency bias, correction of meter error, and time error correction obligations.
<b>AS</b>	Ancillary Services
<b>ASMP</b>	Ancillary Service Marginal Price
<b>ATC</b>	Available Transfer Capability
<b>Automated Dispatch System (ADS)</b>	The CAISO systems application to communicate Dispatch Instructions to Scheduling Coordinators.
<b>Automatic Generation Control (AGC)</b>	Generation equipment that automatically responds to signals from the CAISO's EMS control in Real-Time to control the Power output of Generating Units within a prescribed area in response to a change in system frequency, tie-line loading, or the relation of these to each other, so as to maintain the target system frequency and the established Interchange with other Balancing Authority Areas within the predetermined limits.
<b>Available Import Capability</b>	The Maximum Import Capability of an Intertie into the CAISO Balancing Authority Area in MW deliverable to the CAISO Balancing Authority Area based on CAISO study criteria minus the sum in MW of all Existing Contracts and Transmission Ownership Rights over that Intertie held by load serving entities that do not serve Load within the CAISO Balancing Authority Area.
<b>Available Transfer Capability (ATC)</b>	The available capacity of a given transmission path, in MW after allocation of rights associated with Existing Contracts and Transmission Ownership Rights, to that path's Operating Transfer Capability established consistent with CAISO and WECC transmission capacity rating guidelines, further described in Appendix L.
<b>Availability Assessment Hours</b>	The hours of the month specified in accordance with Section 40.9.3 which the CAISO will utilize for applying the Availability Standards program of Section 40.9.
<b>Availability Incentive Payment</b>	The monthly payment that the CAISO may make to a Resource Adequacy Resource under the Availability Standards program in accordance with Section 40.9.

- Availability Incentive Rate** The monthly dollars per MW rate calculated by dividing the total Non-Availability Charges assessed for a given month by the total Resource Adequacy Capacity that is eligible to receive the Availability Incentive Payment for that month.
- Availability Standards** The standard established in accordance with Sections 40.9.4 and 40.9.7 to determine if a Resource Adequacy Resource is subject to Non-Availability Charges or Availability Incentive Payments.

<b>New Participating TO</b>	A Participating TO that is not an Original Participating TO.
<b>New Responsible Utility</b>	A Responsible Utility that executes a TCA after April 1, 1998.
<b>Node</b>	A point in the Full Network Model representing a physical location within the CAISO Balancing Authority Area or the CAISO Controlled Grid, which includes the Load and Generating Unit busses in the CAISO Balancing Authority Area and at the Intertie busses between the CAISO Balancing Authority Area and interconnected Balancing Authority Areas.
<b>Nomogram</b>	A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC.
<b>Non-Availability Charge</b>	The monthly charge that the CAISO may assess to a Resource Adequacy Resource under the Availability Standards program in accordance with Section 40.9.
<b>Non-CPUC Load Serving Entity</b>	Any entity serving retail Demand in the CAISO Balancing Authority Area not within the jurisdiction of the CPUC, including (i) a local publicly owned electric utility under section 9604 of the California Public Utilities Code and (ii) any federal entities, including but not limited to federal power marketing authorities, that serve retail Load.
<b>Non-Dispatchable Use-Limited Resource</b>	A Use-Limited Resource that cannot be increased or curtailed at the direction of the CAISO in the Real-Time Dispatch of the CAISO Balancing Authority Area to Supply or consume Energy, such as certain Qualifying Facilities.
<b>Non-Dynamic Resource-Specific System Resource</b>	A Non-Dynamic System Resource that is a specific generation resource outside the CAISO Balancing Authority Area.
<b>Non-Dynamic System Resource</b>	A System Resource that is not capable of submitting a Dynamic Schedule, or for which a Dynamic Schedule has not be submitted, which may be a Non-Dynamic Resource-Specific System Resource.
<b>Non-Load-Serving Participating TO</b>	A Participating TO that (1) is not a UDC, MSS Operator or Scheduling Coordinator serving End-Use Customers and (2) does not have Gross Load in accordance with Section 9 of Schedule 3 of Appendix F.



<b>Reserve Margin</b>	The amount of Resource Adequacy Capacity that a Scheduling Coordinator is required to maintain in accordance with Section 40.
<b>Reserve Sharing LSE</b>	A Load Serving Entity whose Scheduling Coordinator has informed the CAISO in accordance with Section 40.1 of its election to be a Reserve Sharing LSE.
<b>Residual Imbalance Energy</b>	Extra-marginal IIE produced or consumed at the start or end of a Trading Hour outside the hourly schedule-change band and not attributed to Exceptional Dispatch. Residual Imbalance Energy is due to a Dispatch Instruction in the previous Trading Hour or a Dispatch Instruction in the next Trading Hour. Residual Imbalance Energy may overlap only with Day-Ahead Scheduled Energy. Residual Imbalance Energy does not apply to Non-Dynamic System Resources (including Resource-Specific System Resources). Residual Imbalance Energy is settled as bid, based on the Real-Time Energy Bid of the reference hour, as described in Section 11.5.5 and it is not included in BCR as described in Section 11.8.4. The reference hour is the previous Trading Hour, if Residual Imbalance Energy occurs at the start of a Trading Hour, or the next Trading Hour, if Residual Imbalance Energy occurs at the end of a Trading Hour.
<b>Residual Unit Commitment (RUC)</b>	The process conducted by the CAISO in the Day-Ahead Market after the IFM has been executed to ensure sufficient Generating Units, System Units, System Resources and Participating Loads are committed to meet the CAISO Forecast of CAISO Demand.
<b>Resource Adequacy Capacity or RA Capacity</b>	The supply capacity of a Resource Adequacy Resource listed on a Resource Adequacy Plan and a Supply Plan.
<b>Resource Adequacy Compliance Year</b>	A calendar year from January 1 through December 31.

<b>Resource Adequacy Plan</b>	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.
<b>Resource Adequacy Resource</b>	A resource that is designated in a Supply Plan to provide Resource Adequacy Capacity. The criteria for determining the types of resources that are eligible to provide Qualifying Capacity may be established by the CPUC or other applicable Local Regulatory Authority and provided to the CAISO.
<b>Resource ID</b>	Identification characters assigned by the CAISO to Generating Units, Loads, Participating Loads, System Units, System Resources, and Physical Scheduling Plants.
<b>Resource Location</b>	The Resource ID for a Generating Unit, Participating Load or System Resource.
<b>Resource-Specific ASMP</b>	The Ancillary Services Marginal Price as determined pursuant to Section 11.10.
<b>Resource-Specific Settlement Interval LMP</b>	The LMP at a PNode used for settlement of IIE, calculated as the IIE-weighted average, excluding the IIE weight for Residual Imbalance Energy, Energy from HASP Intertie Schedules, and Energy from Black Start and Voltage Support, of the individual LMPs for Dispatch Intervals within the given Settlement Interval for a resource, and if there is no Instructed Imbalance Energy, then it is calculated as the simple average of the individual LMPs for the Dispatch Intervals within the given Settlement Interval for a resource.
<b>Resource-Specific System Resource</b>	A Dynamic or Non-Dynamic Resource-Specific System Resource.
<b>Resource-Specific Tier 1 UIE Settlement Interval Price</b>	The price used to settle Tier 1 UIE as calculated pursuant to Section 11.5.2.1.

**Attachment B - Blacklines**  
**Standard Capacity Product Amendment Filing**  
**ER09-\_\_\_\_-000**  
**Fourth Replacement CAISO Tariff**  
**April 28, 2009**

\* \* \*

### **9.3.3 Requests for Outages in Real-Time Operation.**

Requests for Outages of: (i) facilities that comprise the CAISO Controlled Grid or (ii) Generating Units of Participating Generators in Real-Time operation shall be made by the Operator to the CAISO Control Center. The CAISO will not approve any Outage request made within seventy-two (72) hours of the requested Outage start time unless: (i) the requested Outage could not have been reasonably foreseen and scheduled through the Outage coordination process provided in Section 9.3.1; ~~and~~ (ii) the requested Outage will not compromise CAISO Controlled Grid reliability and (iii) with respect to requests to convert from a Forced Outage to a Maintenance Outage for Resource Adequacy Resources subject to the Availability Standards of Section 40.9, the CAISO determines, in its reasonable discretion, that the Outage does not require the CAISO to implement backstop procurement measures to replace the capacity at the time of the Outage request.

\* \* \*

**9.3.10.3** Any Operator, upon identification of a situation likely to result in a Forced Outage within the next twenty-four (24) hours unless immediate corrective action is taken, where such action requires the removing from service or reducing the maximum output capability of a Generating Unit or a Resource-Specific System Resource by ten (10) MW or more from the value most recently recorded in SLIC, or removing a transmission facility from service, shall communicate directly with the CAISO Control Center. All such notifications of Forced Outages shall be communicated to the CAISO Control Center with as much notice as possible in order that the necessary security analysis and CAISO Controlled Grid assessments may be performed. If prior notice of a Forced Outage cannot be given, the Operator shall notify the CAISO of the Forced Outage within thirty (30) minutes after it occurs. Any Operator, upon identification of a situation likely to result in a Forced Outage but of a nature not requiring a removal from service until some time more than twenty-four (24) hours in the future will be subject to the provisions of Section 9 with respect to any necessary Outage except the requirements imposing time limits for notification will be waived and the request will be expedited by the CAISO provided notice is given as soon as possible.

**9.3.10.3.1** If prior notice of a Forced Outage cannot be given, the Operator of a Generating Unit [or a Resource-Specific System Resource](#) is required to notify the CAISO within sixty (60) minutes after discovering any change in the maximum output capability of at least ten (10) MW or five percent (5%) of the value registered in the Master File, whichever is greater, from the value registered in SLIC that lasts for fifteen (15) minutes or longer.

\* \* \*

## **ARTICLE V – RESOURCE ADEQUACY**

### **40 RESOURCE ADEQUACY DEMONSTRATION FOR ALL SCHEDULING COORDINATORS BIDDING AND SCHEDULING DEMAND IN THE CAISO BALANCING AUTHORITY AREA.**

\* \* \*

#### **40.1.1 Election of Load Serving Entity Status.**

On an annual basis, in the manner and schedule set forth in the Business Practice Manual, the Scheduling Coordinator for a Load Serving Entity, not exempt under Section 40.1, shall inform the CAISO whether each such LSE elects to be either: (i) a Reserve Sharing LSE or (ii) a Modified Reserve Sharing LSE. A Scheduling Coordinator for a Load following MSS is not required to make an election under this Section. Scheduling Coordinators for Load following MSSs are subject solely to Sections 40.2.4, [and 40.3, and with respect to their Local Capacity Area Resources identified in accordance with Section 40.2.4, Section 40.9.](#)

The CAISO may confirm with the CPUC, Local Regulatory Authority, or federal agency, as applicable, the accuracy of the election by the Scheduling Coordinator for any LSE under its respective jurisdiction, or, in the absence of any election by the Scheduling Coordinator, the desired election for any LSE under its jurisdiction. The determination of the CPUC, Local Regulatory Authority, or federal agency will be deemed binding by the CAISO on the Scheduling Coordinator and the LSE. If the Scheduling Coordinator and CPUC, Local Regulatory Authority, or federal agency, as appropriate, fail to make the election on behalf of an LSE in accordance with the Business Practice Manual, the LSE shall be deemed a Reserve Sharing LSE.

\* \* \*

#### **40.2.4 Load Following MSS.**

A Scheduling Coordinator for a Load following MSS must provide an annual Resource Adequacy Plan that sets forth, at a minimum, the Local Capacity Area Resources, if any, procured by the Load following MSS as described in Section 40.3. The annual Resource Adequacy Plan shall utilize the annual coincident peak Demand determination provided by the California Energy Commission for such Load following MSS using Demand Forecast data submitted to the California Energy Commission by the Load following MSS, or, if the California Energy Commission does not produce coincident peak Demand Forecasts for the Load following MSS, the annual coincident peak Demand Forecast produced by the CAISO for such Load following MSS in accordance with its Business Practice Manual using Demand Forecast data submitted to the CAISO by the Load following MSS. The Local Capacity Area Resources identified by the annual Resource Adequacy Plan submitted by the Load following MSS shall be subject to the Availability Standards, Non-Availability Charge, and Availability Incentive Payment specified in Section 40.9.

\* \* \*

~~40.3.4.1 [NOT USED]~~

~~40.3.4.2 [NOT USED]~~

\* \* \*

~~40.4.5 Reductions for Performance Criteria.~~

~~No later than 12 months after the effective date of this Section 40, the CAISO will issue a report outlining a proposal with respect to performance criteria for Resource Adequacy Resources. The CAISO will collaborate with the CPUC and other Local Regulatory Authorities to develop the performance criteria to be submitted to FERC. The Scheduling Coordinator for a Resource Adequacy Resource shall provide or make available to the CAISO, subject to the confidentiality provisions of this CAISO Tariff, all documentation requested by the CAISO to determine, develop or implement the performance criteria, including, but not limited to, NERC Generating Availability Data System data.~~

\* \* \*

**40.5 Requirements Applicable to Modified Reserve Sharing LSEs Only.**

#### 40.5.1

#### Day Ahead Scheduling and Bidding Requirements.

- (1) Scheduling Coordinators on behalf of Modified Reserve Sharing LSEs serving Load within the CAISO Balancing Authority Area for whom they submit Demand Bids shall submit into the IFM ~~a~~Bids or Self-Schedules ~~for~~ Bid Demand equal to one hundred percent (100%) and for Supply equal to one hundred and fifteen percent (115%) of the hourly Demand Forecasts for each Modified Reserve Sharing LSE it represents for each Trading Hour for the next Trading Day. Subject to Section 40.5.5, the resources included in a Self-Schedule or a Bid in each Trading Hour to satisfy one hundred and fifteen percent (115%) of the Modified Reserve Sharing LSE's hourly Demand Forecasts will be deemed Resource Adequacy Resources and (a) shall be comprised of those resources listed in the Modified Reserve Sharing LSE's monthly Resource Adequacy Plan and (b) shall include all Local Capacity Area Resources listed in the Modified Reserve Sharing LSE's annual Resource Adequacy Plan, if any, except to the extent the Local Capacity Area Resources, if any, are unavailable due to any Outages or reductions in capacity reported to the CAISO in accordance with this CAISO Tariff.
  - (i) Local Capacity Area Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity that is not covered by a Submission to Self-Provide Ancillary Services, and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Local Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall

insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide. A Local Capacity Area Resource that has not fully submitted a Bid or Self-Schedule for all of its Resource Adequacy Capacity will be subject to the CAISO's optimization for the remainder of its capacity, which must be Bid into the Day-Ahead Market;  
hHowever, to the extent the Generating Unit providing Local Capacity Area Resource capacity constitutes a Use-Limited Resource under Section 40.6.4, the provisions of Section 40.6.4 will apply.

~~(ii) If the Resource Adequacy Resource submits a Bid for Ancillary Services, the Energy Bid associated with the Bid for Ancillary Services will be optimized by the CAISO. However, pursuant to Section 8.6.2, to the extent the Local Capacity Area Resource self-provides Ancillary Services and local Constraints result is in a solution in the MPM-RRD that involves Load reduction, then Self-Provided AS from the Local Capacity Area Resource will be converted into Ancillary Service Bids at the minimum Bid price for Ancillary Services as prescribed in Section 39.6.1.5.~~

(iii) ~~A~~Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity that was offered into the IFM and is not reflected in an IFM Schedule not submitted a Self-Schedule or already committed to provide Energy or capacity in the IFM. Resource Adequacy CapacityResources participating in RUC will be optimized using~~required to offer into RUC~~ and will be considered based on a zero dollar (\$0/MW-hour) RUC Availability Bid.



(iii) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

(iv) Through the IFM co-optimization process, the CAISO will utilize available Local Capacity Area 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. In so doing the IFM will honor submitted Energy Self-Schedules of the Local Capacity Area Resource Adequacy Capacity of the Modified Reserve Sharing LSE unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Local Capacity Area Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.5.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Modified Reserve Sharing LSE's Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity

cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service. The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay the higher opportunity costs after those amounts have been approved by FERC.

- (2) Resource Adequacy Resources of Modified Reserve Sharing LSEs that do not clear in the IFM or are not committed in RUC shall have no further offer requirements in HASP or Real-Time, except under System Emergencies as provided in this CAISO Tariff.
- (3) Resource Adequacy Resources committed by the CAISO must maintain that commitment through Real-Time. In the event of a Forced Outage on a Resource Adequacy Resource committed in the Day-Ahead Market to provide Energy, the Scheduling Coordinator for the Modified Reserve Sharing LSE will have up to the next HASP bidding opportunity, plus one hour, to replace the lesser of: (i) the committed resource suffering the Forced Outage, (ii) the quantity of Energy committed in the Day-Ahead Market, or (iii) one hundred and seven percent (107%) of the hourly forecast Demand.

\* \* \*

#### **40.6.1 Day-Ahead Availability.**

Scheduling Coordinators supplying Resource Adequacy Capacity shall make the Resource Adequacy Capacity, except for that subject to Section 40.6.4, available Day-Ahead to the CAISO as follows:

- (1) Resource Adequacy Resources physically capable of operating must submit: (a) Economic Bids for Energy and/or Self-Schedules for all their Resource Adequacy Capacity that is not covered by a Submission to Self-Provide Ancillary

Services, into the IFM and RUC and (b) Economic Bids for Ancillary Services and/or a Submission to Self-Provide Ancillary Services in the IFM for all of their Resource Adequacy Capacity that is certified to provide Ancillary Services. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.

- (2) Resource Adequacy Resources that are Extremely Long-Start Resources must make themselves available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable. Once the ELS Resource is committed by the CAISO, it is subject to the provisions of this Section 40.6.1 regarding Day-Ahead Availability and Section 40.6.2 regarding Real-Time Availability for the Trading Days for which it was committed.
- (3) Resource Adequacy Resources must be 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.
- (4) Through the IFM co-optimization process, the CAISO will utilize available 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. In so doing, the IFM will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to

satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The CAISO will not curtail for the purpose of meeting Ancillary Service requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem. If the IFM reduces the Energy Self-Schedule of Resource Adequacy Capacity to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to this Section 40.6.1, and using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy. If the Scheduling Coordinator for the Resource Adequacy Resource believes that the opportunity cost of Energy based on the Resource Adequacy Resource's Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the Scheduling Coordinator may submit evidence justifying the increased amount to the CAISO and to the FERC no later than seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced by the CAISO to provide an Ancillary Service. The CAISO will treat such information as confidential and will apply the procedures in Section 20.4 of this CAISO Tariff with regard to requests for disclosure of such information. The CAISO shall pay any higher opportunity costs approved by FERC. ~~Resource Adequacy Resources that do not submit Self-Schedules or Economic Bids reflecting all of their Resource Adequacy Capacity will be subject to the CAISO's optimization for the remainder of their Resource Adequacy Capacity Bids into the Day-Ahead Market. If the Resource Adequacy Resource~~

~~submits a Bid for Ancillary Service(s), the Energy Bid associated with the Bid for Ancillary Services will be optimized by the CAISO.~~

- (5) ~~A~~ Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity that is not reflected in ~~an IFM Schedule~~ ~~Self-Schedule is already committed to provide Energy or capacity in the IFM.~~ Resource Adequacy ~~Capacity Resources participating in will be subject to~~ RUC ~~and~~ will be optimized ~~at using~~ a zero dollar ~~(\$0/MW-hour)~~ RUC Availability Bid.
- (6) Capacity from Resource Adequacy Resources selected in RUC will not be eligible to receive a RUC Availability Payment.

#### **40.6.2 Real-Time Availability.**

Resource Adequacy Resources that have ~~received an IFM Schedule for Energy or Ancillary Services or a RUC Schedule been committed by the CAISO in the Day Ahead Market or the RUC for all or part of their Resource Adequacy Capacity~~ ~~or have submitted a Self-Schedule for part of their Resource Adequacy Capacity~~ must remain available to the CAISO through Real-Time, including ~~any Resource Adequacy Capacity of such resources that is not included in an IFM Schedule or RUC Schedule, except for Resource Adequacy Capacity that is subject to Section 40.6.4 capacity reflected in the Day Ahead Schedule and any remaining capacity, for the scheduled and non-scheduled portions of their Resource Adequacy Capacity, subject to the provisions of Section 40.6.4.~~ ~~Resource Adequacy Resources that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour may be required to be available to the CAISO through Real-Time as specified in Sections 40.6.3 and 40.6.7. Resource Adequacy Resources with Resource Adequacy Capacity that is required to be available to the CAISO through Real-Time and does not have an IFM Schedule or a RUC Schedule for a given Trading Hour must submit to the RTM for that Trading hour: (a) Energy Bids and Self-Schedules for the full amount of the available Resource Adequacy Capacity, including capacity for which it has submitted Ancillary Services Bids or Submissions to Self-Provide Ancillary Services; and (b) Ancillary Services Bids and Submissions to Self-Provide Ancillary Services for the full amount of the available Ancillary Service-certified Resource Adequacy Capacity and for each Ancillary Service for which the~~

resource is certified, including capacity for which it has submitted Energy Bids and Self-Schedules. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.

The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred percent (100%) of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.

#### **40.6.3 Additional Availability Requirements for Short Start Units ~~and Dynamic System Resources.~~**

A Short Start Units that is a Resource Adequacy Resource and that does not have an IFM Schedule or a RUC Schedule for any of its capacity for a given Trading Hour is required to participate in the Real Time Market in accordance with Section 40.6.2. Such a resource that is also a Use-Limited Resource subject to Section 40.6.4 is required, consistent with their applicable use plan, to submit Economic Bids or Self Schedules for Resource Adequacy Capacity into the Real Time Market.~~and Dynamic System Resources, unless a Dynamic System Resource is demonstrated to be incapable of meeting the definition of a Short Start Unit based on physical operating characteristics, that supply Resource Adequacy Capacity not committed under Section 40.6.1, and therefore are subject to Section 40.6.2, and Use-Limited Resources subject to Section 40.6.4 to the extent consistent with their applicable use plan, must submit Economic Bids or Self-Schedules for the Resource Adequacy Capacity into the Real-Time Market.~~

The CAISO may waive these availability obligations for a Short Start Units~~and Dynamic System Resources~~ that ~~doeshave~~ not have an IFM Schedule or a submitted a Self-Schedule or otherwise been selected in the IFM or RUC Schedule based on the procedure to be published on the CAISO Website.

#### **40.6.4 Additional Availability Requirements for Use-Limited Resources.**

#### 40.6.4.1 Registration of Use-Limited Resources.

Hydroelectric Generating Units and Participating Load, including Pumping Load, are deemed to be Use-Limited Resources for purposes of this Section 40 and are not required to submit the application described in this Section 40.6.4.1. Scheduling Coordinators for other Use-Limited Resources, ~~other than for hydroelectric Generating Units and Participating Load, including Pumping Load,~~ must provide the CAISO an application in the form specified on the CAISO Website requesting registration of a specifically identified resource as a Use-Limited Resource. This application shall include specific operating data and supporting documentation including, but not limited to;

- (1) a detailed explanation of why the resource is subject to operating limitations;
- (2) historical data to show attainable MWhs for each 24-hour period during the preceding year, including, as applicable, environmental restrictions for NOx, SOx, or other factors; and
- (3) further data or other information as may be requested by the CAISO to understand the operating characteristics of the unit.

Within five (5) Business Days after receipt of the application, the CAISO will respond to the Scheduling Coordinator as to whether or not the CAISO agrees that the facility is eligible to be a Use-Limited Resource. If the CAISO determines the facility is not a Use-Limited Resource, the Scheduling Coordinator may challenge that determination in accordance with the CAISO ADR Procedures.

\* \* \*

#### 40.6.5 Additional Availability Requirements for System Resources.

In the IFM, the multi-hour block constraints of a System Resource, other than a System Resource capable of submitting a Dynamic Schedule or a Resource-Specific System Resource, are honored in the optimization. Such a Multi-hour block System Resource that ~~are not capable of submitting a Dynamic Schedule and are is also a~~ Resource Adequacy Resources must be capable of hourly ~~selection scheduling~~ by the CAISO in RUC if it is not fully ~~committed-scheduled~~ in the IFM. If such a Resource Adequacy Resource is selected in the RUC, the CAISO will schedule the resource in the HASP for each hour of the resource's RUC schedule without regard to the multi-hour block constraint that was

~~submitted to the IFM System Resource must be dispatchable in those hours in the HASP and Real Time Market.~~ For ~~an~~ existing System Resources ~~that provides Resource Adequacy Capacity with-through~~ a call-option that expires prior to the ~~completion-close~~ of the IFM, such ~~a~~ System Resources listed on a Resource Adequacy Plan must be reported to the CAISO for consideration in the Extremely Long-Start Commitment Process.

#### **40.6.5.1 Additional Availability Requirements for Dynamic and Non-Dynamic Resource-Specific System Resources.**

A Dynamic or Non-Dynamic Resource-Specific System Resource that supplies Resource Adequacy Capacity, and is not otherwise a Use-Limited Resource under Section 40.6.4, will be subject to the requirements of Sections 40.6.1, 40.6.2 and either Section 40.6.3 as a Short Start Unit or Section 40.6.7 as a Long Start Unit based upon the Dynamic Resource-Specific System Resource's registered physical operating characteristics.

#### **40.6.5.2 Dynamic Non-Resource-Specific System Resources**

A Dynamic non-Resource-Specific System Resource that provides Resource Adequacy Capacity will be subject to the provisions of 40.6.1 and 40.6.2.

\* \* \*

#### **40.6.7 ~~Availability Requirements for Long Start Units.~~**

##### **~~40.6.7.1 Release of Long Start Units.~~**

Long Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submitting a Self-Schedule for Wheeling-Out in the HASP, unless precluded by terms of their contracts.

##### **~~40.6.7.2 Obligation of Long Start Units to Offer Remaining Capacity in Real-Time.~~**

~~Long Start Units that have been committed by the CAISO in the Day-Ahead Market or the RUC for part of their Resource Adequacy Capacity or have submitted a Self-Schedule for part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for the full value of their Resource Adequacy Capacity.~~



#### **40.6.8 Use of Generated Bids.**

Prior to completion of the Day-Ahead Market, the CAISO will determine if ~~dispatchable~~ Resource Adequacy Capacity subject to the requirements of Sections 40.5.1 or 40.6.1 and for which the CAISO has not received notification of an Outage from Resource Adequacy Resources has not been reflected in a Bid and will insert a Generated Bid for such any dispatchable Resource Adequacy Capacity that is not reflected in a Bid capacity into the CAISO Day-Ahead Market ~~and for which the CAISO has not received notification of an Outage~~. Prior to running the Real-Time Market, the CAISO will determine if Resource Adequacy Capacity subject to the requirements of Section 40.6.2 and for which the CAISO has not received notification of an Outage has not been reflected in a Bid and will insert a Generated Bid for such capacity into the Real-Time Market. In addition, the CAISO will determine if all dispatchable Resource Adequacy Capacity from Short Start Units, not otherwise selected in the IFM or RUC, is reflected in a Bid into the Real-Time Market ~~HASP~~ and will insert a Generated Bid for any remaining dispatchable Resource Adequacy Capacity for which the CAISO has not received notification of an Outage. A Generated Bid for Energy will be calculated as provided in the Business Practice Manuals. A Generated Bid for Ancillary Services will equal zero dollars (\$0/MW-hour). Notwithstanding any of the provisions of Section 40.6.8 set forth above, the CAISO will not insert any Bid for a Resource Adequacy Resource that is a Use-Limited Resource.

\* \* \*

#### **40.9. Availability Standards, Non-Availability Charges, and Availability Incentive Payments.**

##### **40.9.1 General.**

Except for the exemptions specified in Section 40.9.2, the CAISO will track the availability of Resource Adequacy Capacity during the Availability Assessment Hours of each month, as specified in Section 40.9.3, in order to determine the amount of Resource Adequacy Capacity that was available to the CAISO. Each non-exempt Resource Adequacy Resource will be subject to the Availability Standards determined in accordance with either Section 40.9.4 or 40.9.7, whichever is applicable, for each month during each Resource Adequacy Compliance Year, starting with the 2010 Resource Adequacy Compliance Year. Scheduling Coordinators for Resource Adequacy Resources will be subject to Non-

Availability Charges or Availability Incentive Payments as specified in either Section 40.9.4 or Section 40.9.7, whichever is applicable. MW values or percentages used by the CAISO in this Section 40.9 will be calculated to no less than two decimal places.

#### **40.9.2 Exemptions.**

The following exemptions apply to the CAISO's Availability Standards program of this Section 40.9:

- (1) Resources with a Pmax less than one (1.0) MW will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9.
- (2) Capacity under a resource specific power supply contract that existed prior to January 1, 2009 and Resource Adequacy Capacity that was procured under a contract that was either executed or submitted to the applicable Local Regulatory Authority for approval prior to January 1, 2009, and is associated with specific Generating Units or System Resources, will not be subject to Non-Availability Charges or Availability Incentive Payments. Such contracted Resource Adequacy Capacity, except for non Resource-Specific System Resources, will be included in the development of Availability Standards and will be subject to any Outage reporting requirements necessary for this purpose. The exemption will apply only for the initial term of the contract and to the MW capacity quantity and Resource Adequacy Resources specified in the contract prior to January 1, 2009. The exemption shall terminate upon the conclusion of the initial contract term. Exempt contracts may be re-assigned or undergo novation on or after January 1, 2009, but the exemption shall not apply for any extended contract term, increased capacity quantity or additional resource(s) beyond those specified in the contract prior to January 1, 2009. Scheduling Coordinators for Resource Adequacy Resources subject to these contracts will be required to certify the start date of the contract, the expiration date, the Resource ID(s), and the amount of Resource Adequacy Capacity associated with each Resource ID included in the contract.

- (3) Demand response resources and resources whose Qualifying Capacity value is determined by historical output from the CPUC or a Local Regulatory Authority that does not adjust the historical output data to correct for the possible double-counting of Outages will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9.
- (4) Resource Adequacy Capacity provided through contracts for Energy from non-specified resources delivered within the CAISO Balancing Authority Area will not be used to determine Availability Standards, will not be subject to Non-Availability Charges or Availability Incentive Payments, and will not be subject to the additional Outage reporting requirements of this Section 40.9; and
- (5) Resource Adequacy Resources of a Modified Reserve Sharing LSE or a Load following MSS will be used to determine the Availability Standards and will be subject to any Outage reporting requirements necessary for this purpose. Non-Local Capacity Area Resource Adequacy Resources of a Modified Reserve Sharing LSE or a Load following MSS will not be subject to Non-Availability Charges or Availability Incentive Payments, but those entities shall remain responsible for any other applicable deficiency payments under this CAISO Tariff or the applicable MSS Agreement.

Exclusions from the Availability Standards and Outage reporting requirements established in this Section 40.9 are for this Section 40.9 alone and do not affect any other obligation arising under the CAISO Tariff.

#### **40.9.3 Availability Assessment Hours.**

The CAISO shall establish Availability Assessment Hours applicable for each month of each Resource Adequacy Compliance Year, which shall be applied starting with Resource Adequacy Compliance Year 2010, in order to assess the extent to which each Resource Adequacy Resource has met the Availability Standards of this Section 40.9. The Availability Assessment Hours shall be a pre-defined set of hours in each month corresponding to the operating periods when high demand conditions typically occur and when the availability of Resource Adequacy Capacity is most critical to maintaining system reliability. The Availability Assessment Hours shall be comprised of five consecutive hours of each non-weekend, non-

federal holiday day. The five hour period will vary by season as necessary such that, based on historical actual load data, the coincident peak load hour typically falls within the five-hour range each day during the month. The CAISO shall annually determine the five hour range for the Availability Assessment Hours for each month of the next Resource Adequacy Compliance year prior to the start of each Resource Adequacy Compliance Year and shall specify them in the Business Practice Manual.

#### **40.9.4 Availability Determinations.**

This Section 40.9.4 addresses availability assessment for all Resource Adequacy Capacity, including the Resource Adequacy Capacity of Resource-Specific System Resources, subject to the Section 40.9 Availability Standards program; however, this Section 40.9.4 does not apply to Resource Adequacy Capacity provided by non-Resource-Specific System Resources which are addressed in Section 40.9.7.

##### **40.9.4.1 Availability Standard.**

The CAISO shall calculate and publish the monthly Availability Standards for Resource Adequacy Compliance Year 2010 no later than forty five (45) days after a FERC order approving this section and by July 1 prior to each Resource Adequacy Compliance Year thereafter. For Resource Adequacy Compliance Year 2010, the monthly Availability Standards applicable to Resource Adequacy Resources subject to this Section 40.9.4 will be based on the historical availability of Resource Adequacy Resources during the Availability Assessment Hours of the corresponding months during the period from June 2006 through December 2008. For subsequent years, the monthly Availability Standards will be based on historical availability for the Availability Assessment Hours over the previous three years. Each monthly Availability Standard will be calculated as the sum of the available Resource Adequacy Capacity of the included Resource Adequacy Resources across all the Availability Assessment Hours of the month, divided by the sum of the designated Resource Adequacy Capacity for the same set of hours and resources, and multiplied by 100 to obtain a number between zero (0) and one hundred percent (100%). For the purpose of determining the available Resource Adequacy Capacity in each month, the CAISO will use the Outage information reported in SLIC and, when available, the Outage reports submitted pursuant to Section 40.9.5. To ensure consistency between the calculation of the monthly Availability Standard and the calculation of each resource's monthly availability, the data utilized for both calculations will be in

accordance with the provisions of Sections 40.9.4.2. All Resource Adequacy Resources except for the following will be included in the calculation of the Availability Standards:

- (1) Resource Adequacy Resources exempted in Section 40.9.2;
- (2) Non-Resource-Specific System Resources;
- (3) Resources between one (1) MW and ten (10) MW subject to the reporting requirements of Section 40.9.5, until such time that the CAISO has received the outage reports and can begin to utilize the data; and
- (4) Use-Limited Resources for Compliance Year 2010 and 2011.

#### **40.9.4.2 Availability Calculation for a Resource Adequacy Resource.**

The CAISO will calculate the monthly availability for each Resource Adequacy Resource subject to this Section 40.9.4 as the sum of the hourly available Resource Adequacy Capacity of the resource over all Availability Assessment Hours of the month, divided by the sum of the hourly Resource Adequacy Capacity of the resource as designated in the Supply Plan for the resource for those hours, and multiplied by 100 to obtain a number between zero percent (0%) and one hundred percent (100%).

A Resource Adequacy Resource will be determined to be less than one hundred percent (100%) available in a given month if it has any Forced Outages, non-ambient de-rates, or temperature-related ambient de-rates that impact the availability of its designated Resource Adequacy Capacity during the Availability Assessment Hours of that month. If the SC for the Resource Adequacy Resource requests to convert from a Forced Outage to a Maintenance Outage in accordance with Section 9.3.3, the SC must terminate the existing Forced Outage and submit a new request for a Maintenance Outage. In the event the CAISO rejects the request to convert from a Forced Outage to a Maintenance Outage due to reliability criteria, the Outage will not be converted and the Forced Outage will continue. Outages properly submitted for temperature-related ambient derates for a Use Limited Resource will be counted against its availability only until such time as the Use Limited Resource reaches its energy limit constraint, at which time such Outages or derates will no longer count against the availability of the Use Limited Resource for the relevant month.

The start and end times used in calculating the availability of each resource each month will be the Outage time reported in the SLIC system or through the alternative reporting process of Section 40.9.5 for resources not included in the SLIC system.

#### **40.9.4.2.1 Substitute Capacity.**

A Scheduling Coordinator may substitute capacity that is not Resource Adequacy Capacity for its Resource Adequacy Capacity that is on a Forced Outage or de-rate in order to mitigate the impact of the Forced Outage or de-rate on its availability calculation. Such substitution will be accepted by the CAISO in accordance with the following procedures.

(1) For Local Capacity Area Resources. A Scheduling Coordinator providing Resource Adequacy Capacity to satisfy a Local Capacity Area requirement may pre-qualify alternate resources by providing a prequalification request in accordance with the form and schedule specified in the Business Practice Manual. If the alternate resource is located at the same bus as the Resource Adequacy Resource it would replace and has similar operational characteristics, the CAISO will approve the pre-qualification request as a substitute resource for use in the subsequent Resource Adequacy Compliance Year. Additionally, when a Local Capacity Area Resource Adequacy Resource subsequently has a Forced Outage or de-rate, the Scheduling Coordinator may, prior to the close of IFM, request to substitute a non-pre-qualified resource. The CAISO will grant the request if the alternate resource is (i) located at the same bus and meets the CAISO's operational needs, or (ii) if not located at the same bus, is located in the same Local Capacity Area, and which meets the CAISO's effectiveness and operational needs, including size of resource, as determined by the CAISO in its reasonable discretion.

(2) Non-Local Capacity Area Resources (Resource Adequacy Resources designated to meet system requirements). If a Resource Adequacy Resource that is not also a Local Capacity Area Resource has an outage that would count against its availability, the Scheduling Coordinator for that resource may, prior to the close of the IFM, request to substitute a non-Resource Adequacy Resource to be used in the place of the original resource. The CAISO shall approve the request if the substitute resource provides the same MW quantity of deliverable capacity as the original Resource Adequacy Resource.

#### **40.9.4.2.2 Accounting for De-Rates.**

In accounting for a de-rate of a unit that has not committed one hundred percent (100%) of its Net Qualified Capacity in its Monthly Supply Plan, the CAISO will follow the following principles:

- (1) Any de-rate will be applied first to any non Resource Adequacy Capacity of the resource; and
- (2) Any de-rate to Resource Adequacy Capacity will be applied pro-rata to any contract capacity exempt under Section 40.9.2(2) and any non-exempt Resource Adequacy Capacity commitment from that resource.

#### **40.9.5 Outage Reporting.**

Scheduling Coordinators for Generating Units or Resource-Specific System Resources that are also Resource Adequacy Resources with a maximum output capability of one (1) MW or more, but which do not meet the requirement to provide information on Forced Outages in accordance with Section 9.3.10, shall provide equivalent availability-related information in the form and on the schedule specified in the Business Practice Manuals. This information shall identify all Forced Outages, non-ambient de-rates, and temperature-related ambient de-rates that have occurred over the previous calendar month and shall contain all relevant details needed to enable the CAISO to perform the availability calculation for the resource in accordance with Section 40.9.4, including: the start and end times of any Outages or de-rates, the MW availability in all Availability Assessment Hours, and the causes of any Forced Outages or de-rates. Scheduling Coordinators for Resource Adequacy Resources whose maximum output capability is ten (10) MW or more shall report Outage-related information in accordance with the reporting obligations in Section 9.3.10.

#### **40.9.6 Non-Availability Charges and Availability Incentive Payments.**

A Resource Adequacy Resource that is subject to the availability assessment in accordance with Section 40.9.4 and whose monthly availability calculation under Section 40.9.4.2 is more than two and a half percent (2.5%) below the monthly Availability Standard will be subject to a Non-Availability Charge for the month. A Resource Adequacy Resource subject to Section 40.9.4 whose availability calculation under

Section 40.9.4.2 is more than two and a half percent (2.5%) above the monthly Availability Standard will be eligible for an Availability Incentive Payment for the month.

#### **40.9.6.1 Determination of Resource Adequacy Capacity Subject to Non-Availability Charge.**

The amount of Resource Adequacy Capacity of a Resource Adequacy Resource subject to the Non-Availability Charge will be determined as follows:

- (1) A Scheduling Coordinator for a Resource Adequacy Resource with actual availability calculated in accordance with Section 40.9.4.2 that is less than fifty percent (50%) for a given month will have the Non-Availability Charge applied to the entire Resource Adequacy Capacity of the resource.
- (2) A Resource Adequacy Resource with actual availability calculated in accordance with Section 40.9.4.2 that is greater than fifty percent (50%) but less than the Availability Standard minus two and a half percent (2.5%) for a given month will have the Non-Availability Charge assessed to that portion of its Resource Adequacy Capacity equal to the Availability Standard minus two and a half percent (2.5%) minus the resource's actual availability for the month calculated in accordance with Section 40.9.4.2.
- (3) No Non-Availability Charge will be applied when a Resource Adequacy Resource's actual availability, calculated in accordance with Section 40.9.4.2 for a given month, is equal to or greater than the Availability Standard less two and a half percent (2.5%).
- (4) Any Forced Outage, non-ambient de-rate, or temperature-related ambient de-rates of a resource that the CAISO has accepted as a substitute for a Resource Adequacy Resource in accordance with Section 40.9.4.2.1 will be applied in calculating the availability of the Resource Adequacy Resource for which it is substituting.

#### **40.9.6.2 Determination of the Non-Availability Charge.**

The per-MW Non-Availability Charge rate will be the Monthly ICPM Capacity Payment price as specified in Schedule 6 of Appendix F of this CAISO Tariff. The Non-Availability Charge for a Resource Adequacy Resource shall be determined by multiplying the resource's capacity subject to the Non-Availability Charge calculated in accordance with Section 40.9.6.1 by the Non-Availability Charge rate.



#### **40.9.6.3 Availability Incentive Payment.**

Scheduling Coordinators for Resource Adequacy Resources that achieve monthly availability that is more than two and a half percent (2.5%) above the monthly Availability Standard are eligible to receive the monthly Availability Incentive Payment. This payment will be funded entirely through the monthly Non-Availability Charges assessed for the same month. For each resource eligible for the Availability Incentive Payment, its eligible capacity will be that portion of its designated Resource Adequacy Capacity equal to its actual availability calculated in accordance with Section 40.9.4.2 minus the Availability Standard percent minus two and a half percent (2.5%). The monthly Availability Incentive Payment rate will equal the total Non-Availability Charges assessed for the month divided by the total Resource Adequacy Capacity eligible to receive the Availability Incentive Payment that month, provided that the Availability Incentive Payment rate shall not exceed three times the Non-Availability Charge rate. The Availability Incentive Payment the CAISO shall pay to each eligible resource will equal the product of its eligible capacity and the Availability Incentive Payment rate. Any remaining Non-Availability Charge funds that are not distributed to eligible Resource Adequacy Resources will be credited against the Real-Time neutrality charge for that Trade Month in accordance with Section 11.5.2.3.

#### **40.9.6.4 Monthly Settlement.**

The CAISO shall calculate and settle Non-Availability Charges and Availability Incentive Payments on a Trade Month basis so that all Non-Availability Charges collected for a Trade Month are allocated in accordance with Section 40.9.6.3 for that same Trade Month.

#### **40.9.7 Availability Assessment for Resource Adequacy Capacity Provided by Non Resource-Specific System Resources.**

Non-Resource-Specific System Resources that provide Resource Adequacy Capacity will comprise a distinct category for purposes of the CAISO's Availability Standards program. This category will have its own Availability Standards and availability calculations, as well as a separate account for setting Non-Availability Charges and Availability Incentive Payments.

#### **40.9.7.1 Availability Standard for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

The monthly Availability Standard for a non-Resource-Specific System Resource will be on hundred percent (100%) of the resource's designated Resource Adequacy Capacity for the month, to be provided

in the form of Economic Bids or Self-Schedules at the resource's designated Scheduling Point submitted to the IFM for all Availability Assessment Hours. Resources that achieve less than the one hundred percent (100%) Availability Standard will be subject to Non-Availability Charges. Resources that achieve the one hundred percent (100%) target will be eligible for Availability Incentive Payments. Non-Resource-Specific System Resources will not be included in the calculation of the Availability Standards for other Resource Adequacy Resources as determined in Section 40.9.4.

**40.9.7.2 Availability Calculation for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

The availability of Resource Adequacy Capacity provided by a non-Resource-Specific System Resource will be measured by its hourly offers of Economic Bids or Self-Schedules to provide Energy or, if certified to provide Ancillary Services, Bids for or submissions to Self-Provide Ancillary Service capacity into the CAISO Day-Ahead Market in accordance with the requirements of Section 40.6, for all of the Availability Assessment Hours. Specifically, the resource's availability will be calculated as the sum of the MW-hours reflected in the resource's submitted Day-Ahead Economic Bids and Self-Schedules over all Availability Assessment Hours, divided by the sum of the resource's designated Resource Adequacy Capacity for all Availability Assessment Hours, times one hundred (100) to obtain a number between zero (0) and one hundred percent (100%). The Scheduling Coordinator for Resource Adequacy Capacity provided by non-Resource-Specific System Resources is expected to secure sufficient transmission rights to deliver the Resource Adequacy Capacity to its designated CAISO Scheduling Point. If in any given Availability Assessment Hour, the CAISO does not fully accept the Economic Bids or Self-Schedules submitted by the Scheduling Coordinator for the Resource Adequacy Capacity provided by non-Resource-Specific System Resources, the Scheduling Coordinator for that resource shall be deemed to have met its availability obligation for that hour.

**40.9.7.3 Determination of Non-Availability Charges and Availability Incentive Payments for Non-Resource-Specific System Resources Providing Resource Adequacy Capacity.**

Non-Resource-Specific System Resources that provide Resource Adequacy Capacity and that fail to meet the one hundred percent (100%) Availability Standard for a given month shall be assessed a Non-Availability Charge. This charge for a resource shall apply to that portion of the resource's designated Resource Adequacy Capacity equal to one hundred percent (100%) minus its actual availability

calculated in accordance with Section 40.9.7.2. The Non-Availability Charge will then equal the resource's applicable capacity that is unavailable multiplied by the a Non-Availability Charge rate equal to the Monthly ICPM Capacity Payment price as specified in Schedule 6 of Appendix F of this CAISO Tariff. Funds collected for Non-Availability Charges pursuant to this Section 40.9.7.3 in a Trade Month will be used to provide Availability Incentive Payments to non-Resource-Specific System Resources providing Resource Adequacy Capacity that achieve one hundred percent (100%) availability for that same Trade Month. The funds will be distributed to each such resource in proportion to the resource's share of the total Resource Adequacy Capacity provided by non-Resource-Specific System Resources that achieve the one hundred percent (100%) Availability Standard.

Any Availability Incentive Payment to a non-resource specific System Resource providing Resource Adequacy Capacity under this Section 40.9.7 3 will be capped at three times the Non-Availability Charge rate multiplied by the amount of the resource's Resource Adequacy Capacity. Any remaining monthly surplus of Non-Availability Charges from non-Resource-Specific System Resources providing Resource Adequacy Capacity in a Trade Month will be credited against the Real-Time neutrality charge for that Trade Month in accordance with Section 11.5.2.3. Only revenues received from the assessment of Non-Availability Charges to non-Resource-Specific System Resources providing Resource Adequacy Capacity will be used to fund Availability Incentive Payments for non-Resource-Specific System Resources providing Resource Adequacy Capacity.

#### **40.9.8 Reporting**

By July 1 of each year, the CAISO will provide an informational report that will be posted on the CAISO Website and include the following information: (1) the Availability Standard value for each month of the year and (2) information on the average actual availability each month of Resource Adequacy Resources, the total amount of Non-Availability Charges assessed and the total amount of Availability Incentive Payments made.

\* \* \*

**CAISO Tariff Appendix A**

**Master Definitions Supplement**

**Availability Assessment Hours**

The hours of the month specified in accordance with Section 40.9.3 which the CAISO will utilize for applying the Availability Standards program of Section 40.9.

**Availability Incentive Payment**

The monthly payment that the CAISO may make to a Resource Adequacy Resource under the Availability Standards program in accordance with Section 40.9.

**Availability Incentive Rate**

The monthly dollars per MW rate calculated by dividing the total Non-Availability Charges assessed for a given month by the total Resource Adequacy Capacity that is eligible to receive the Availability Incentive Payment for that month.

**Availability Standards**

The standard established in accordance with Sections 40.9.4 and 40.9.7 to determine if a Resource Adequacy Resource is subject to Non-Availability Charges or Availability Incentive Payments.

\* \* \*

**Non-Availability Charge**

The monthly charge that the CAISO may assess to a Resource Adequacy Resource under the Availability Standards program in accordance with Section 40.9.

\* \* \*

**Resource Adequacy Capacity or RA Capacity**

The generation-supply capacity of a Resource Adequacy Resource listed on a Resource Adequacy Plan and a Supply Plan.

\* \* \*

**Resource Adequacy Resource**

A resource that is required to offer designated in a Supply Plan to provide Resource Adequacy Capacity. The criteria for determining the types of resources that are eligible to provide Qualifying Capacity may be established by the CPUC or other applicable Local Regulatory Authority and provided to the CAISO.

\* \* \*

## Attachment C



California ISO  
Your Link to Power

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## **2<sup>nd</sup> Draft Final Proposal**

# **Standard Resource Adequacy Capacity Product**

ISO 2<sup>ND</sup> Draft Final Proposal  
February 27, 2009

## ISO 2<sup>nd</sup> Draft Final Proposal

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## ISO 2<sup>nd</sup> Draft Final Proposal

### 1 EXECUTIVE SUMMARY

The purpose of this document is to present the ISO's draft final design proposal for a Standard Resource Adequacy Capacity Product (SCP). This 2<sup>nd</sup> version of the draft final proposal represents the culmination of a stakeholder process on SCP that was started in Summer 2008, and is the proposal which the ISO expects at this time to present to its Board of Governors for approval at the March 2009 Board meeting and, if approved, to file at FERC shortly thereafter. The term "draft final" means that the ISO will still consider possible modifications to this proposal based on submitted stakeholder comments received no later than March 6, 2009, but fully expects that any such modifications would not affect the fundamental structure of the proposed SCP design. The final ISO proposal on SCP will be published in conjunction with the documentation prepared for the March Board meeting.

In initiating the SCP effort the ISO did not have to start from scratch to create the SCP. Currently (and in MRTU) there is a process defined for the RA program which has been functioning since 2006. The ISO intends to maintain that same process when SCP is implemented and is only recommending a few key enhancements at this time. Also, a broad coalition of stakeholders had already spent a lot of time preparing elements of a standard capacity product prior to the ISO stakeholder process, which has been valuable in enabling the SCP effort to arrive at this draft final proposal.

The key enhancements to the existing RA program that would result from the SCP proposal are:

- Implementation of an availability standard in the ISO tariff. If a resource receives payments for providing RA capacity, there is an expectation that the full RA capacity of that resource will be available to the ISO, i.e., the resource is not on a forced equipment outage or derate that diminishes its ability to provide the full amount of its RA capacity. Under the SCP, resource availability will be measured on a monthly basis and compared against a single availability standard or target based on the historic performance of the RA resource fleet during the peak hours of each month of the previous year.
- Implementation of availability incentives. The SCP proposal will provide incentives for each resource to meet or exceed the target availability standard. On a monthly basis the ISO will assess non-availability charges to resources whose availability falls short of the target, and will provide credit payments to resources whose availability exceeds the target. Credit payments will be funded through the non-availability charge revenues so that this mechanism is financially neutral on a monthly basis.

Other important elements of the ISO's SCP proposal include:

- Unit Substitution. A resource owner will be able to substitute a non-RA resource for an RA resource on forced outage in order to avoid the outage being counted against the RA resource's availability. A pre-approval process will be required for RA capacity required for local needs to ensure that the replacement capacity is comparable to the original RA capacity in an operational sense. System RA capacity will be exempt from the pre-approval process.
- Transition to SCP. There are provisions for transitional grandfathering of existing RA contracts that were signed before January 1, 2009. Such grandfathered



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contracts would be exempt from the ISO-enforced availability standards and incentives under the SCP. These transitional provisions would expire with the expiration of such contracts.

- Deferment of SCP availability standards and incentives for certain RA resource types. The ISO proposal would not initially apply the SCP availability provisions to intermittent renewable generation (wind and solar), Qualifying Facilities (QFs), and demand response resources. The ISO intends to revisit the applicability of the SCP provisions to these resource types at a later date.

Finally, in conjunction with the SCP effort the ISO and stakeholders have discussed an enhancement to the existing Resource Adequacy Must Offer Obligation (RA MOO) that would enable the ISO markets to utilize both the energy supply and ancillary services capabilities of RA capacity in an optimal manner. Accordingly this draft final proposal also includes provisions for an Ancillary Services Must Offer Obligation (AS MOO), which the ISO intends to include in bringing its SCP proposal to the Board and filing at FERC. The AS MOO as described in this proposal would not alter the applicability of RA MOO as defined today, nor would it be dependent on whether or not the RA capacity is subject to the SCP availability provisions. Rather, the AS MOO would simply allow the ISO to utilize the certified AS capability of RA capacity that is already subject to RA MOO or that has offered to supply energy in the ISO markets.

The ISO is requesting that stakeholders submit their comments on this draft final proposal to [SCPM@caiso.com](mailto:SCPM@caiso.com) by March 6, 2009.

## 2 INTRODUCTION

This paper addresses two enhancements to the RA program – the Standard Resource Adequacy Capacity Product and the addition of an Ancillary Services Must Offer Obligation (AS MOO) to enhance effectiveness of the Resource Adequacy Must Offer Obligation (RA MOO)

The implementation of a Standard Capacity Product (SCP) is a step forward in streamlining California's Resource Adequacy (RA) program. The RA program was implemented to ensure that adequate resources would be available to serve load. As the RA program evolved over the years, participants identified a need to develop a standardized capacity product to facilitate the selling, buying and trading of capacity to meet RA requirements. Stakeholders have affirmed to the ISO that their ability to efficiently transact RA contracts is hindered by the current method of negotiating agreements between parties without a standard product definition for trade. The need for resolution was highlighted during the ISO's Market Initiatives Roadmap process where the Standard RA Capacity Product was ranked highest priority out of a list of over 70 initiatives.<sup>1</sup> Stakeholders have expressed their desire to have this product implemented in the ISO Tariff as soon as possible so that it may be used as the basis for capacity contracting during 2009 for the 2010 delivery year. As a result, in 2008, the ISO began the stakeholder process for designing the SCP.

In parallel, the California Public Utilities Commission (CPUC) is also conducting proceedings to further the development of California's Resource Adequacy Program.

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<sup>1</sup> *Market Initiatives Roadmap Process, Final Report on Ranking of High Priority Market Initiatives 7/7/2008* <http://caiso.com/1ff9/1ff9aee434530.pdf>

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Currently the CPUC is engaged in Phase 2 of R.08-01-025<sup>2</sup>, the “Order Instituting Rulemaking to Consider Annual Revisions to Local Procurement Obligations and Refinements to the Resource Adequacy Program.” Clearly, the ISO, the CPUC and market participants are all seeking to accomplish the same goal – enhance the current RA program for the State of California. This proposal is intended to bring us closer to that objective.

### 3 IMPLEMENTING RESOURCE ADEQUACY WITH SCP AND AS MOO

#### 3.1 IMPLEMENTING THE STANDARD CAPACITY PRODUCT

In the course of the ISO’s stakeholder process on the SCP, it became clear that two elements were key to the SCP design:

- Specification of availability standards for RA capacity and associated incentives for suppliers of such capacity to comply with those standards, both of which would be incorporated into the ISO tariff; and
- Clear specification of the applicability of the SCP standards and incentives, including potential exemption or transitional “grandfathering” of certain types of RA capacity.

As a result the ISO proposal in this document focuses on these key elements.

In addition, in stakeholders’ submitted comments there was broad (but not total) consensus on some issues regarding the changes to the RA framework under SCP:

- The current RA process should be changed as little as possible.
- The LSEs responsibility should end with the submission of their RA plans.

This section of the paper outlines the proposed changes to the current RA program that would result from adoption of the proposed SCP. It provides a summary of the updated resource adequacy framework. It is based on the Business Practice Manual (BPM) for Reliability Requirements and Tariff Section 40 regarding Resource Adequacy. Figure 1 displays the process flow.

Each year the ISO’s RA process begins with the publication of the Local Capacity Study and the Deliverability Study. The purpose of the Local Capacity Study is ‘to determine the minimum capacity needed in each identified transmission constrained “load pocket” or Local Capacity Area to ensure reliable grid operations’.<sup>3</sup> The Deliverability study establishes the deliverability of generation in the ISO in the balancing area. It also establishes the total import capability for each import path allocated to each LSE. The information contained in these reports along with generator data is used to compile the annual Net Qualifying Capacity (NQC) Report which is a listing of the NQC of “all Participating Generators and other Generating Units that request inclusion”<sup>4</sup> for the next compliance year.

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<sup>2</sup> *Order Instituting Rulemaking to Consider Annual Revisions to Local Procurement Obligations and Refinements to the Resource Adequacy Program*, Assigned Commissioner’s Ruling and Scoping Memo, 9/15/2008 <http://docs.cpuc.ca.gov/efile/RULC/90797.pdf>

<sup>3</sup> 2010 Local Capacity Area Technical Study Manual pg 3

<sup>4</sup> BPM for Reliability Requirements pg 34

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LSEs utilize the NQC report to identify resources which are available to contract to provide capacity to satisfy their RA requirement. Currently, there are no standard provisions dealing with availability requirements and incentives for RA capacity, and consequently contracting parties must agree on such provisions themselves and the terms and conditions can vary among the contracts. The SCP will provide availability standards and incentives located in the ISO tariff, which contracting parties will be able to incorporate by reference into their bilateral RA contracts.

In the year ahead and month ahead timeframes, LSEs and Resources that supply RA capacity are required to provide information to the ISO demonstrating that the Resource Adequacy Requirements will be met for that period. LSEs submit Resource Adequacy Plans which identify specific resources that the LSE is relying on to satisfy its forecasted peak demand and reserve margin for the reporting period. SCs for the Resources are responsible for Supply Plans which are a verification and confirmation of the information contained in the LSEs Resource Adequacy Plan. Thus the Supply Plan “establishes a formal business commitment between the CAISO and Resource Adequacy Resources by confirming the status of the resource as [a] Resource Adequacy Resource.”<sup>5</sup>

The Resource Adequacy Plans and Supply Plans are cross-validated by the ISO. For CPUC jurisdictional entities, the CPUC ensures that LSEs are in compliance with their RA requirements through their RA Plans, while the ISO provides feedback on the physical generating units and system resources listed in their RA Plans to see if the SCs of those resources submitted a Supply Plan confirming that the RA capacity was sold in accordance. For Non-CPUC jurisdictional entities, the ISO reviews the RA Plans and Supply Plans in the same manner as for the CPUC jurisdictional entities and sends any discrepancies to the Local Regulatory Authority (LRA).

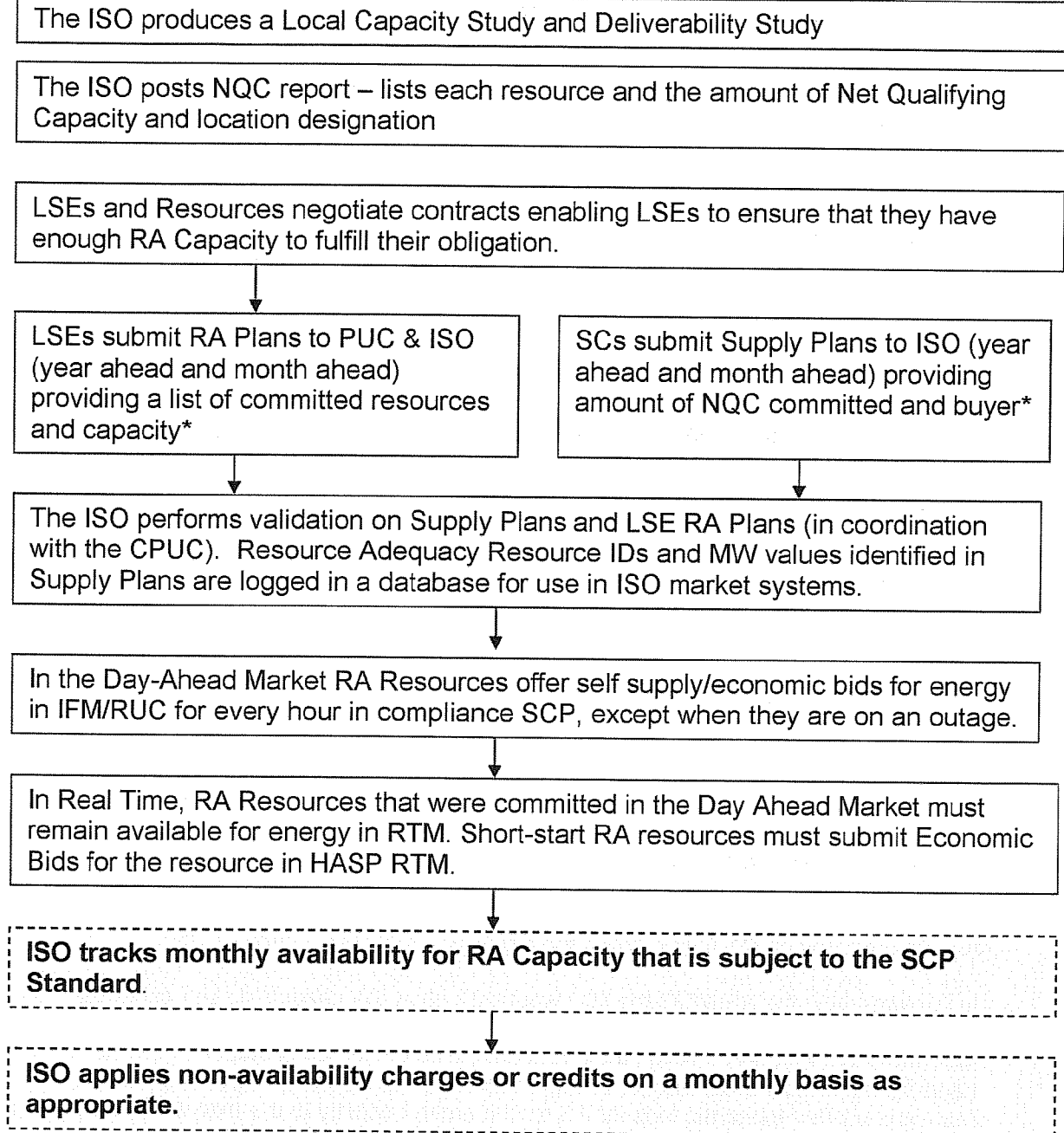
All RA capacity that is confirmed through the RA Plans and the Supply Plans and that is not exempt (or deferred during initial implementation) from the SCP provisions in accordance with the criteria outlined in Sections 6 and 9 will then be subject to the ISO-tariff-based SCP availability standards and incentives. This means that such capacity will be tracked by the ISO for availability in the targeted compliance hours of each month (i.e., whether the full amount of RA capacity is available and not on a forced equipment outage or derate), and will be subject to a non-availability charges or credit payments depending on the extent to which its availability deviates from the SCP availability standard.

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<sup>5</sup> Id. At 22

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### 1. Figure1 –ISO RA Process under MRTU



\* For the initial implementation of SCP, Contract holders who wish to grandfather their contracts will be required to submit certifying documentation. See Section 9 for additional information.

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### 3.2 THE ANCILLARY SERVICES MUST OFFER OBLIGATION

SCs for RA resources are required to make their RA capacity available to the ISO in accordance with the RA MOO provisions of Section 40 of the ISO tariff. In the Day-Ahead Market an RA resource that is subject to RA MOO must submit economic bids or self schedules for their RA capacity in the IFM and RUC. Economic bids can be offers to supply energy or ancillary services or both. There are certain exceptions to this rule including Extremely Long Start Resources and Use Limited Resources.

RA resources that were committed in the IFM or RUC must remain available through Real-Time. Short Start Units and Dynamic System Resources that supply RA capacity subject to the RA MOO and are not scheduled in either the IFM or RUC are still subject to the RA MOO in the next day's Real Time Market and must submit Economic Bids or Self-Schedules into that market.

#### Extremely Long Start Resources

Extremely Long Start (ELS) Resources are those resources that are flagged in the master file and have a start-up time that is greater than 18 hours. Such resources must be given start-up instructions prior to the publication of Day Ahead Market results in order to be available as needed during the next operating day. ELS resources can also be system resources that have contractual limitations that require the energy to be committed prior to the publishing of the Day-Ahead Market results. For these units a special Extremely Long Start Commitment process is used. This process is described in Section 6.8 of the BPM for Market Operations.

#### RA MOO for Energy and Ancillary Services

As noted above, the current RA MOO tariff language allows suppliers of RA capacity to meet their RA MOO by offering offer energy or ancillary services or a combination of both, but does not specifically require the supplier to offer both energy and ancillary services if the capacity is certified to provide ancillary services. This limits the ISO's ability to co-optimize the use of all the capabilities of RA capacity, and may thus increase the cost of scheduling energy and procuring ancillary services in the IFM. Under the proposed AS MOO a supplier of RA capacity that is already subject to the other RA MOO provisions would have to be available for the ISO to optimally utilize that capacity for either energy or AS, to the extent the capacity is certified to provide AS.

In implementing the AS MOO the ISO would still allow RA capacity to self-schedule energy in the IFM, and the market optimization would try to procure all required AS from resources that offer AS through their economic bids or AS self-provision. If the RA capacity offers economic bids for energy, however, the AS MOO would require that resource to offer economic bids for AS for the same capacity to the extent it is certified to provide AS, so that the market can schedule that capacity for energy or AS or a combination of both in the most optimal manner. In addition, in the event that the market cannot procure all required AS from economic AS bids and AS self-provision, the AS MOO would allow the ISO to reduce the energy self-schedule of subject RA capacity to provide AS. In such instances the compensation for providing AS would be based on the Ancillary Services Marginal Prices as specified in the MRTU tariff. .

There are two key reasons why the AS MOO is being proposed. First, upon MRTU start up the FERC MOO will no longer apply and the pool of resources that must offer into the

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market will be limited to RA resources. Second, in the IFM the ISO optimizes energy and ancillary services to meet 100 percent of its forecast AS requirements and there will need to be enough AS supply in the market to perform this optimization. This enhancement helps ensure supply sufficiency and market liquidity.

There has been considerable discussion regarding the AS MOO in the ISO's reserve scarcity pricing stakeholder process. In the final proposal for the reserve scarcity pricing design posted on ISO website on July 15, 2008, the following revisions were proposed:

- 1) All RA resources must submit AS bids for 100% of their AS certified RA capacity into the DAM, even if the RA capacity has been self-scheduled for energy. Otherwise, a zero (\$0/MW) bid will be inserted;
- 2) All RA resources with AS certified capacity, with the exceptions as discussed below, will always be considered for energy and AS in the DAM IFM energy and AS co-optimization.
- 3) The ISO will honor RA capacity energy self-schedules unless it is unable to procure 100% of its AS requirements in the DAM. In such case, the ISO would curtail the energy self-schedule, or portion thereof, to allow certified AS capacity to be used for AS.
- 4) Due to various restrictions of operating conditions, hydro RA resources that offer energy bids should submit AS bids, together with their energy bids, in the day-ahead market for all their available AS capacity based on the expected available energy.<sup>6</sup> Hydro RA units submitting energy self-schedules will not be required to offer AS in the DAM for the RA capacity corresponding to their energy self-schedules.
- 5) Non-Dispatchable Use Limited RA Resources will be exempted from the DAM AS must-offer requirement.

## 4 MARKET DESIGN PRINCIPLES

The SCP was created based on the following market design principles:

1. The purpose of the SCP is to meet the RA Requirement. The SCP is being developed to streamline and improve the current RA process for market participants and the ISO. The SCP enhances the existing procedures by providing a device that facilitates capacity trading and establishes performance rules in the tariff.
2. The SCP is fungible and can be easily traded. By its very definition a standard capacity product should have an enduring nature and represent a set of similar attributes. The SCP utilizes the Net Qualifying Capacity (NQC) that has been set forth in Section 40.4.1 of the tariff and the imports that are reported by LSEs and the SC representing resources to determine the amount of SCP MWs that a resource will provide.
3. SCP MWs are bound by the availability standards and incentives in the tariff. Sections 6 of this proposal describe this process.

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<sup>6</sup> It is consistent with the MRTU Tariff Section 40.6.4.3.2.

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### 5 PRODUCT DEFINITION

The SCP is a set of attributes defined in the ISO MRTU tariff which specify the availability standard, charges and credits applied to RA capacity. There will be one availability standard that will be applicable to RA resources<sup>7</sup> each month during the upcoming compliance year, which will be based on the historic availability of the RA resource fleet during a pre-defined set of peak hours during a previous three-year period. Non-availability charges will be applied on a monthly basis to RA resources that fail to achieve the target availability value during that month. RA resources that exceed the target availability value during the month may receive a credit payment to the extent such funds are available from the collection of financial penalties for that month.

### 6 AVAILABILITY STANDARD AND INCENTIVES

#### Overview and Summary

The current RA programs of the CPUC and LRAs do not differentiate among RA capacity in terms of the Forced Outage rate of the procured RA resources. Parties procure RA capacity under bilateral arrangements and a price is paid for the capacity. The bilateral arrangements may have availability requirements and incentives to encourage performance. Stakeholders have asked the ISO, as part of the SCP, to incorporate resource availability standards and incentives into the ISO Tariff to facilitate contracting. Stakeholders envision that, with an availability standard and incentives in the ISO Tariff, parties can refer in their contracts to the ISO Tariff provisions thereby simplifying and improving contracting.

Stakeholders have suggested that there be a standard that considers the Forced Outage rates of RA resources, rewards RA resources that have low Forced Outage rates by providing additional compensation and charges RA resources that have high Forced Outage rates by applying an unavailability charge. A system such as this during the compliance year would recognize and differentiate among RA resources that experience low Forced Outages compared to RA resources with high Forced Outages. To address this aspect of the SCP, the ISO has developed an availability standard and incentives.

There will be a unique target availability value established for each month of the compliance year, calculated based on the historic actual availability of the RA resource fleet during a pre-defined set of peak hours during each respective month over each of the past three years.<sup>8</sup> The monthly target availability value will be applicable to all RA resources each month during the upcoming compliance year.

“Availability” will be defined as not being on a Forced Outage, as currently defined in the ISO Tariff, to an extent that would prevent the RA resource from offering to the ISO markets and providing the full MW value of the RA capacity that the resource has sold to an entity for RA purposes and provided to the ISO in an RA showing.

“Non-availability charges” will be applied to RA resources that fail to achieve the target availability value in a given month, and RA resources that have exceeded the target

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<sup>7</sup> This excludes resources whose SCP implementation has been temporarily deferred or grandfathered.

<sup>8</sup> Certain types of RA resources are excluded from the calculation of the RA fleet. These exclusions are discussed in detail in this proposal.

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availability value for a given month may receive an “availability credit” to the extent such funds are available from the collection of non-availability charges in that month. The tariff provisions described below are intended to provide incentives for each resource that has sold RA capacity to be available to provide that capacity to the ISO.

The availability standard and incentives will be subject to review and potential modification in subsequent years, and any multi-year RA contract signed after these initial SCP provisions have been approved by FERC will continue to be subject to any changes made in the SCP and RA obligations incorporated in the ISO Tariff.

### Outages under the ISO Tariff

The ISO Tariff defines several types of Outages. To provide context for the discussion in this paper, relevant definitions from Appendix A of the current ISO Tariff are provided below.

*Outage: Disconnection, separation or reduction in capacity, planned or forced, of one or more elements of an electric system.*

*Forced Outage: An Outage for which sufficient notice cannot be given to allow the Outage to be factored into the Day-Ahead Market or Hour-Ahead Market scheduling processes.*

When the ISO implemented its current Outage reporting penalties in 2007 the ISO interpreted variations of output of wind generators and Qualifying Facilities (QF) not to be reductions in capacity but reductions in output. The following guidance was provided to market participants:

*Question/Comment 5:*

*“As available” Qualifying Facilities, which supply energy with a profile that resembles a wind Generating Unit should not have to report availability as the output of these Generating Units is constantly changing, making the availability report of little value.*

*Answer 5:*

*The CAISO does not consider normal variations in the output of Qualifying Facilities for which the output depends on a process separate from the production of electricity to represent changes in the unit’s maximum output capability. As such, these normal variations are not required to be reported. Aside from these normal variations in output, participants are required to report reductions in the maximum output capability of a Qualifying Facility if a Participating Generation Agreement (PGA) for the unit has been entered into with the CAISO (or if the unit is a Resource Adequacy Resource) and the reduction meets the reporting threshold.*

The threshold for reporting Outages that is specified in the ISO Tariff section 9.3.10.3.1 is as follows: “Report a Generating Unit’s Availability after it is reduced (from the value registered in SLIC) by at least 10 MW or 5 percent of the Generating Unit’s PMax, whichever is greater, for an outage that lasts 15 minutes or longer.”



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Penalties specified in the ISO Tariff for not reporting Forced Outages range up to \$5,000 per unreported or late reported Outage, depending on the number of violations. Penalties in the ISO Tariff for reporting false information range up to \$10,000, depending on the number of violations. In addition, egregious violations will be referred to FERC, which has a number of sanctions available to it, including \$1 million per day penalty authority.

Any gaming consisting of reporting inaccurate availability data will be referred to FERC which has \$1 million per day penalty authority.

### Peak Hours Availability Assessment

The availability standard and incentives are focused on the actual MW of capacity that has been sold and provided to the ISO. During the course of this stakeholder process the ISO considered whether the availability standard should be established by assessing Forced Outages during all hours of the month versus assessing Forced Outages during the peak-hours of the month.

The ISO proposes that the assessment of availability will look at performance during a pre-defined set of peak hours in the month. The ISO proposes to define the RA peak hours based on the operating periods when high demand conditions are likely to occur and therefore resource RA performance is most critical to maintaining system reliability.

The proposed peak-hours are shown in the table below. The five hours of each day have been chosen because, based on actual data, the ISO has found that the peak load hour always falls within that five-hour range. These hours are when the ISO has typically experienced the coincident peak demand during each of the months. By assessing performance during the hours when the system is most likely to be capacity-constrained, this approach provides appropriate incentives for resources to take actions to improve peak-period availability.

Month	Operating Hour	Exclusions
Apr – Oct	14:00 - 18:00	Saturday, Sunday and federal holiday
Jan - Mar, Nov & Dec	17:00 - 21:00	

The ISO will monitor the results of using only a peak hours assessment. If refinement is needed of the defined peak hours, or some alternative form of metric such as an all-hours metric is needed, the ISO will consider that as a future enhancement.

### Sources of Outage Data

The ISO considered using either data from its scheduling and outage logging system ("SLIC") or data reported to NERC using the Generator Availability Data System ("GADS") protocol. The ISO proposes to use data from its SLIC system for outage data. Using SLIC data will allow for implementation of SCP for compliance year 2010. It is not feasible to implement a NERC GADS approach for compliance year 2010. Although the ISO proposes to use SLIC data to implement SCP; it is willing to consider moving to NERC GADS data in the future if warranted. The ISO intends to implement SCP using SLIC data, and to assess how well SCP it is working with SLIC data over a trial period of one or more compliance years.

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The ISO will use data from the ISO SLIC system to assess the availability of RA resources greater than 10 MW in size.

Because the requirement in the ISO Tariff is for all resources to only report forced derates that exceed the greater of 10 MW or five percent of the resource's capacity, resources that are less than 10 MW in size are not required to submit forced outage data to the SLIC system. However, a new requirement will be established under the SCP where resources that are less than 10 MW in size will be required each month to submit Outage data separate from SLIC that is equivalent to Outage data submitted by resources greater than 10 MW. Thus, for RA Resources less than 10 MW in size, the ISO will use the Outage data provided by the resource to determine the availability of those RA resources.

The ISO will develop a template that such resources will use each month to submit their Outage data to the ISO. The data that will be submitted will identify all forced Outages that have occurred over the previous calendar month. The data will include start and end times, MW availability and cause of Outage. The template would be submitted shortly after the end of each month, accompanied by a sworn affidavit by one of the executives of the company (similar as to what is done for the submission of Congestion Revenue Rights eligibility data).

There will be a minimum size threshold of 1.00 MW for this requirement, i.e., resources less than 1.00 MW do not have to submit Outage data each month and will not be subject to the availability standard and incentives (and these resources will not be included in the calculation of the target availability).

SLIC data will be used for the initial implementation of the SCP; however, it is recognized that the ISO Tariff does not require that resources report every MW of Outages and it may be desirable to develop more detailed reporting requirements at a later date, perhaps including a more detailed monthly submission from all RA resources.

### Determination of Start and End Times of Outages

The start time used in calculating the availability percentage for each resource each month will be *the time the Outage actually occurred*, as reported by each SC in the SLIC system. The end time used in the calculation will be *the time the Outage completion was reported* to the ISO in the SLIC system. In technical terms, the Availability Point will be used to determine the Outage start time. The Availability Actual will be used to determine the Outage end time. The principle predicating this process is to capture the time the resource was actually operational and also available to the ISO systems. If an Outage has ended but has not been reported to the ISO, the ISO systems cannot dispatch it and so it is not available to the ISO systems.

### Monthly Target Availability Value

There will be a unique target availability value established for each month of the compliance year (12 values for each year), calculated based on the historic actual availability of the RA resource fleet during a pre-defined set of peak hours during each

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respective month over each of the past three years<sup>9</sup>. The target availability value will be established before the start of the upcoming compliance year that will be applicable to RA resources each month during the upcoming compliance year.

In its previous proposal, the ISO proposed a single annual target value. The ISO now proposes a unique value for each month of the year as this will provide a more equitable target for resources to be measured against as different months of the year have different outage profiles. This change should mitigate stakeholder concerns that a single annual target value is unfair and may not be nearly revenue neutral to an RA resource that actually achieves an actual annual availability that is equal to the target annual availability.

The target availability value will be established well before the applicable compliance year and will be updated each year. The value will be posted by the ISO by June 1 of each year to be factored into procurement for the subsequent compliance year. The timeline for development of the target availability value is shown below (using the 2015 compliance year as an example).

- Data from January through December for 2011, 2012 and 2013 will be used for determining the value that would be in effect for compliance year 2015.
- The ISO will assess the 2011-2013 data in early 2014.
- The ISO will publish a single value in June 2014.
- The ISO will assess the actual availability of RA resources each month during 2015.

As discussed above, the formula for the target availability value will use monthly data over three years. However, in the first year of SCP (compliance year 2010) three full years of historical data will not be available for all months because the RA program did not start until June 2006 (only 2007 and 2008 have a full 12 months of data). The calculation will be run using data from June 2006 through December 2006, i.e., those months will have the benefit of three full years of monthly data. Starting with compliance year 2011 and beyond, three full years of historical data will be used in the calculation.<sup>10</sup>

The ISO will use only data from its SLIC system to calculate the target availability value in the first year of the SCP. In subsequent years (when data from resources less than 10 MW is available) the ISO will use both data from its SLIC system and the Outage data that is submitted by resources that are less than 10 MW in size to calculate the target availability.

Only resources that have been provided as RA resources, have an ISO Resource ID, submit Outage data, and have the availability standard and incentives applicable to them will be used to calculate the target availability value. Resources that are not subject to the availability standard and incentives because applicability has been deferred, or resources that have been exempted from the provisions, will not be included in the calculation.

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<sup>9</sup> The compliance year for RA is currently established as a calendar year.

<sup>10</sup> Note that resources less than 10 MW in size will be included in the calculation for determining the target availability value as the ISO receives historical actual monthly Outage data from these resources.

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The target availability value will be calculated using an RA fleet that includes RA resources that have been grandfathered so that there are ample RA resources in the calculation (if we exclude grandfathered RA resources, then the RA fleet may be only a few hundred RA resources and not comparable to the 600-resource RA fleet that is currently supplying RA capacity).

As discussed at the end of this section, application of the availability standard and incentives has been deferred for wind, solar, QF and demand response RA resources. These types of RA resources will not be included in the calculation of the target availability value until such time as the availability standard and incentives apply to them.

Three types of resources will be excluded from this calculation: liquidated damages energy contracts, use-limited resources (ULR), and non-resource specific RA imports. Liquidated damages energy contracts are excluded because these types of RA resources are exempt from the availability standard and incentives (see discussion at the end of this section). ULRs are excluded from the availability target calculation because the historical outage data for these types of resources does not differentiate between Forced Outages and Outages due to energy limits. At the point when ULR outage data provides this type of distinction, it will be included in the target calculation. Further discussion of ULRs and the SCP is provided in the Ambient Outages section below. Non-resource-specific RA imports will not be included in the calculation of the target availability value because these types of RA resources have their own unique metric (see the discussion at the end of this section).

Further, since there is a minimum size threshold of 1.00 MW for reporting outages, i.e., resources less than 1.00 MW do not have to submit Outage data each month and will not be subject to the availability standard and incentives, resources less than 1 MW in size will not be included in the calculation of the target availability.

Since each month can have a unique set of RA resources, and each RA resource may offer different amounts of RA capacity, the target availability value will be calculated by summing the total available RA capacity MW across all compliance hours of the month and all RA resources subject to the SCP, then divided by the total sold RA capacity MW for the same set of hours and resources. The criteria for Forced Outages to be included in the calculation are described in the next section (Monthly Assessment of Actual Availability).

An example of how the target availability value will be calculated is provided below. The example uses a simplified model where:

- There are only two RA resources in the RA fleet; and
- The “month” consists of only six hours.

### Example of Calculation of Target Availability Value for a Month

Assume for simplicity two RA resources and six-compliance-hour month.

	August 2006	August 2007	August 2008	
<b>Unit A</b>				
MW Sold as RA	100	90	100	<b>Reference Period Totals</b>

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				MW Available	MW Sold
Actual MW				290	290
Available: Hour 1	100	90	100		
Hour 2	90	90	100	280	290
Hour 3	90	90	0	180	290
Hour 4	70	70	0	140	290
Hour 5	80	80	100	260	290
Hour 6	100	90	100	290	290
	530	510	400	1440	1740
<b>Unit B</b>					
MW Sold as RA	50	60	50		
Actual MW				150	160
Available: Hour 1	50	50	50		
Hour 2	30	0	50	80	160
Hour 3	30	0	50	80	160
Hour 4	40	50	50	140	160
Hour 5	50	50	50	150	160
Hour 6	50	50	50	150	160
	250	200	300	750	960
<b>All RA Resources</b>				<b>2190</b>	<b>2700</b>

The calculation demonstrated above allows us to determine the target availability value in a manner that weights the availability of each resource by the amount of RA capacity MW sold by that resource. The formula that reflects the RA MW of each resource is shown below:

X = total of all RA capacity MW available over all compliance hours of the reference period and all resources subject to the SCP

Y = total of all RA capacity MW sold over all compliance hours of the reference period and all resources subject to the SCP.

Then the target availability rate is X/Y (or 100 \* X/Y as a percent).

Based on the example above:

$$X = 530 + 510 + 400 + 250 + 200 + 300 = 2190^{11}$$

$$Y = 600 + 540 + 600 + 300 + 360 + 300 = 2700^{12}$$

$$\text{Then } X/Y = 2190 / 2700 = 0.8111 \text{ or } 81.1\%$$

Thus, the target availability value in this example that would be applicable for the month of August 2010 is 81.1%.

### Monthly Assessment of Actual Availability

<sup>11</sup> For example, the first data point, 530, is the sum of August 2006, Hours 1 – 6 for Unit A.

<sup>12</sup> For example, the first data point, 600, is the MW sold as RA in August 2006 for Unit A which is 100, multiplied by 6 hours

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An assessment of each RA resource's availability each month during the applicable peak hour period against the target availability value will be done each month. The assessment will look at each RA resource's availability during the RA peak hours in the month using either

- SLIC data (for resources 10 MW or greater), or
- Data submitted by the resource (for resources less than 10 MW)

"Available" will be defined as not being on a Forced Outage during the applicable peak hour period to an extent that would prevent the resource from providing its full RA capacity value if called upon by the ISO. The formula for determining availability will use the MW value for each RA resource of the RA capacity that has been sold. The formula does not use the nameplate capacity, Pmax capacity, Qualifying Capacity, or Net Qualifying Capacity value.

Availability for each RA resource for each month will be determined by calculating: (a) the total RA capacity MW available over all compliance hours of the month, divided by (b) the total RA capacity MW designated in the RA plan for the same hours. Thus an RA resource is considered 100% available if it has no Forced Outages during the defined peak hours in a month. Any Forced Outages during peak hours during a month will decrease the resource's availability from 100% available. Maintenance Outages and Scheduled Maintenance taken in a month will not decrease the resource's availability from 100% available.

### Treatment of Outages

Stakeholders have asked the ISO to provide additional detail regarding how Outages are treated in SLIC, and, in particular, how Forced Outages are determined versus "non-Forced Outages" for purposes of the SCP availability standard. For example, stakeholders are concerned with whether Outages submitted in SLIC for ambient derates or to inform the ISO of "forbidden ranges" after startup of MRTU will be treated as Forced Outages under the SCP availability standard. Stakeholders also have asked if the ISO believes that SLIC needs to be modified to implement the availability standards. To address these topics, the ISO provides the information below.

There are two ways that an Outage can be classified as a Forced Outage.

- If the Outage is not submitted three days or more in advance of an Outage that Outage is considered to be a Forced Outage. In other words, there is a timeline basis to determining whether an Outage is a Forced Outage or not a Forced Outage.<sup>13</sup>
- A resource might request an Outage three days or more in advance of a requested Outage, but, if the ISO does not approve the Outage (this could occur if system conditions will not allow the ISO to reliably operate the system if the Outage were to be taken) then, if the resource goes out on an Outage less than 72 hours in advance of the Outage, that Outage is classified as a Forced Outage.

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<sup>13</sup> The specific language regarding timing from section 3.4 of Procedure T-113 is as follows:  
"submit the request for CAISO approval no later than 1130 hours at least three (3) working days prior to the starting date of the Outage."

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The key determinant of whether an Outage is a Forced Outage is timing (the three day threshold). The ISO protocol for Outages, including the timeline, is described in Procedure T-113<sup>14</sup>. If an Outage occurs and the resource operator is not able to provide the 72-hour notice to the ISO, and a resource operator is entering the Outage in SLIC, the SLIC application will display a popup message that notified the resource operator that the Outage will be considered to be a Forced Outage and will ask if the resource operator wants to continue with the data entry (i.e., there is no ambiguity about whether any Outage submitted is a Forced Outage, or is not a Forced Outage – the resource operator knows as the data is being submitted how the Outage will be classified).

The ISO has designed SLIC to include functionality that will not classify certain types of Outages as Forced Outages, regardless of the time when the Outage is submitted, provided that the resource operator codes the data correctly when it is entered.<sup>15</sup> This functionality has been in place for a number of years. Currently, Outages submitted using “Normal Cards” and “Ambient Cards” when submitted in SLIC are not classified as Forced Outages. This functionality will not change under MRTU. This functionality is described below.

- Normal Cards: “Normal Cards” are provided to document operating points when a resource cannot be dispatched due to engineered holding points. The Normal Card has been designed to allow hold points for designed engineered limitations in a resource. Normal Cards are each good for only a four-hour period and are used to work around the limitation of the ISO system that cannot recognize things such as forbidden ranges and ramping constraints. If a resource operator submits a Normal Card, the Outage is not classified as a Forced Outage. The Outage will look like a Forced Outage at first when the data is being submitted to SLIC due to the timeline, but by using the proper code on the drop down list of the Normal Card the Outage will not be recorded in SLIC as a Forced Outage. Instead, the Outage will be shown as a Normal Card. Normal Cards can be used by resources such as combined cycle resources that want to enter data into SLIC relative to forbidden ranges after startup of MRTU.<sup>16</sup>
- Ambient Card: Ambient Cards are used to document limitations on the resource, such as those caused by temperature, weather and lack of fuel or emissions. If the Ambient Card is submitted with the proper codes, even if not 72-hour notice has been provided to the ISO, that Outage will be recorded as an Ambient Card.

The ISO proposes that Outages submitted in SLIC using a Normal Card will not be counted against the hourly availability of the resource under the SCP availability standard as the Net Dependable Capacity of the RA resource is still available to the ISO.

Although Outages submitted using Ambient Cards will not be classified in SLIC as Forced Outages, Outages submitted using and Ambient Card that are for de-rates of capacity due to temperature, i.e., ambient conditions, will be counted against the hourly availability of the resource under the SCP availability standard.

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<sup>14</sup> Procedure T-113 can be found at the following link:

<http://www.caiso.com/docs/2002/01/29/2002012913333822467.pdf>

<sup>15</sup> The ISO for years has offered and conducted extensive training to plant operators on how to use SLIC and submit Outages, including the types of coding described in this proposal.

<sup>16</sup> Normal Cards are described in the ISO SLIC Web Client document posted on the ISO web site at the following link: <http://www.caiso.com/docs/2004/01/28/2004012807111918934.pdf>

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Normal weather fluctuations such as temperature are reasonably predictable by the resource owner. Since normal weather patterns are predictable, the resource owner can anticipate these conditions and should sell a commensurate amount of RA capacity that reflects those conditions.

The assessment of a resource's actual availability will not count Outages that are submitted using an Ambient Card that are for de-rates due to Uncontrollable Forces (as defined in Appendix A to the Tariff). Uncontrollable Forces are defined as "Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, earthquake, explosion, any curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities or any other cause beyond the reasonable control of the CAISO or Market Participant which could not be avoided through the exercise of Good Utility Practice."

In addition, consideration will be made in assessing the actual availability of SCP resources that qualify as a ULR under the ISO Tariff. The ISO proposes that Outages submitted using Ambient Cards for temperature-related de-rates for ULRs will be counted against their availability as they would for any other SCP resource, but only up to a point. Once a ULR encounters an energy limit constraint, such Outages will no longer count against the SCP availability determination for the relevant month. The rationale for this exemption is as follows: ULRs provide monthly advisory use plans to the ISO that indicate their energy limitations and the ISO uses this information to determine how to best utilize the resources to meet system needs. These resources are expected to provide the full amount of RA capacity that they are contracted to supply within the energy limit constraints of the resource. Therefore, until an energy limit constraint is encountered, the resource is expected to provide the full amount of RA capacity that it has sold.

To ensure that ULRs provide reasonably accurate use plans to the ISO, the ISO will assess the accuracy of resource use plans compared to actual operation of the resource. The chronic submittal of inaccurate use plans will be brought to the attention of the resource and any relevant LRAs.

The ISO will review the current codes in SLIC relative to the submittal of Ambient Cards and will modify SLIC as necessary to implement this aspect of the SCP. Since the only event submitted under an Ambient Card that will count against availability is for a temperature related de-rate, the simplest solution may be for the ISO to add a code (or modify the existing codes in SLIC) so that Ambient Card drop down list has only one code that will be used to communicate all temperature de-rates that a resource would use where it has to de-rate its capacity to reflect the impacts of temperature. Given the approach taken in this proposal, it is not necessary to define the events that are not considered to be Uncontrollable Forces.

### Example of Monthly Assessment of Actual Availability

The actual availability of each RA resource each month will be calculated as described below.

- The ISO will assess each resource's operational status during the applicable peak hour period for each month using the Outage data provided by the resource's Scheduling Coordinator to the ISO through the SLIC system (or, if the resource is less than 10 MW in size, using the Outage data provided by the



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resource after the conclusion of the month). Each hour during the applicable peak hour period that the resource has no Forced Outages that impair its contracted RA value will be counted as the resource having a 100% availability for that hour.

- For each hour during the applicable peak hour period that the resource is partially or fully curtailed a pro-rated percentage will be calculated. For example, a 100 MW resource that is available for 50 MW for the hour during an applicable peak hour period will be counted as 50% available, or the same resource curtailed to 0 MW for 30 minutes will also be counted as 50% available.
- The ISO will calculate a monthly average availability for each resource during the applicable peak hour period. The calculation will be based on the actual hours that the resource is available during the applicable peak hour period compared to the target available hours during the applicable peak hour period for that month.

The actual availability of each resource each month during the applicable peak hour period will be calculated and compared to the target availability. In months where there are no Forced Outages, the actual availability of the resource would be above the target availability since it is assumed that in each month there will be some RA resources that have Forced Outages which will result in a target value of less than 100% availability. In months where a Forced Outage occurs during the applicable peak hour period, the actual availability would be less than 100%.

The formula for determining the availability of a resource during the applicable peak hour period in any given month will be as follows:

$$A_{jn} = \frac{\sum \text{Hourly RA MW Available from Resource } j \text{ in month } n}{(\text{RA MW Capacity of Resource } j) \times (\text{Total Compliance Hours of Month})}$$

Where  $A_{jn}$  = Availability Percentage of Resource  $j$  in Month  $n$  during the applicable peak hour period.

As only peak hours will be used in the assessment, the Hourly RA MW Available from Resource and Total Compliance Hours of Month will only include peak hours. In essence, the ISO will sum the MW that are available in the month for only the defined peak hours.

An example of the monthly assessment is provided below.

### Example of Monthly Assessment of Actual Availability

Assumes a six-hour month.

Assumes Unit A sold 100 MW as RA.

#### Unit A

Hour 1	100	
Hour 2	90	90MW for full hour
Hour 3	100	
Hour 4	70	▶ 100MW for 42min / 0 MW for 18min = 70MW
Hour 5	80	▶ 100MW for 35min / 50MW for 14min / 0 MW for 11min = 80MW
Hour 6	100	
	530/600	

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### 88.3% Monthly Availability

#### Incentives

During the course of this stakeholder process the ISO considered both financial and physical incentives. The two approaches are summarized below.

Incentive	Description
Financial	Charge (or credit) assessed during compliance period or just after its conclusion for not meeting (or exceeding) the standard within the compliance period
Physical	Adjustment to Net Qualifying Capacity for subsequent compliance period for not meeting the standard within the current compliance period

The ISO proposes to add a non-availability charge to the ISO Tariff as a financial incentive. A financial incentive is supported by a majority of stakeholders, who believe that it provides the correct incentive for RA resources to be available. There is very little support among stakeholders for a physical incentive. Failure to achieve the target availability value in any month during the compliance year will result in a non-availability charge from the ISO to the Scheduling Coordinator. Each RA resource will have an incentive to ensure that it performs to limit its exposure to the non-availability charge.

The proposals for a financial incentive that were provided by stakeholders in previous rounds of stakeholder comments on the SCP included the following elements:

- Each resource's availability should be compared to actual fleet availability;
- Resources with lower-than-standard availability during peak load periods should receive charges, while resources with higher-than-standard availability should receive credits; and
- Resources with availability of less than 50% should have a charge applied to the entire RA capacity; those with availability of greater than 50% but less than the target should have a charge applied to a portion of their RA capacity.

The ISO has used many of these principles in developing its proposed availability standard and performance incentives.

A non-availability charge, or potentially an availability credit, will be applied to Scheduling Coordinators of RA resources. A non-availability charge will be applied each month to the Scheduling Coordinators of resources that do not meet the target availability as part of the first feasible settlement statement after the conclusion of the applicable month. A potential availability credit will be made each month (to the extent that funds generated from non-availability charges are available) to resources that exceed the target availability as part of the first feasible settlement statement after the conclusion of the applicable month.

The non-availability charges and availability credits will be settled all within the same settlement month. After consulting internally with its Finance department, the ISO has concluded that there is no need to wait until the non-availability charges funds are received to later pay out the availability credits.

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The intent for the non-availability charges and potential availability credits is that each month would be treated separately from other months, with its own “account” of non-availability charges collected and potential availability credits going out (to the extent such funds are available) to the RA resources that exceed the target availability. The “account” for each month would either be paid out to RA resources that have exceeded the target availability or put it into the Real Time neutrality and paid back to measured demand, i.e., any excess not paid out to resources that exceed the target availability will be paid out to measured demand.

A dead band of 5.0% will be used around the target availability (2.5% on either side of the target availability value) to limit the amount of non-availability charges and availability credits. The dead band provides for non-availability charges and availability credits to only be assessed when RA resources perform significantly better or worse compared to the established availability standard.

The “price” value in the non-availability charge formula will be the replacement cost (or ISO “backstop” cost) of capacity that is established in the ISO Tariff. That value is currently \$41/kW-year, as established in the Interim Capacity Procurement Mechanism (“ICPM”) provisions.<sup>17</sup> The ISO intends that the price value of the successor to the ICPM would be used in the SCP non-availability charge formula.

The non-availability charge formula will work as shown below. It will be a monthly charge (and will recognize the dead band).

Actual Availability	Formula <sup>1</sup>
For resources with availability of 50% and up to the target availability percent, recognizing the dead band	$(\text{Target Availability} - \text{Dead Band} - A_{jn}) \times (\text{RA capacity in kW}) \times (\text{ISO backstop replacement cost of capacity})$
For resources with availability less than 50%	$(\text{RA capacity in kW}) \times (\text{ISO backstop replacement cost of capacity})$

Where  $A_{jn}$  = Availability of Resource j in Month n

The funds collected from the application of non-availability charges will be allocated to RA resources that exceed the dead band for target availability. The funds will be distributed by calculating a monthly availability credit rate and applying it to the amount of capacity that exceeded the dead band above the target availability standard (i.e., a 90% target and with 5.0% dead band will provide a potential availability credit to those RA resources that exceeded a 92.5% availability rate). The monthly availability credit rate will be determined by dividing the total monthly non-availability charges dollars by the sum of MW of all resources that exceeded the target plus dead band. Resource availability credits will equal the monthly availability credit rate times the MW availability above the target plus dead band level and calculated as shown below.

A monthly availability credit rate will be determined by dividing total monthly non-availability charges dollars by the sum of all MW exceeding target plus dead band of all RA resources.

- $\text{Rate} = \text{Total Revenue } \$ / \sum_j [((\text{Target} + \text{Dead Band}) - A_{jn}) \times \text{RA MW}_j]$
- $\text{Payment}_j = \text{Rate} \times ((A_{jn} - (\text{Target} + \text{Dead Band})) \times \text{RA MW}_j)$

Where  $A_{jn}$  = Availability of Resource j in Month n

<sup>17</sup> The ICPM tariff, including the pricing provisions, sunsets on December 31, 2010.

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### Example

- A 90% target with a 5.0% dead band will provide a potential availability credit to RA resources that exceed a 92.5% availability rate (90.0% plus 2.5% means resources that achieve greater than 92.5% are eligible to receive an availability credit)
- 500 MW resource available 100% of time during a month would receive an availability credit = Monthly Availability Credit Rate \*(100.0%-92.5%)\*500

The ISO desires to provide an incentive to RA resources to strive to achieve an availability level greater than the target availability, and hence be eligible to receive potential availability credits. The ISO also recognizes that there could be instances where in a particular month many RA resources have been assessed a non-availability charge and there are just a few RA resources that have exceeded the target availability. This situation could lead to a potential windfall to these few RA resources. Therefore, the ISO proposes to “cap” the potential availability credit each month so there is not a windfall to just a few entities that are above the target availability value and return any excess non-availability charges funds by putting those funds into Real Time neutrality and paying the funds back to measured demand.

The ISO also recognizes that it should be careful not to establish incentives for LSEs to procure poor quality resources for RA purposes that may trigger very large non-availability charges proceeds, a portion of which may flow back to the LSE under the “cap” approach described above. To provide a strong incentive to RA resources to strive to exceed the target availability, while at the same time balancing the amount that might be returned to measured demand, the ISO proposes to use three times the non-availability charge rate that is charged to RA resources that fail to meet the target availability as the maximum rate to pay the RA resources that exceed the target availability. Thus, RA resources that exceed the target availability never get paid more per MW than three times the non-availability charge rate, but may get less if not enough non-availability charges funds are collected. If there is any remaining surplus, then that surplus would be put it into Real Time neutrality and paid back to measured demand. The use of three times the non-availability charge rate as a cap should provide a strong incentive for RA resources to shoot for, and should in most cases mitigate any large windfall amount that might accrue and be paid back to LSEs. The ISO expects the amount of any excess funds in a month beyond what is paid out as availability credits to be very small, if any, as the cap is three times the non-availability charge rate. The ISO believes that it is efficient to establish a simple mechanism to pay out this small amount of funds each month if there are any funds to pay out as excess. The ISO has chosen to pay the funds to load because load is the entity that is paying for RA capacity (both RA procurement and backstop procurement).

In the case of a month where there are non-availability charges funds, but no RA resource has exceeded the target availability, then those funds will be placed into Real Time neutrality and paid back to measured demand.

### Examples

This section shows how the ISO will accounts for availability with the SCP tariff. There are two subsections. The first subsection discusses various possible Outage scenarios and how they impact: (a) the CPUC counting rules, and (b) the financial impact under

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SCP. The second subsection provides two examples for calculating non-availability charges and availability credits based on the proposed SCP provisions.

### Outage Scenarios and RA Resources

<p>Example RA Resource Parameters  Resource ID – RESOUR_2_AB1X3  P-Max – 551.70 MW  NQC – 550 MW  RA Capacity – 400 MW  - 300 MW sold to LSE1  - 100 MW sold to LSE2</p>
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*Table A - Capacity Counting Impact under CPUC rules*

Scenario	Description	Impact
1	Scheduled Outage in a non-summer month <sup>18</sup> lasting 6 days	Resource can count for 400 MW.
2	Scheduled Outage in a non-summer month lasting 10 days	Pro-rated counting rule <sup>19</sup> – resource can count for 171 MW <sup>20</sup> .
3	Scheduled Outage in a non-summer month lasting 15 days	Resource cannot count for the month.
4	Scheduled Outage in a non-summer month for any duration scheduled after due date for monthly RA reports	Resource can count for 400 MW.
5	Forced Outage in a non-summer month of any duration	Resource can count for 400 MW.
6	Scheduled Outage in a summer month, July, lasting 7 days <sup>21</sup>	Resource can count for 400 MW.
7	Scheduled Outage in a summer month, July, lasting 9 days	Resource cannot count for the month.
8	Scheduled Outage in a summer month for any duration scheduled after due date for monthly RA reports	Resource can count for 400 MW.
9	Forced Outage in a summer month of any duration	Resource can count for 400 MW.

*Table B - Financial Impact under SCP*

Scenario	Description	Impact
1	Approved Scheduled Outage of any duration	No financial Impact to SC of the resource

<sup>18</sup> Non-summer months are October – April.

<sup>19</sup> Pro-rate rule for Scheduled Outage between 7-14 days in a non-summer month =  $[1 - (10\text{days}/31\text{days}) - 0.25] * 400 \text{ MW}$

<sup>20</sup> Assumption would be that the two LSEs would divide the 171 MW 75%/25%

<sup>21</sup> CPUC's summer rule is that Scheduled Outage duration of less than 25% of days in the month, or 7.75 days in July, can count fully for the RA month.

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2	Scheduled Outage requested and denied then submitted as Forced Outage	Non-availability charge assessed to SC of the resource (if outside of the dead band)
3	Scheduled Outage requested and denied but substitute unit offered and accepted	No financial impact to SC of the resource
4	Scheduled Outage requested and denied and substitute unit offered and denied	Non-availability charge assessed to SC of the resource (if outside of the dead band)
5	Forced Outage for equipment failure	Non-availability charge assessed to SC of the resource (if outside of the dead band)
6	a. Ambient Card submitted for Outage due to events beyond the control of the resource operator (e.g. earthquake, environmental limits, other catastrophe)	a. No financial impact to SC of the resource
	b. Ambient Card submitted for Outage due to predictable temperature events that could be reasonably anticipated by the resource operator	b. Non-availability charge assessed to SC of the resource (if outside of the dead band)
7	Normal Card submitted for an Outage	No financial impact to SC of the resource
8	Forced Outage converted to Planned Outage after 72 hours	Outage counted toward non-availability charge (if outside of the dead band) for first 72 hours, with remaining duration not counted against availability

Notes:

- As noted in Table A, scenario 4 and 8, a Scheduled Outage created and approved after the due date for RA reports (approx one month before the actual month) does not impact the counting of the RA resource under the CPUC's counting rules because the LSE cannot be held to procure additional capacity after the filing due date. There would be no financial impact under the SCP.
- Wind, solar, Qualifying Facility and demand response RA resources are subject to all CPUC Scheduled Outage counting rules, but there will be no financial impact for Forced Outages at the start of SCP because the application of non-availability charges and availability credits for these types of resources has been deferred (see discussion at the end of this section).

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### Financial Impact Examples

Table C

Assume: Monthly target availability value of 93.5% (Tolerance of band 91.0-96.0%)  
 Applicable replacement capacity price of \$41/kW-year

Scenario A: Non-Availability Charge \$ < Availability Credits \$

In this scenario, there were more SCP MWs that exceeded the availability target and tolerance band (96.0%) than there were below this range (91.0%). In this case 20.8 MW exceeded vs. 15.2 MW that did not.

Resource	Availability %	Status	SCP MW	MW Below Target	Non-Availability Charge (MW *1000)* \$41/12)	MW Above Target	Availability Credit (MW * Credit)
1	94%	=	100	0	\$0	0	\$0.00
2	93%	=	100	0	\$0	0	\$0.00
3	98%	>	200	0	\$0	3.2	(\$7,989.74)
4	97%	>	200	0	\$0	1.6	(\$3,994.87)
5	90%	<	300	-4.2	(\$14,350)	0	\$0.00
6	100%	>	400	0	\$0	16	(\$39,948.72)
7	80%	<	100	-11	(\$37,583)	0	\$0.00
8	93%	=	200	0	\$0	0	\$0.00
9	95%	=	300	0	\$0	0	\$0.00
10	92%	=	100	0	\$0	0	\$0.00
			<b>Total</b>	<b>-15.2</b>	<b>(\$51,933)</b>	<b>20.8</b>	<b>(\$51,933.33)</b>
						Credit per MW	(\$2,496.79)
						Capped Credit per MW (replacement capacity price * 1000/12 * 3 = \$10,250)	N/A
<b>Total charges due (did not meet target availability)</b>						<b>(\$51,933)</b>	
<b>Total credits (exceeded target availability)</b>						<b>(\$51,933)</b>	
<b>Excess distributed to load</b>						<b>\$0</b>	

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Table D

Scenario B: Non-availability charge \$ > Availability credit \$ (with 1 unit below 50% availability)

In this scenario, the amount of SCP MWs below the availability target was greater than the amount that exceeded the target (104.2 MW vs. 20.8 MW). Additionally the non-availability charges \$ exceeded the cap (3 times the replacement cost price). In this case the capped credit amount is used to calculate the credit for those who exceeded target availability. The amount of non-availability charges \$ that were collected over the capped amount was distributed to load.

Resource	Availability %	Status	SCP MW	MW Below Target	Non-Availability Charges (MW *1000)* \$41/12)	MW Above Target	Capped Availability Credit (MW * Capped Credit)
1	94%	=	100	0	\$0	0	\$0.00
2	93%	=	100	0	\$0	0	\$0.00
3	98%	>	200	0	\$0	3.2	(\$32,800.00)
4	97%	>	200	0	\$0	1.6	(\$16,400.00)
5	90%	<	300	-4.2	(\$14,350)	0	\$0.00
6	100%	>	400	0	\$0	16	(\$164,000.00)
7	49%	<	100	-100	(\$341,667)	0	\$0.00
8	93%	=	200	0	\$0	0	\$0.00
9	95%	=	300	0	\$0	0	\$0.00
10	92%	=	100	0	\$0	0	\$0.00
			<b>Total</b>	<b>-104.2</b>	<b>(\$356,017)</b>	<b>20.8</b>	<b>(\$213,200.00)</b>
						Credit per MW	(\$17,116.19)
						Capped Credit per MW (replacement capacity price * 1000/12 * 3)= \$10,250	(\$10,250.00)
						<b>Total charges due (did not meet target availability)</b>	<b>(\$356,017)</b>
						<b>Total credits (exceeded target availability)</b>	<b>(\$213,200)</b>
						<b>Excess distributed to load</b>	<b>(\$142,817)</b>



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### Reporting

The ISO proposes to include the following information in an annual report that will be posted by June 1 of each year:

- Annual target availability value; and
- Information on the average availability of the RA fleet, total non-availability charges assessed; and total availability credits issued.

### Deferral for Wind, Solar, Qualifying Facility and Demand Response Resources

There are several types of RA resources whose Qualifying Capacity (“QC”) value is calculated each year based on historical actual hourly output data, which, by its nature, may include some Outage hours that occur during the period during which actual output is measured in determining the QC. These RA resources include wind, solar and Qualifying Facility resources. Therefore, if the availability standard discussed herein were to be applied to these types of resources, then those resources may be put in a position where Outages may be double-counted. The ISO supports a uniform standard that will apply to all RA resources, but recognizes that some changes may need to be made to the CPUC and LRA counting procedures to reflect that the QC of these types of resources is already de-rated to reflect actual output and may include some level of Outages. Therefore, the ISO proposes that the availability standard and incentives initially will not apply to RA resources whose QC value is calculated each year based on historical actual hourly output data that may include some Outage hours that occur during the period during which actual output is measured. This means that wind, solar and Qualifying Facility RA resources initially will not be subject to these the availability standard and incentives of the SCP. The deferral of these provisions to these types of RA resources is temporary, and in the future the ISO will revisit the applicability of these provisions to wind, solar and Qualifying Facility RA resources. The ISO will coordinate with the CPUC and LRAs on changes that may be made in the future to prevent double-counting of Outages.

Several types of DR resources currently count for RA. Some of the RA DR resources have an ISO Resource ID, but most of the RA DR resources do not have an ISO Resource ID nor do they report Outage data to the ISO. Rather than have some portion of RA DR resources be subject to the availability standard and incentives at implementation of the SCP and have other DR resources that are not subject to these provisions because of factors such as some DR resources do not have a Resource ID and some do not report Outage data, the ISO proposes to defer applicability of these provisions to RA DR resources until the time when dispatchable DR functionality has been implemented under MAP after MRTU startup. The ISO will revisit applicability of these provisions to RA DR resources in the context of, or in parallel with the DR proceeding, as well as the timing of implementation of dispatchable DR functionality.

### Exemption for Liquidated Damages Energy Contracts

Liquidated damages energy (“LD”) contracts are financial contracts and are not physical contracts tied to a specific resource. Energy from LD contracts is delivered internal to the ISO and the ISO does not know where the LD contract was sourced from. Furthermore, this type of RA capacity is not subject to Outage reporting requirements

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and does not have associated Outage data upon which to measure availability and apply the incentives. The ISO supports a uniform standard that will apply to all RA resources, but recognizes that since this type of RA resources are not represented by a physical resource it is not possible to apply the availability standard and incentives to LD contracts. The ISO notes that the quantity of such RA capacity has decreased each year over the last three years and the use of LD contracts for RA purposes has been phased out by the CPUC as of 2008, i.e., 2008 was the last year that these types of resources were allowed to count for RA by the CPUC (there is one exception, for CDWR contracts). The ISO strongly encourages LSEs to not procure these contracts for RA purposes.

### Different Approach for Non-Resource-Specific RA Imports

Non-resource-specific RA imports that are not tied to a specific resource pose a dilemma for the ISO<sup>22</sup>. The root of the dilemma is that such RA capacity is not subject to Outage reporting requirements and does not have associated Outage data upon which to measure availability and apply the financial incentives. At the same time, the quantity of this type of RA capacity is significant enough that the ISO is reluctant to simply waive the availability standard and incentives for this capacity. The ISO would therefore like to determine a way to measure availability for this type of import capacity in a manner that is meaningful and reasonable given the absence of an associated physical supply resource, and that will provide appropriate incentives to maximize availability.

The ISO proposes to measure availability for non-resource-specific RA resources based on the offer of the capacity into the ISO markets. Under MRTU, RA imports must offer into the Day-Ahead market the full amount of their RA capacity and will have to establish a Resource ID to be able to conduct these transactions. Since imports have to schedule with a Resource ID under MRTU, the ISO could track the extent to which each RA import resource offers into the Day-Ahead market the full amount of its RA capacity. Thus non-resource-specific RA imports could be held to a target availability value and the ISO could apply non-availability charges and allow these resources to be eligible for potential availability credits. The ISO proposes using a monthly target availability value of 100% of RA hours for this type of RA resource. If there is a path or branch group de-rate during a month it will not be counted against the non-resource-specific RA import resource's availability in that month.

Non-resource-specific RA imports will be separated into a distinct SCP category. This category will have its own self-funded account where monies that come in from non-availability charges assessed to non-resource-specific RA imports will be used to fund availability credits to non-resource-specific RA imports. Separate accounting is necessary as the metric for non-resource-specific RA imports is different than the metric for other types of SCP RA resources and needs to be treated separate from the other SCP capacity.

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<sup>22</sup> Note that resource-specific RA imports will be treated like other RA resources (such as thermal resources) and will be subject to the availability standard and incentives. Path or branch group de-rates in a month will not affect the availability calculation for resource-specific RA imports during that month.

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The target availability for non-resource-specific RA imports will be set each month at 100.0% with no dead band.

The “price” value in the non-availability charge formula will be the replacement cost (or ISO “backstop” cost) of capacity that is established in the ISO Tariff. That value is currently \$41/kW-year, as established in the Interim Capacity Procurement Mechanism (“ICPM”) provisions.<sup>23</sup> The ISO intends that the price value of the successor to the ICPM would be used in the SCP non-availability charge formula.

The money collected from non-availability charges assessed to non- resource-specific RA imports will be used to provide availability credits to non-resource-specific RA import resources that achieve 100% for the period.

As is discussed in the sections above for the non-availability charge that will be assessed to internal RA resources, the ISO proposes to “cap” the potential availability credit each month that may be available to non-resource specific RA imports so there is not a windfall to just a few entities that are above the target availability value and return any excess non-availability charges funds by putting those funds into Real Time neutrality and paying the funds back to measured demand. The ISO proposes to use three times the non-availability charge rate that is charged to non-resource-specific RA resources that fail to meet the target availability as the maximum rate to pay the non-resource-specific RA resources that exceed the target availability. Thus, RA resources that exceed the target availability never get paid more per MW than three times the non-availability charge rate, but may get less if not enough non-availability charges funds are collected. If there is any remaining surplus, then that surplus would be put it into Real Time neutrality and paid back to measured demand.

In the case of a month where there are non-availability charges funds paid by non-resource-specific RA imports, but no non-resource-specific RA import resource has qualified as eligible to receive availability credits, then the non-availability charges funds will be placed into Real Time neutrality and paid back to measured demand.

Non-resource-specific RA import resources will not be included in the calculation of the target availability value for other RA capacity as these resources have their own unique metric.

It is assumed that any resource-specific RA import capacity will be treated like internal RA resources for purposes of SCP: the resources would use SLIC to report Outages, and the ISO would insert default bids for the resources if the resources fail to offer their RA capacity and are not on an Outage.

## 7 UNIT SUBSTITUTION

The ISO proposes to adopt a provision to allow a supplier of RA capacity that is tied to a specific generating resource the ability to substitute an alternative resource in the event the RA resource is on an outage, and by means of such substitution to avoid counting the outage of the RA resource toward the monthly availability assessment. This provision will offer reliability benefits by encouraging the availability of otherwise non-RA

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<sup>23</sup> The ICPM tariff, including the pricing provisions, sunsets on December 31, 2010.

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capacity when RA resource outages occur, provided the substitute is comparable to the original RA resource. This is an advantage for both the SCs and the ISO – SCs can potentially avoid non-availability charges by requesting substitution and the ISO may be able to avoid backstop procurement by suggesting a unit substitution in the event of a forced outage.

Resources designated to meet local RA needs will be required to prequalify their alternate units. Suppliers will need to provide their unit substitution requests along with their supply plans in advance of the coming year. An ISO evaluation will be done to ensure that the substitute resource is a resource which appears to be capable of providing system reliability benefits equivalent to the system reliability benefits provided by the original RA resource. This will be done in advance of the compliance year so that the ISO will not need to assess the acceptability of the substitute in real time. A template will be provided for submitting these requests to the ISO.

When a supplier has a forced outage, they may request a substitution from their pre-approved list in the day-ahead time frame, prior to the close of the IFM. The ISO would have the discretion of approving this request based on the prevailing system conditions.

Some stakeholders have suggested that resources should be able to substitute any non-RA resource in the same LCA and that requiring pre-approval is holding substitute resources to a higher standard than the original resources listed in the supply plan. The ISO's view is that the additional scrutiny is appropriate. In the annual showing the ISO takes all of the supply plans that it receives and ensures that that the configuration of submitted resources and MWs provide the right mix to cover the capacity needs. During the year, if a resource has a forced outage and wants to substitute another resource, the ISO must evaluate whether that unit will maintain that same balance and provide the same benefit. The fact that a unit is in the same Local Area does not necessarily mean that it will provide the same benefit.

Resources designated for system RA needs will not be required to pre-qualify alternate units for substitution. If a system RA unit has an outage that will count against its availability, the supplier, prior to the close of the IFM, may request the use of a non-RA unit to be used in the place of the original unit. The ISO will make every effort to accommodate these requests to the extent that they provide the same level of reliability as the originally designated resource. For example if a supplier requests a substitute unit that would still cause the ISO need to procure backstop capacity, that unit substitution request would be denied.

## 8 CREDIT REQUIREMENTS

Most stakeholders who commented did not see the need for credit requirements. A few agreed that credit requirements would be necessary if financial penalties were assessed and suggested they be netted with the SCs entire portfolio.

In the updated straw proposal the ISO suggested that since the penalties due to unavailability would not be used to fund the procurement of a backstop, no specific credit requirement should be necessary for Scheduling Coordinators (SCs). At the MSC/Stakeholder meeting the SCP team updated its proposal, indicating that SCs for

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capacity resources should be responsible for creditworthiness due to the obligation to pay the bonus incentive to SCs of resources to exceed the target availability metric.

Based on stakeholder comments and additional internal discussions, the ISO believes that there is no need for a “special” credit policy for SCP. The general credit policy, as described in Section 12 of the ISO tariff, should provide sufficient credit coverage. This is based on the following considerations:

- SCP performance penalty will appear as a new charge type on the monthly invoice, similar to the penalty for un-instruction generation deviation, and is part of the liability of each SCs portfolio.
- Most RA providers are creditors of the ISO. The penalty may be netted out with the provider’s credit on the same invoice on the same invoice.

Additional details about the general credit policy are provided in the Business Practice Manual for Credit Management.

### 9 TRANSITION ISSUES

LSEs sign bilateral contracts with resources to meet their RA obligations. While most stakeholders support the concept of SCP (which standardizes availability standards in the ISO tariff rather than requiring unique language in each RA contract), some parties are concerned that upon SCP implementation they will be exposed to conflicting or duplicate availability standards and incentives due to the provisions in their existing contracts. It is our understanding that some current contracts contain availability standards that may expose contracting parties to double penalties. In other contracts, SCs or LSEs may not be able to pass penalty assessments on to resource owners.

In our recent stakeholder forums, a number of stakeholders have expressed a desire to allow existing contracts a transition period before moving to SCP. To this end the ISO requested that stakeholders offer proposals describing more precisely how appropriate transitional arrangements might be structured to address these concerns, and in response received only two specific proposals (a set of joint comments by NRG Energy, Reliant and SDG&E and a suggestion by SCE). On December 12<sup>th</sup> the ISO sent out a market notice with a questionnaire to gather information related to existing resource adequacy contracts that stakeholders felt would need grandfathering. The ISO received a total of 20 responses, 12 submitted by RA Resources and 9 from LSEs with RA contracts (one entity filled out both types of questionnaire).

Based on the data received and subsequent stakeholder conversations the ISO has developed a proposed solution to the transition issue that enables parties to grandfather their contracts while still providing additional certainty that RA capacity will be available to the ISO. These are the elements of the ISO’s proposal:

<b>Contracts signed:</b>	<b>Grandfathering Status</b>
Before January 1, 2009	Exemptions will be provided for the current term of the RA contracts. Renewals and evergreen type extensions will not extend the term of the grandfathering. Resources will be required to certify the start date of the contract, the expiration date, the resource ID and the amount of capacity that will be grandfathered.

## ISO Draft Final Proposal

After January 1, 2009	No grandfathering will be available for these contracts.
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Stakeholders who require a "transition period" from their existing RA contracts to the SCP will be able to exempt their contracts based on the timeframes and limitations provided in the table. The ISO will require a supplier to provide certification of the start and end dates of the contract, the Resource ID, the contracted LSE and the number of MW for grandfathering. Although the timing for this documentation has not been finalized, the ISO will need this information soon after FERC approval in order to provide information on the 2010 NQC list that will be published in July. At the very latest, the grandfathering requests would need to be submitted and validated prior to January 2010. The ISO will need to establish the expiration date for the grandfathered Non-SCP MW of each contracted resource in our systems. A market notice will provide the details of this schedule.

Contracts that were signed before January 1, 2009 and did not have an opportunity to consider the upcoming SCP availability standards when their contracts were signed will be able to maintain their exemptions for the primary term of the contract. Once the contract expires, or if the parties decide to end their exemption prior to contract expiration, the RA capacity associated with that contract will be subject to the SCP tariff provisions. Novations will be accepted as long as they do not change the initial term of the contract or the amount of MW of RA capacity.

Once the initial term of the grandfathered contract expires, the MWs associated with those contracts will be subject to the tariff provisions of SCP.

In addition to the revisions provided in the table above, the ISO has also considered the case of a resource that has RA capacity for grandfathered contracts along with RA capacity that is not grandfathered and is subject to availability standards, charges and credits of the Standard Capacity Product. The follow examples show how the availability will be impacted when a resource with this type of arrangement has an outage that counts against availability.

### Sample Resource Data:

- Pmax = 600 MW
- Sold RA Capacity = 400 MW made up of:
  - Grandfathered RA Capacity (non-SCP MW) = 300 MW
  - SCP MW = 100 MW

### Calculation to determine the SCP MW subject to count against availability:

$$\text{Max } \{0, (\text{Total Outage MW} - [\text{Pmax} - \text{Total RA Sold}])\} * (\text{SCP MW} / \text{Total RA MW})$$

### Outage example 1 – 50 MW forced outage

In this example the capacity of the unit has been reduced from 600MW to 550 MW. The total RA Capacity that was sold (SCP MW and Non-SCP MW) is equal to on 400 MW of the unit. Because the total RA capacity that was sold is not affected by the outage, it would not count against the SCP availability standard.

$$\text{Max } \{0, (50 \text{ MW} - [600\text{MW} - 400 \text{ MW}])\} * 100\text{MW}/300\text{MW}$$
$$0 \text{ MW} * 25\% = 0 \text{ MW of SCP subject to count against availability}$$

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### Outage example 2 – 400 MW forced outage.

In this scenario the capacity of the unit has been reduced from 600 MW to 200 MW. The total RA capacity that was sold will be affected by this outage by 200 MW. The first 200 MW of the outage were not sold as RA capacity, but the last 200 MW of the outage will be applied to the sold RA capacity pro-rata between the SCP and Non SCP MW.

$$\text{Max } \{0, (400 \text{ MW} - [600\text{MW} - 400 \text{ MW}])\} * 100\text{MW}/300\text{MW}$$
$$200 \text{ MW} * 25\% = 50 \text{ MW of SCP subject to count against availability}$$

### Outage example 3 – 600 MW forced outage

In this scenario the entire unit is forced out and all of the RA MW sold as SCP will be counted against availability.

$$\text{Max } \{0, (600 \text{ MW} - [600\text{MW} - 400 \text{ MW}])\} * 100\text{MW}/300\text{MW}$$
$$600 \text{ MW} * 25\% = 100 \text{ MW of SCP subject to count against availability}$$

## 10 OTHER ISSUES

### **Metered Subsystems (MSS)**

The SCP availability standard and incentives cover Metered Subsystems the same as any other type of LSE. With regard to Load Following MSS the current BPM Section 6.3 and Tariff Section 40.2.4 explain that Load Following MSS must provide an annual RA Plan but no monthly submissions are required. Section 40.3 subjects Load Following MSS to Local Capacity Area RA requirements, whereas Section 40.6 of the tariff exempts Load Following MSS from the RA must offer requirement. The ISO expects therefore that the SCP availability standard and incentives would apply only to the Local Capacity Area RA capacity submitted by a Load Following MSS.

### **RA less than Pmin**

Section 40.4.3 of the MRTU tariff describes the general qualifications for supplying NQC. One situation that had not been contemplated when writing this section was when a resource is contracted for an RA amount that is less than the Pmin of the committed unit. In an upcoming MRTU 205 filing with FERC, the ISO remedies this omission by adding language that “For a resource with contractual Resource Adequacy capacity less than Pmin be available to the ISO for commitment or dispatch at Pmin subject to tariff provisions for Bid Cost Recovery so that the resource’s Resource Adequacy capacity can be utilized as required by this CAISO Tariff.”

**RA Registry** – This is an implementation feature that may be deferred for a future release.

**Bulletin Board Feature** – This is an implementation feature that may be deferred for a future release.

## 11 NEXT STEPS

February 27 – Publish 2<sup>nd</sup> Final Draft Proposal

March 6 – Written comments due to [SCPM@caiso.com](mailto:SCPM@caiso.com)

March 26, 27 – Board of Governors Decision

## ISO Draft Final Proposal

April – File Tariff language.



## Attachment D

# Memorandum

To: ISO Board of Governors  
From: Laura Manz, Vice President - Market & Infrastructure Development  
Date: March 18, 2009  
Re: *Decision on Standard Resource Adequacy Capacity Product and Resource Adequacy Must Offer Obligation*

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

In response to stakeholders' request to develop a standard capacity product to facilitate buying, selling and trading of capacity to meet RA requirements, Management proposes the ISO Board of Governors (the Board) adopt a *standardized trading platform* for resource adequacy (RA) contracting. This platform should streamline the contracting process and provide incentives for resource owners to increase their availability to the California Independent System Operator Corporation (the ISO). Management also proposes expanding the current *RA must offer obligation*<sup>1</sup> to include ancillary services in addition to energy. These enhancements should result in improved market and grid operations.

Management recommends this in order to:

1. Improve grid reliability;
2. Streamline stakeholder contracting and improve tradability;
3. Meet regulatory requirements; and
4. Implement standard RA capacity product promptly.

## MOTION

*Moved, that the ISO Board of Governors approves the policy to implement the standard resource adequacy capacity product and enhance the resource adequacy must offer obligation to include ancillary services, as detailed in the memorandum dated March 18, 2009, and*

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<sup>1</sup> The must offer obligation is a requirement that scheduling coordinators for RA resources make their RA capacity available to the ISO in accordance with Section 40.6 of the ISO tariff.

***That the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement these changes.***

## **BACKGROUND**

The development of the *standard RA capacity product* has been an evolutionary process, beginning in 2007 with a proposal submitted to the California Public Utilities Commission (CPUC) by a broad coalition of stakeholders during the Commission's long term RA proceeding.<sup>2</sup> In this proposal, stakeholders suggested that the ISO adopt certain tariff amendments to standardize aspects of bilateral RA contracts, to facilitate the contracting process. Stakeholders sent a follow up letter reiterating this request, which was provided to the Board in early 2008. The standard RA capacity product was included in the ISO's *Market Initiatives Roadmap* and in July 2008 was identified as stakeholder's highest priority initiative out of a list of over 70 other projects.

## **CRITERIA**

Management used four criteria in the development of the standard RA capacity product proposal.

1. *Improve grid reliability* – The proposal should enhance grid reliability through an accepted set of standards and incentives in the tariff that will increase the availability of RA resources;
2. *Streamline stakeholder contracting* – The proposal should facilitate stakeholder contracting negotiations through a common set of standards in the ISO tariff;
3. *Meet regulatory requirements* – The proposal should address regulatory requirements of both the Federal Energy Regulatory Commission (FERC) and the CPUC. In its September 21, 2006 order, FERC required the ISO to create performance criteria for RA resources within 12 months of the start up the Market Redesign and Technology Upgrade (MRTU). The CPUC initiated Phase 2 of its resource adequacy proceeding which requested proposals for a standard RA capacity product; and
4. *Implement standard RA capacity product promptly* – The proposal should account for implementation constraints that will enable implementation in time for 2010 RA showing (in October 2009).

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<sup>2</sup> CPUC – Amended proposal of Calpine Corporation, Coral Power, L.L.C., Constellation Energy Commodities Group, Inc., Constellation Newenergy, Inc. J. Aron & Company, Pacific Gas and Electric Company, Strategic Energy, L.L.C., Alliance for Retail Energy Markets, Western Power Trading Forum, Mirant California, LLC, Mirant Delta, LLC and Mirant Potrero, LLC, APS Energy Services and Energy Users Forum (“Joint Parties”) for a Standardized Resource Adequacy Contract and Associated Resource Obligations, Rulemaking 05-12-013 Order Instituting Rulemaking to Consider Refinements to and Further Development of the Commission's Resource Adequacy Requirements Program (Dec 12, 2007).

## STAKEHOLDER PROCESS

In August 2008, Management began the stakeholder process by publishing an issue paper which described the breadth of issues associated with standard RA capacity product design. Stakeholders provided a wealth of oral and written comment for a straw proposal created and published in November 2008. Management proposed a set of principles to define the product, set forth availability standards based on each specific resource's forced outage data, and suggested that a performance incentive structure could be established either on a financial basis (apply penalties and bonuses) or physical basis. Doing so on a physical basis means reducing the amount of capacity that a resource is qualified to sell in fulfillment of RA obligations due to its lack of availability. If a physical penalty is imposed, the resource's capacity is reduced in the next period, not immediately reducing the amount of capacity a resource can offer in future years due to poor performance. Stakeholders (including Calpine, State Water Project (SWP), California Energy Resources Scheduling (CERS), California Forward Capacity Market Advocates (CFCMA), California Municipal Utility Association (CMUA), CPUC, and The Utility Reform Network (TURN)) preferred financial penalties because the impact was more immediate and direct.

Based on stakeholder input, in December 2008 Management produced an updated straw proposal which further streamlined and clarified the elements of the standard RA capacity product. One significant change in this proposal, based on overwhelming stakeholder agreement, was the move to a single availability target based on the historic performance of the RA resource fleet during peak hours of the previous year, rather than a unit-specific metric for each resource. Many stakeholders (including Calpine, CFCMA, California Wind Energy Association (CalWEA), Alliance for Retail Energy Markets (AREM), Pacific Gas & Electric (PG&E), and Mirant) commented that the standard should be calculated in this manner because the resource specific proposal treated poorer performing units in the same manner as high performing resources. A "stellar" performer could be penalized for performing a little worse than last year while a "poor" performer may not be penalized at all for providing the same poor performance. Another key element was the decision to adopt performance incentives that were financially based rather than applying adjustments to the amount of a resource's available capacity. Management added a new unit substitution feature to the proposal to increase flexibility for resource owners to avoid financial penalties while on a forced outage.

Many stakeholders were concerned that the implementation of the standard RA capacity product could conflict with provisions of existing contracts and wanted to ensure there would be no overlap in performance requirements. In January of this year, the *Draft Final Proposal*, among other things, outlined rules for contract holders that wished to grandfather their existing RA capacity arrangements.

Another significant change in the *Draft Final Proposal* was the deferral of the standard RA capacity product implementation for RA resources whose qualifying capacity, as determined by the CPUC, was based on historic actual output data. Management determined that these types of resources may be double-penalized if performance standards were applied to their already limited capacity. These types of resources include wind,

solar, Qualifying Facilities<sup>3</sup> and demand response. Management plans to revisit the treatment of these resource types in conjunction with future changes to the CPUC counting rules.

Also, based on stakeholder input, Management further refined the availability standard to change the performance metric so that is based on 3 years of historic data rather than a single year.

In early February Management produced a white paper targeting specific issues for further discussion, in preparation for the 2<sup>nd</sup> Draft Final Proposal published at the end of February. This final paper refined the proposal based on additional stakeholder discussions and input. The grandfathering proposal was significantly liberalized to enable contract holders to exempt any contract signed prior to January 1, 2009 from compliance with standard RA capacity product availability rules. Also, Management made the availability standards more specific by establishing a target availability value for *each month* based on the actual RA fleet forced outage data during each respective month over the last three years rather than a single target for the entire compliance year. Finally, Management further defined the availability standard related to ambient outages and further refined the unit substitution proposal.

## RECOMMENDATION

The current RA process has been functioning since 2006, though with significant limitation because it lacks standardized availability standards for RA contracted resources. As a result, currently there are no provisions designed to meet the ISO's reliability needs or to provide a standardized contractual framework for trading RA capacity among market participants. Therefore, Management is recommending certain enhancements to be implemented in time for the 2010 RA contracting year:

- Implementation of an availability standard in the ISO tariff. To ensure enough generation capacity to meet ISO needs, Management expects that the full contracted amount of capacity of RA resources will be available to the ISO, i.e., the resource is not on a forced equipment outage or derate that diminishes its ability to provide the full amount of its contractual capacity obligation. Under the standard RA capacity product, resource availability will be measured on a monthly basis and compared against a single availability target based on the historic performance of the RA resource fleet during the peak hours of each month of the previous three years.
- Implementation of availability incentives. This proposal will provide incentives for each resource to meet or exceed the target availability standard. On a monthly basis Management will assess non-availability charges to resources whose availability fall short of the target and will provide credit payments to resources whose availability exceeds the target. Availability payments will be funded on a revenue-neutral basis through the financial penalty revenues.
- Functionality to allow for resource substitution. This provision allows a supplier of RA capacity tied to a specific generating unit to substitute an alternative resource in the event of a forced outage. The

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<sup>3</sup> A Qualifying Facility (QF) is a generating facility which meets the requirements for QF status under the Public Utility Regulatory Policies Act of 1978.

resource owners benefit from this provision by avoiding potential charges for non-availability and the ISO benefits by allowing additional flexibility to avoid backstop procurement.

In conjunction with the standard RA capacity product effort, Management also recommends a critical enhancement to the existing RA must offer obligation that will enable the ISO to optimize use of the energy supply and ancillary services capabilities of RA capacity in its markets. The addition of the ancillary services must offer obligation will not alter the RA must offer obligation as defined today, nor will it be dependent on whether or not the RA capacity is subject to the standard RA capacity product availability provisions. Rather, this feature simply allows the ISO to optimize the use of energy and ancillary services of RA capacity resources subject to the RA must offer obligation.

#### **MANAGEMENT RECOMMENDATION**

Management recommends that the Board approve the standard resource adequacy capacity product proposal and resource adequacy must offer enhancements as described above.



## Attachment E



FINAL

**The California ISO's Standardized Resource Adequacy Capacity Product Proposal**  
by

**Frank A. Wolak, Chairman**

**James Bushnell, Member**

**Benjamin F. Hobbs, Member**

**Market Surveillance Committee of the California ISO**

March 12, 2009

**Executive Summary**

The ISO's standard capacity product process is best thought of as supplementing the must-offer obligation for Resource Adequacy (RA) capacity, rather than fully defining a standardized capacity product. The must-offer obligation is described in Section 40 of the ISO tariff, but at this time those tariff provisions do not specify any performance standards or compliance incentives to ensure the availability of RA capacity. The ISO's standard capacity product (SCP) proposal addresses this gap and is therefore a timely and important step toward strengthening the must-offer obligation and defining a standardized RA product. One of the ongoing criticisms of the current RA process is the ambiguity behind what exactly is being "bought" (or sold) in a RA transaction. Under the current framework, a supplier of RA capacity is selling a commitment to comply with the ISO's must-offer obligation. This links the must-offer requirement and the RA process. It is therefore very important to recognize this effort as one that formalizes availability standards to support the must-offer requirement (no matter how that requirement is procured) rather than standardizing "capacity."

That said, we fully support the efforts to formalize and define the concept of availability under the must-offer obligation. However, the process itself highlights the potential weaknesses of having a must-offer obligation as the central deliverable "product" provided by the RA process. Three areas of concern with the current proposal are: (1) separate standards applied to different resource types, (2) the measurement of the hours over which performance measured, and (3) the relatively mild financial incentives provided by the mechanism overall. We suspect that in the future, all of these elements will have to be revisited in developing a comprehensive policy for long-term resource adequacy.

**1. Introduction**

This opinion comments on the California Independent System Operator's (ISO) standardized capacity product (SCP) proposal. The primary motivation for the SCP proposal is to create a capacity product with standardized features to facilitate trading of Resource Adequacy (RA) capacity. The two key elements of the SCP design are: (1) the inclusion in the ISO tariff of availability standards for RA capacity and to provide incentives for suppliers of this capacity to adhere to those standards and (2) a clear statement of the applicability of these standards and incentives to specific generation units or contract arrangements. The ISO's SCP proposal also is accompanied by a separate ancillary services must-offer obligation (AS MOO) proposal for

generation units that sell RA capacity. Specifically, the criteria for determining whether a resource is subject to AS MOO are not the same as the criteria for determining whether a resource is subject to SCP availability tracking and performance incentives.

This opinion is based on the document, “Second Final Draft Proposal: Standard Resource Adequacy Product” dated February 27, 2009. MSC members have also participated in a several joint MSC/Stakeholder meetings where this topic was discussed. The most recent meeting was on December 11, 2008. We are grateful for the ISO staff and stakeholders for their participation in these meetings.

A standardized capacity product defined in the ISO tariff should lower the transactions costs associated with the purchase and sale of RA capacity. For that reason, we support the SCP proposal’s goals of establishing availability standards and incentives for compliance with these availability standards for RA capacity. However, we also recognize the potential downside of formalizing a standardized capacity product in the ISO tariff. The ISO tariff could list requirements for a SCP that ultimately increase the cost of providing RA capacity with no corresponding system reliability benefit. Specifically, the tariff could impose requirements for the SCP that a significant number of existing or proposed resources are unable to meet. To avoid specifying features that do not increase liquidity in the market for RA capacity or enhance system reliability, we support a cautious approach to specifying characteristics of the standardized capacity product.

The ISO’s SCP proposal is consistent with this cautious approach. However, we continue to be concerned that the RA process focuses on purchasing capacity subject to a must-offer requirement. Consequently, we believe the current SCP proposal is better described as the “must-offer availability measurement and enforcement mechanism,” because the proposal concentrates on measuring deviations from the must-offer obligation through forced outages and derates, and penalizing generation units for failing to meet the availability standards associated with the must-offer requirement. However, there a number of aspects of the must-offer obligation that limit its ability to provide the appropriate incentives for market participants to make available sufficient generation capacity each hour of the day for the ISO operators to meet their energy and ancillary services needs. The remainder of this opinion describes the strengths of the current SCP proposal, potential shortcomings, and suggestions for future enhancements.

## **2. Forced Outage Tracking and Generation Unit Availability Measurement**

Standardized approaches to tracking forced outages and computing the availability factors for generation units are an essential first step to improving the performance of the RA process. For example, if all market participants know that a forced outage rate or availability factor is computed the same way for all generation units in the ISO control area, this will allow them to make more informed choices about how to best meet their local and system-wide RA capacity needs.

Nevertheless, we are concerned that current focus of the SCP on forced outages only, rather than all generation outages not planned in advance, may undermine the ultimate goal of

improving system reliability. For example, whether an outage is classified as a forced outage depends on how much advance notice is given to the ISO operators. If the ISO is notified of an outage more than three days in advance, then that outage is not classified as a forced. However, the ISO may decide not to grant a generation unit's request for an outage when this request is made more than three days in advance. If the unit owner subsequently has an outage, then this outage will be classified as a forced. The SCP's focus on forced outages alone does not penalize generation unit owners that are able to anticipate their unit failures or de-rates three days in advance.

In general, we believe that outages, whether planned or forced, during times when capacity is needed by the ISO operators should be treated symmetrically in terms of economic penalties. We recommend that in the future ISO require generation unit owners to provide it with greater advance notice for scheduled and maintenance outages and then have all subsequent unit outages regardless of the cause count as forced outages. Specifically, generation unit owners could update their annual maintenance schedule before the start of each month, subject to the approval of the ISO. Any other outages that prevent a unit owner from making its full RA capacity available to the ISO markets during that month would then be counted as forced outages. A mechanism that treats outages symmetrically should not create incentives for resource owners not to undertake sufficient maintenance activities.

The SCP proposal excludes a significant amount of generation resources from the calculation of the target availability value that is used to assess penalties and pay credits: liquidated damages energy contracts, use-limited resources, and non-resource specific RA imports. Use limited resources (ULRs) are only excluded from the calculation of the target availability value for the first year of the SCP. They are to be included in the calculation starting the following year as compatible availability data from ULRs becomes available. Non-resource specific RA imports are subject to a 100 percent availability standard. Intermittent resources (wind and solar generation units) are temporarily deferred from the SCP provisions. Although we understand the ISO's reasons for treating each type of resource differently, this approach can undermine the representativeness of the resulting target availability factor and its use as a basis for assessing penalties and paying credits. Moreover, these exemptions can limit the benefits realized from creating a standardized capacity product because certain resource types must meet different performance standards. This differential treatment of resources also creates an incentive for load-serving entities to procure less reliable resources to meet their RA obligations whenever possible because these resources are likely to be offered at a lower price than resources subject to the SCP availability standard and performance mechanism.

### **3. All Hours Do Not Require the Same Amount or Type of Available Generation Capacity**

The ISO's proposal recognizes the fact that different hours of the day and different months of the year require different levels of generation availability and have different costs to system reliability for a failure to meet availability standards. However, within the designated peak hours of the day—from 14:00 to 18:00 from April to October and 17:00 to 21:00 in the remaining days of the year—the ISO proposal does not distinguish between the significant differences that exist in the benefits associated with certain generation units being made

available to the ISO operators.

Specifically, the ISO proposal also does not recognize that having certain generation resources available provides greater system reliability benefits in some hours of the year than in other hours of the year. For example, having an in-state thermal plant located close to a major load center provides greater reliability benefits during hours when the transmission lines into the load center are congested versus hours when there is unloaded transmission capacity into that load center. This logic implies that a buyer of RA capacity obtains a more valuable service from an in-state thermal plant than it does from a liquidated damages energy contract, a use-limited resource, or non-resource specific RA import. This is partially reflected in the fact that a liquidated damages contract or non-resource specific import cannot count towards a local RA requirement. This logic also highlights the fact that in terms of system reliability, the ISO is getting something very different from a must-offer obligation applied to a thermal generation plant than it is from a use-limited or intermittent resource.

In the future, the ISO may wish to redefine the must-offer obligation as an ancillary service, with the short-term performance requirements required for such services, rather than as an element of the RA process. A must-offer obligation with the SCP availability standard and performance incentive yields much greater system reliability benefits when it is applied to an in-state fossil-fuel unit versus an intermittent wind or solar energy resource. Therefore defining the must-offer obligation as an ancillary service provided by dispatchable resources with known locations will allow an in-state thermal plant to be rewarded for the greater reliability benefits it provides. Similar to other ancillary services, the must-offer ancillary service could be provided by any generation unit that meets the performance standards required to provide that service.

#### **4. Assessment of Financial Penalties**

Assessing penalties for failing to meet the availability standard and paying credits for exceeding it provides incentives for high levels of generation unit availability. However, the appropriate target level for the availability standard should not unnecessarily burden generation unit owners, increase RA capacity procurement costs, or reduce system reliability. We understand that the current value of performance penalty of \$41/kW-year was established in the Interim Capacity Procurement Mechanism (ICPM). However, the value of the ICPM capacity payment is likely to change. For this reason, we recommend that the ISO allow for considerable flexibility in setting the levels of financial penalties and the availability standard. The values of these penalties and availability targets should be revised on an annual basis. The ISO should also be able to change them at any time if the existing values are determined to hinder efficient system operation.

Market pricing mechanisms are ideally suited to finding the appropriate penalties and rewards for maintaining high levels of system reliability. We recommend that in the future the ISO consider this approach to setting the level of penalties and rewards for high levels of system reliability. For example, a supplier that has sold a fixed-price forward contract to supply 500 MWh of energy for given hour must either purchase this energy from the short-term market or produce that energy from its own generation unit. Consequently, this supplier faces the full cost

of failing to provide energy from its generation unit, even if the short-term price rises as a result of this supplier not producing energy from its generation unit. This fixed-price forward contract also provides the proper incentives for the unit owner to make its capacity available to the short-term market. If the supplier is confident that there will be adequate energy and ancillary services capacity offered into the short-term market during a given day, this supplier may decide not to offer its capacity into the short-term market and meet its forward contract obligation through purchases from the short-term market. Therefore, a supplier with a fixed-price forward contract obligation to supply energy or ancillary services for its full RA capacity bears the full cost of any errors it might make in failing to offer its generation unit into the ISO markets. If a supplier's generation capacity does not need to be available for the system to operate reliably, the resource owner should not be penalized for failing to make its unit available to the ISO. Conversely, the resource owner should be severely penalized for failing to make its unit available if system reliability would be imperiled by this the unit being unavailable to the ISO.

We believe it is important to emphasize that far greater differences in the capacity value of specific generation resources are likely under the locational marginal pricing (LMP) market of the Market Redesign and Technology Upgrade (MRTU) relative to the current market design because of transmission constraints and other reliability constraints that will be modeled in the day-ahead, hour-ahead and real-time markets under MRTU. Certain resources are likely to receive significantly higher revenues in excess of their production cost under MRTU versus the existing market design. California's RA policies will need to be sufficiently flexible to adjust penalties and payments to reflect the greater locational benefits provided by certain generation resources under MRTU.

## **5. Resource Substitution**

We also support the use of resource substitution in the SCP proposal. If there is a unit with the equivalent effectiveness for meeting the local energy and ancillary services requirements of a generation unit that is unavailable, then substituting this unit for the unavailable unit should not create any reliability problems. However, a major challenge to implementing unit substitution is finding a generation unit that is in fact equally effective as the unavailable unit. Unless this unit is located at the exact same location in the transmission network, it is unlikely to be as effective. We therefore recommend that in the future the ISO consider a market-based approach to resource substitution.

The fixed-price forward contract solution is one such market-based approach that addresses the resource substitution problem in manner that accounts for differences in the effectiveness of the best substitute generation unit, particularly in the LMP market that will be implemented under MRTU. In particular, if a supplier does not fulfill its obligation to provide energy or ancillary services from its generation unit, then the locational marginal price (LMP) at that unit's location gives the replacement cost for that generation capacity. The solution to the day-ahead integrated forward market (IFM) yields least cost mix of available generation resources to replace that generation unit's output if it is unavailable to supply energy or ancillary services in the day-ahead timeframe. The solution to the hour-ahead scheduling process or the real-time market serves this same role if the outage occurs between the close of the day-ahead

market and the start of the real-time market. There is no need for the ISO to make a determination as to whether unit substitution is possible. The ISO markets provide the least cost mix of generation units to substitute for the unavailable unit. If the supplier has a fixed-price forward market obligation to supply a certain quantity of energy or ancillary services, then the supplier will pay the full market-determined replacement cost of failing to meet its contractual supply obligation. Although we understand the need for the ISO to start with physical substitution of resources, we recommend that it consider market-based financial approaches to achieving the same goal at lower cost to consumers.

## **6. Financial Approaches to Resource Adequacy**

As should be clear from the above comments, we support a transition towards a more market-based and incentive-based approach to designing a standardized capacity product. This product builds on an important lesson from the events of June 2000 to June 2001 in California that it is ultimately financial incentives, not the presence of adequate physical generation resources that causes suppliers to make generation capacity available to ISO market. Consequently, one approach to defining RA capacity would be to require all suppliers to sell a fixed-price cap contract equal to their RA capacity at a pre-specified strike price that clears against the LMP at their location. The ISO could set a maximum strike price, but retailers would be free to sign cap contracts at lower strike prices.

To understand how this mechanism would function, consider a generation unit that sells 100 MW of RA capacity. Associated with this 100 MW of RA capacity is a requirement to sell a cap contract for energy or ancillary services or a combination of the two that clears against the price at that unit's location with strike price of say \$150/MWh. If the unit owner sold an energy cap contract, this implies that during all hours when the LMP at that unit's location is above \$150/MWh, the unit owner would be required to pay the difference between the LMP at that location and \$150/MWh times the 100 MW of RA capacity sold. This mechanism requires the seller to bear the full cost of any local energy or ancillary services shortfall that results in prices above the strike price of the cap contract.

An advantage of this approach to the SCP is that it does not require exempting any RA capacity from the SCP process. Intermittent or energy-limited resources can manage the fact that they cannot be available or produce energy or supply ancillary services during all hours of the year through purchases from the short-term market or resource substitution. For example, a hydroelectric generation unit can sell a combination of cap contracts for energy and ancillary services equal to its RA capacity. Then this unit would be obligated to make the payments implied by these cap contracts if actual energy or ancillary service prices exceed the strike price in the cap contracts.

One might be concerned that such a strict definition of performance from suppliers who sell capacity would disadvantage renewable generation and work against the state's goals in increasing supply from such sources. This need not be the case. If the state takes its renewable requirements seriously, and enforces the goals with financial penalties for non-compliance, those goals can be met. The relative values of the underlying components of renewable generation

would change, the capacity value may be lessened and therefore the “renewable” component would necessarily become greater. This might, for example, be reflected in higher prices for renewable energy credits (RECs) if they were utilized for compliance with a portfolio standard.

We maintain that such an outcome is preferable to masking the underlying differences in performance characteristics of various types of generation. Different resources provide value to the system in many different ways, and each would ideally have its properly distinguished revenue streams. Products for long-run resource adequacy, whatever form they take, would similarly require comparable performance from all sellers, thereby creating a truly “standardized” capacity product.

## Attachment F



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UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator ) Docket No. ER06-\_\_\_\_-000  
Corporation )

PREPARED DIRECT TESTIMONY  
OF  
LORENZO KRISTOV

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1 **I. INTRODUCTION**

2  
3 **Q. Please state your name and business address.**

4 **A.** My name is Lorenzo Kristov. My business address is 151 Blue Ravine Road,  
5 Folsom, California 95630.

6  
7 **Q. By whom and in what capacity are you employed?**

8 **A.** I am the Principal Market Architect, within the Department of Market and  
9 Product Development at the California ISO (“CAISO”).

10  
11 **Q. Please describe your professional and educational background.**

12 **A.** I have 15 years of experience in the electric utility industry, which began in 1991  
13 working on demand forecasting at the California Energy Commission. In 1993  
14 and 1994 I worked in Indonesia as a Fulbright scholar on the development of a  
15 commercial and regulatory framework to support private power investment. Then  
16 at the end of 1994 I returned to the California Energy Commission and for the  
17 next few years represented the Commission in all the retail electric restructuring  
18 proceedings and stakeholder working groups that were developing the rules for  
19 Direct Access. In 1999 I joined the CAISO in the Department of Market Analysis  
20 and shortly thereafter became part of the internal team formed to reform the  
21 CAISO’s congestion management design. That effort was unfortunately  
22 interrupted by the crisis of 2000-2001, but at the end of 2001 I was able to  
23 reformulate the internal team and re-initiate the CAISO market redesign effort,  
24 which was the project known as Market Design 2002 or “MD02.” Since that time

1 I have been one of a small group of internal experts working to finalize the  
2 CAISO Market redesign proposal, now renamed "MRTU." I received a master's  
3 degree in Statistics from North Carolina State University, and a Ph.D. in  
4 Economics from the University of California at Davis.

5

6 **Q. Please describe your role in the development of the MRTU proposal.**

7 **A.** I was Team Lead on the MD02 project when it first kicked off at the end of 2001,  
8 and was a primary contributor, along with several other internal experts, to the  
9 Comprehensive Market Design Proposal that the CAISO filed on May 1, 2002,  
10 both in terms of crafting the proposal itself as well as being a primary author of  
11 the documents that comprised the filing of the proposal. After FERC issued its  
12 initial order granting conceptual approval of the basic elements of the proposal  
13 and directed the CAISO to work with stakeholders to develop further details of  
14 the design, I had a leading role in the stakeholder working groups conducted  
15 through the fall of 2002. Then in 2003 I again gathered the internal team at the  
16 CAISO to incorporate the input we had obtained through the stakeholder working  
17 group process into an Amended Comprehensive Market Design Proposal that was  
18 filed in July of 2003. Again I was a primary author on the filing. Since that time  
19 the majority of my work effort at the CAISO has been to continue to resolve  
20 further design details and policy issues related to MRTU, working with internal  
21 experts, outside consultants such as LECG, and stakeholders in formal open  
22 working sessions as well as individual meetings with different stakeholder sectors.  
23 This continued effort has included participation in FERC technical conferences

1 held in the first part of 2004, the stakeholder process on Existing Transmission  
2 Contracts also in 2004, and the broad, multi-issue MRTU policy resolution  
3 stakeholder process that occurred over most of 2005 and included as a major  
4 component the development of proposed rules for allocating Congestion Revenue  
5 Rights (“CRRs”) to load-serving entities (“LSEs”). Finally, I should also note  
6 that I have been a “subject-matter expert” contributor to the MRTU Tariff that is  
7 now being filed.

8  
9 **Q. What is the purpose of your testimony in this proceeding?**

10 **A.** My testimony is intended to provide a thorough overview of the MRTU market  
11 design and its components and, in so doing, to explain the objectives of the  
12 CAISO Market redesign effort and the rationale behind the specific design of the  
13 elements of MRTU. My testimony is intended to be comprehensive rather than  
14 extremely detailed, however, and therefore my testimony is complemented,  
15 expanded upon and supported by the accompanying testimony of several other  
16 expert witnesses.

17  
18 **II. OVERVIEW AND RATIONALE OF THE MRTU MARKET REDESIGN**

19  
20 **Q. Please explain the relationship between the MRTU project and the  
21 comprehensive redesign of the CAISO markets.**

22 **A.** The CAISO project known as “Market Redesign and Technology Upgrade” or  
23 “MRTU” is comprised of two major initiatives. The “MR” initiative, which is the  
24 subject of my testimony, is the comprehensive redesign of the CAISO markets as

1 embodied in the Tariff amendments being submitted to the Commission  
2 concurrent with this testimony. The “TU” initiative, which is not a subject of this  
3 testimony, is the overhaul and replacement of the CAISO Market systems and  
4 software, which the CAISO would have needed to do even if we were not  
5 redesigning the markets. Therefore, when I use the term “MRTU” and other  
6 terms like “MRTU Tariff” or “MRTU design” in the course of this testimony, I  
7 am referring specifically to the CAISO Market redesign.

8  
9 **Q. Will the CAISO Market redesign incorporate all design elements that were**  
10 **identified in the stakeholder review process as desirable or potentially**  
11 **desirable when the MRTU design is first implemented?**

12 **A.** No. As is the case with any large-scale project of this nature, the scope and  
13 design of the project must be “frozen” well in advance of the target  
14 implementation date. The CAISO had to recognize that some of the policy issues  
15 and design details were still in process of resolution while software and systems  
16 were being developed at the same time. Therefore, it was necessary to identify a  
17 subset of elements and design changes that would not be included in the “Release  
18 1” design, upon start-up of the new markets, but would be incorporated in a  
19 subsequent “Release 2” for implementation at a later date. Although the timing of  
20 Release 1 has now been delayed from February 2007 to November 2007, it is still  
21 necessary to maintain the original scope for Release 1 and not expand it, as  
22 discussed more fully in the testimony of Brian Rahman. In this regard it is  
23 important to point out that the Release 1 design will be a fully functional and

1 combination of settling a bilateral Energy contract outside the CAISO and settling  
2 with the CAISO for the scheduled energy injection and withdrawal, when two  
3 different parties are scheduling the injection and the withdrawal. The parties  
4 cannot avoid paying for the Congestion and losses associated with the Schedule,  
5 because these are the costs of using the CAISO grid, but the choice of the location  
6 at which to implement their CFD settlement (using the IST mechanism if they  
7 wish) is the means to determine how the Congestion and losses charges will be  
8 divided between the seller and the buyer.

9  
10 **Q. Can the IFM results be characterized as binding commitment and Dispatch**  
11 **Instructions by the CAISO?**

12 **A.** The results of the IFM (*i.e.* Pass 3 of the Day-Ahead Market sequence as  
13 described above) are financially binding on all parties; that is, SCs will be paid  
14 and charged the prices that result from the IFM for the scheduled quantities of  
15 Energy and the awarded quantities of AS capacity. In addition, the CAISO will  
16 ensure recovery of Start-Up and Minimum Load costs for units committed by the  
17 IFM economic unit commitment, in accordance with details described more fully  
18 in the testimony of Dr. Farrokh Rahimi. Any departures from the IFM Energy  
19 Schedules, or any failures to provide the AS capacity awarded in the IFM, will be  
20 subject to further financial settlement adjustment based on prices calculated in the  
21 Real-Time Market process, including the Hour-Ahead Scheduling Process  
22 (“HASP”). In this sense the IFM results represent performance commitments as  
23 well as financial commitments, because subsequent deviations from the

1 performance specified in the IFM results will be subject to further settlement  
2 impacts.

3

4 **Q. To what extent does the IFM procure Ancillary Services in the Day-Ahead**  
5 **timeframe versus deferring some Ancillary Services procurement for**  
6 **subsequent markets?**

7 **A.** Under MRTU the Day-Ahead procurement requirements for AS – specifically  
8 operating reserves and regulation – will equal 100 percent of the CAISO’s  
9 forecasted Real-Time requirements. As a result the CAISO will need to procure  
10 additional AS in the HASP/RT process only as a result of an increased  
11 requirement beyond the Day-Ahead forecast or the unavailability of some of the  
12 capacity that was procured Day-Ahead. Thus the additional post-Day-Ahead  
13 requirements are expected to be small in general. The CAISO will meet such  
14 additional requirements by procuring AS from imports in the HASP and from  
15 internal generation in the Real-Time Pre-dispatch process (“RTUC”) that is part  
16 of the Real-Time Market. I will discuss the elements of the Real-Time market a  
17 little later in this testimony. Also, this topic is addressed in considerable detail in  
18 the testimony of Dr. Farrokh Rahimi.

19

20 **Q. Have parties raised any questions concerning the CAISO’s MRTU AS**  
21 **procurement strategy?**

22 **A.** Yes. One question that has been asked regarding the 100 percent Day-Ahead  
23 target is whether the CAISO feels confident that it can meet this target regularly



1 without excessively driving up AS prices. The CAISO does believe that it can do  
2 so, because there are complementary provisions in the design of the IFM and in  
3 the Must-Offer Obligations that apply to Resource Adequacy capacity (“RA-  
4 MOO”) to ensure that sufficient AS can be procured in the IFM to meet the 100  
5 percent requirement in all but the most severe system shortage conditions. First,  
6 the RA-MOO stipulates that RA capacity from resources that Bid Energy into the  
7 Day-Ahead Market can be optimally scheduled for Energy or awarded AS, even if  
8 the resource does not explicitly submit capacity Bids for AS. If it does not submit  
9 capacity Bids, it will be optimized using proxy capacity Bids at \$0 per MW, up to  
10 the quantity of capacity that can meet the performance requirements for each AS.  
11 This means that the IFM should have a considerable pool of potential AS capacity  
12 in all hours except under extreme circumstances. Second, the IFM optimization is  
13 configured to assign greater priority to the award of AS than to scheduling Energy,  
14 up to 100 percent of the CAISO’s daily AS procurement target. Therefore, if there  
15 is not enough Supply Bid into Day-Ahead Market to clear both Energy Demand  
16 and meet the AS requirement, the IFM will procure the AS first and schedule less  
17 Demand if necessary.

18  
19 **Q. Can Ancillary Services be self-provided under MRTU?**

20 **A.** Yes. As with the CAISO’s current market design, SCs will, under MRTU, be  
21 able to designate specific capacity as self-provided AS in the IFM. SCs will also  
22 be able to designate self-provided AS in the HASP/Real-Time Market, but if they  
23 desire a high confidence that their self-provided AS will be accepted by the

1 CAISO, they should submit it in the IFM, because in the subsequent markets, the  
2 CAISO will accept self-provided AS only as such additional capacity needed to  
3 meet post-Day-Ahead AS requirements, which as I noted earlier are expected to  
4 be small in most hours.

5

6 **Q. Please describe procurement of Ancillary Services using Ancillary Services**  
7 **Regions under MRTU.**

8 **A.** Under MRTU, the IFM will be configured to procure AS on a locational basis, by  
9 satisfying constraints that specify minimum quantities to be procured within each  
10 of several designated sub-areas of the grid referred to as “AS Regions.” Initially,  
11 the CAISO will not specify AS Regions any more granular than the present  
12 Congestion zones, in order to be sure that local market power in the AS markets is  
13 not a problem. For Release 2, however, the CAISO will consider whether more  
14 granular AS Regions are needed from an operational perspective and if so, what  
15 provisions are needed to ensure that such regions can be created so that any  
16 resulting local market power is effectively mitigated in the AS markets. The issue  
17 of AS Regions is discussed in detail in the testimony of Dr. Farrokh Rahimi.

18

19 **D. Residual Unit Commitment**

20

21 **Q. Please describe the Residual Unit Commitment process in the Day-Ahead**  
22 **Market.**

23 **A.** Under MRTU, the IFM will clear the market based on the Self-Scheduled and  
24 Bid-in Demand of the SCs, and as a result it may clear at an overall level that is

**ISO Revised Tariff Provisions  
Resource Adequacy Standard Capacity Product and  
Ancillary Services Must Offer Obligation Filing**  
(April 28, 2009)

Tariff Section	Title	Description
9.3.3	Request for Outages in Real-Time Operation	Section amended to record an Outage as a Forced Outage for application of the Availability Standards in Section 40.9 up until the time that the Forced Outage is converted to a Maintenance Outage (as approved by the CAISO).
9.3.10.3		Section edited to add a Resource-Specific System Resource to the types of units required to notify the CAISO if there is likely to be a Forced Outage within the next 24-hour period unless immediate corrective action is taken.
9.3.10.3.1		Section edited to add a Resource-Specific System Resource to the types of units required to notify the CAISO within 60 minutes after discovering any change in the maximum output capability of at least ten (10) MW or five percent (5%) of the value registered in the Master File, whichever is greater from the value registered in SLIC (if the change lasts for fifteen (15) minutes or longer).
40.1.1		Recognizes that Local Capacity Area Resources of a Load following Metered Sub-System (MSS) are subject to the SCP program.
40.2.4	Load Following MSS	Section amended to provide that the Local Capacity Area Resources identified by the annual Resource Adequacy Plan submitted by a Load following MSS will be subject to the Availability Standards, Non-Availability Charge, and Availability Incentive Payment specified in Section 40.9.
40.3.4.1		Unused Tariff Section deleted
40.3.4.2		Unused Tariff section deleted
40.4.5	Reductions for Performance Criteria	Section is deleted as no longer unnecessary; the instant filing is meant to satisfy the requirement.
40.5	Requirements Applicable to Modified Reserve Sharing LSEs Only	Section 40.5 only contains the section's title; the amended provisions are in Section 40.5.1.
40.5.1(1)	Day Ahead Scheduling and Bidding Requirements	Conforming changes.
40.5.1(1)(i)	Day Ahead Scheduling and Bidding Requirements	Added provisions establish the Ancillary Services must offer obligation for the Local Capacity Area Resources of Modified Reserve Sharing LSEs. If no Economic Bids for Ancillary Services or Submissions to Self-Provide Ancillary Services are submitted, the CAISO will insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.
40.5.1(1)(ii)		Old Section 40.5.1(1)(ii) deleted because it pertained only optimizing the Energy Bid associated with a bid for

Tariff Section	Title	Description
(former subsection (ii))		Ancillary Services. With the must offer requirement for Ancillary Services as well as Energy, the old section is no longer accurate.
40.5.1(1)(ii) (revised subsection)		Non-substantive conforming change related to the participation of the Resource Adequacy Resources of a Modified Reserve Sharing LSE in RUC.
40.5.1(1)(iii)		Section renumbered
40.5.1(1)(iv)		<p>New section added to provide that in the IFM (Day Ahead) co-optimization process, the CAISO will utilize available Local Capacity Area 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. In the IFM the submitted Energy Self-Schedules of the Local Capacity Area Resource Adequacy Capacity of the Modified Reserve Sharing LSE will be honored unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements.</p> <p>The section provides that the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Local Capacity Area Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The Section also provides that, for the purpose of meeting Ancillary Service requirements, the CAISO will not curtail a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem.</p> <p>If an Energy Self-Schedule of Resource Adequacy Capacity is reduced to provide an Ancillary Service in the IFM, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to Section 40.5.1 (in the latter case using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy).</p> <p>If a Scheduling Coordinator for the Modified Reserve Sharing LSE's Resource Adequacy Resource believes that the calculated opportunity cost based on a Generated Energy Bid is insufficient, the SC may submit additional evidence justifying an increased amount within seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced to provide the Ancillary Service.</p>
40.5.1(3)		Non-substantive, clarifying change.
40.6.1(1)	Day-Ahead Availability	Section 40.6 sets forth the requirements applicable to Scheduling Coordinators for Reserve Sharing LSEs and Resources Providing Resource Adequacy Capacity to Reserve Sharing LSEs. Section 40.6.1(1) amended to add provisions establish the Ancillary Services must offer obligation for Reserve Sharing LSEs. For Resource Adequacy Capacity that is certified to provide Ancillary Services and is not covered by a Submission to Self-Provide Ancillary Services, the resource must submit Economic Bids for each Ancillary Service for which the resource is certified. For Resource Adequacy Capacity subject to this requirement for which no Economic Bids

Tariff Section	Title	Description
		<p>for Ancillary Services or Submissions to Self-Provide Ancillary Services have been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8 for each Ancillary Service the resource is certified to provide.</p> <p>In addition, for Resource Adequacy Capacity subject to this requirement for which no Economic Energy Bid or Self-Schedule has been submitted, the CAISO shall insert a Generated Bid in accordance with Section 40.6.8.</p>
40.6.1(2)		Additional tariff provisions apply the Day-Ahead Availability and Real-Time Availability provisions in section 40.6.1 and 40.6.2, respectively, to Resource Adequacy Resources that are Extremely Long-Start Resources.
40.6.1(4)		<p>New section added to provide that in the IFM (Day Ahead) co-optimization process, the CAISO will utilize available 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. In the IFM, the submitted Energy Self-Schedules of Resource Adequacy Capacity will be honored unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements.</p> <p>The Section provides that the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements. The Section also provides that the CAISO will not curtail for the purpose of meeting Ancillary Services requirements a Self-Schedule of a resource internal to a Metered Subsystem that was submitted by the Scheduling Coordinator for that Metered Subsystem.</p> <p>If an Energy Self-Schedule of Resource Adequacy Capacity is reduced to provide an Ancillary Service in the IFM, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 using the Ancillary Service Bids submitted by the Scheduling Coordinator for the Resource Adequacy Resource or inserted by the CAISO pursuant to Section 40.6.1 (in the latter case using the resource's Generated Energy Bid to determine the Resource Adequacy Resource's opportunity cost of Energy).</p> <p>If a Scheduling Coordinator for the Resource Adequacy Resource believes that the calculated opportunity cost based on a Generated Energy Bid is insufficient to compensate for the resource's actual opportunity cost, the SC may submit additional evidence justifying an increased amount within seven (7) days after the end of the month in which the submitted Energy Self-Schedule was reduced to provide the Ancillary Service.</p>
40.6.1(5)		Non-substantive conforming change related to the participation of Resource Adequacy Resources in RUC.
40.6.2	Real Time Availability	Tariff changes set forth for Resource Adequacy Resources the must offer obligation for Energy and Ancillary Services through the Real-Time Market. The submitted Energy Self-Schedules of Resource Adequacy Capacity will be honored unless the CAISO is unable to satisfy one hundred percent (100%) of the Ancillary Services requirements. In such cases, CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service

Tariff Section	Title	Description
		requirements.  If a Real-Time Energy Self-Schedule for Resource Adequacy Capacity is reduced to provide an Ancillary Service, the Ancillary Service Marginal Price for that Ancillary Service will be calculated in accordance with Section 27.1.2 and 40.6.1
40.6.3	Additional Availability Requirements for Short Start Units	Section provides that a Short Start Unit that is a Resource Adequacy Resource and that does not have an IFM Schedule or a RUC Schedule for any of its capacity for a given Trading Hour is required to participate in the Real Time Market in accordance with Section 40.6.2.  If such a resource also is a Use-Limited Resource subject to Section 40.6.4, it is required, consistent with its applicable use plan, to submit Economic Bids or Self Schedules for Resource Adequacy Capacity into the Real Time Market. Consistent with Tariff, the CAISO can waive these availability obligations for a Short Start Unit that does not have an IFM Schedule or a RUC Schedule based on the procedure to be published on the CAISO Website.
40.6.4.1	Registration of Use-Limited Resources	Amended language clarifies that, consistent with the current CAISO Tariff, hydroelectric Generating Units and Participating Load, including Pumping Load, are deemed to be Use-Limited Resources for purposes of this Section 40 and are not required to submit the application described in the Section.
40.6.5	Additional Availability Requirements for System Resources	Amended language provides for availability requirements for certain System Resources in the IFM and RUC that are also Resource Adequacy Resources.
40.6.5.1	Additional Availability Requirements for Dynamic and Non-Dynamic Resource-Specific System Resources	Amended language provides for additional availability requirements in the IFM and Real-Time for Dynamic and Non-Dynamic Resource-Specific System Resources that are Resource Adequacy Resources.
40.6.5.2	Dynamic Non-Resource-Specific System Resources	Specifies availability requirements for Dynamic Non-Resource-Specific System Resources
40.6.7	Release of Long Start Units	Section renumbered.
40.6.7.2		Section deleted regarding obligations of Long Start Unit that have been committed by CAISO in the IFM or RUC as these have been moved to Section 40.6.1(2).
40.6.8	Use of Generated Bids	Amended language sets forth the CAISO use of Generated Bids in the IFM and Real-Time. The section also provides that Generated Bids for Energy will be calculated as provided in the Business Practice Manuals and Generated Bids for Ancillary Services will equal zero dollars (\$0/MW-hour).
40.9	Availability Standards, Non-Availability Charges, and Availability Incentive Payments	The title of new Section 40.9.

Tariff Section	Title	Description
40.9.1	General	General introduction to SCP program.
40.9.2	Exemptions	Identifies resources that will be wholly or partially exempt from the SCP program.
40.9.3	Availability Assessment Hours	Specifies the hours for which the SCP Availability Standards will apply.
40.9.4	Availability Determinations	Identifies how Availability Standards will be established and how compliance will be determined.
40.9.4.1	Availability Standard	Identifies how Availability Standards will be established.
40.9.4.2	Availability Calculation for a RA Resource	Identifies how compliance with Availability Standards will be determined.
40.9.4.2.1	Substitute Capacity	Explains the circumstances by which non- RA Capacity can be substituted for RA Capacity to comply with the Availability Standards.
40.9.4.2.2	Accounting for De-Rates	Specifies calculation methodology for de-rates for purposes of the SCP.
40.9.5	Outage Reporting	Specifies reporting requirements for purposes of evaluating compliance with Availability Standards.
40.9.6	Non-Availability Charges & Availability Incentive Payments	Specifies penalty for non-compliance with the Availability Standards and incentive payment for RA Resources that exceed the Availability Standards.
40.9.6.1	Determination of RA Capacity Subject to Non-Availability Charge	Specifies methodology for determining RA Capacity subject to Non-Availability Charge.
40.9.6.2	Determination of the Non-Availability Charge	Specifies methodology for determining the Non-Availability Charge rate.
40.9.6.3	Availability Incentive Payment	Specifies incentive payment for RA Resources that exceed the Availability Standards
40.9.6.4	Monthly Settlement	Requires that Non-Availability Charges and Availability Incentive Payments be settled on a Trade Month basis.
40.9.7	Availability Assessment for RA Capacity Provided by Non Resource-Specific System Resources	Specifies the SCP program for RA Capacity Provided by Non Resource-Specific System Resources, including the Availability Standard, the assessment of availability, application of the Non-Availability charges and Availability Incentive Payments for these resources, and the settlement of charges and payments for the SCP on a Trade Month basis.
40.9.8	Reporting	Specifies CAISO reporting requirements associated with the SCP program.
<b>New Definitions in Appendix A</b>		Provide definitions for Availability Assessment Hours, Availability Incentive Payment, Availability Incentive Rate, Availability Standards, and Non-Availability Charge.