



California ISO
Your Link to Power

*Straw Proposal on
Subset-of-Hours*

Addendum to

**Generated Bids and Outage
Reporting for Non-Resource
Specific Resource
Adequacy Resources**

April 28, 2010

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Table of Contents

1. Introduction.....	3
2. Subset-of-Hours RA Contracts.....	4
A. CPUC and Local Regulatory Authorities and Tariff Section 40.8.....	4
B. ISO Systems Functionality – Current and Planned.....	5
C. Reliability.....	6
D. Straw Proposal.....	7
3. Conclusion.....	7

1. Introduction

The California Public Utilities Commission (CPUC) administers the Resource Adequacy (RA) program, which requires load-serving entities (LSEs) under its jurisdiction each month to procure sufficient capacity, termed RA capacity, to be available to the California Independent System Operator (ISO) to provide energy and reserves to serve load and maintain reliable operation of the ISO controlled grid. RA resources are required by Section 40.6 of the ISO Tariff to offer their RA capacity into the ISO markets.

If an RA resource fails to submit a bid into the market, the ISO will submit a generated bid for the RA capacity pursuant to ISO Tariff Section 40.6.8.¹ Specifically, for internal generating resources, and for resource-specific system resources, the ISO's Scheduling Infrastructure and Business Rules (SIBR) software will insert a generated bid for the RA capacity up to the MW RA capacity volume specified in the resource supplier's supply plan. The ISO is not currently inserting bids for non-resource-specific system resources with RA contracts (NRS-RA resources). Through this stakeholder effort, the ISO will work with market participants to address the issues associated with the implementing generated bids for NRS-RA resources.²

The first issue is the question of what bid price to insert for automatically generated bids for these resources. Since the resources are not Resource-Specific System Resources as defined in the Tariff, there is no obvious cost basis for the price component of the default bid for NRS-RA resources.³

The second issue is resource availability and availability reporting. For internal RA resources, including Resource-Specific System Resources with RA contracts, suppliers are required to submit outage notices through the Scheduling and Logging for the ISO of California (SLIC) software.

Analysis of these two issues relative to NRS-RA resources has led to the need to address two additional questions. Accordingly, this stakeholder process has expanded to address the question of how best to apply the Standard Capacity Product (SCP) to these resources and how the ISO can most fairly and accurately consider "subset-of-hours" RA contracts.

In the *Revised Straw Proposal* dated April 5, 2010, the ISO put forward a policy design for procedures to insert generated bids for NRS-RA resources that fail to bid into the day-ahead market, and for unavailability reporting for those resources. Further, the ISO provided additional information on

¹ According to Section 40.6.8 of the ISO Tariff, "the CAISO will determine if dispatchable Resource Adequacy Capacity from Resource Adequacy Resources has not been reflected in a Bid and will insert a generated Bid into the CAISO Day-Ahead Market for any dispatchable Resource Adequacy Capacity that is not reflected in a Bid into the CAISO Day-Ahead Market and for which the CAISO has not received notification of an outage."

² According to Section 40.6.8 of the ISO Tariff, "the CAISO will determine if dispatchable Resource Adequacy Capacity from Resource Adequacy Resources has not been reflected in a Bid and will insert a generated Bid into the CAISO Day-Ahead Market for any dispatchable Resource Adequacy Capacity that is not reflected in a Bid into the CAISO Day-Ahead Market and for which the CAISO has not received notification of an outage."

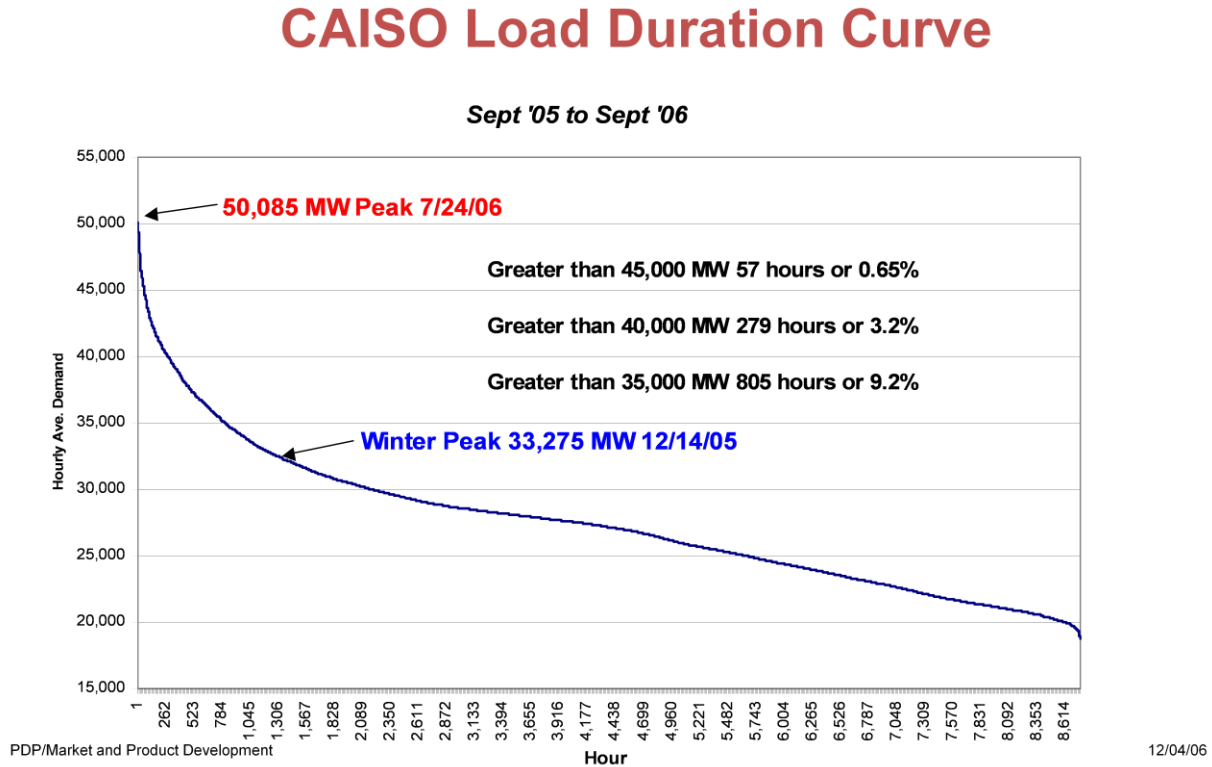
³ A non-resource specific system resource that has a designated generating resource that supplies the RA capacity has the option to become a resource-specific system resource.

the implications for NRS-RA resources under SCP. However, at the time the April 5, 2010 Revised Straw Proposal was posted, it did not include a discussion of the “subset-of-hours” issue. A discussion of the “subset-of-hours” RA issue and a proposal by the ISO to address the issue are provided in this *Addendum* to the Revised Straw Proposal.

2. Subset-of-Hours RA Contracts

Market Participants procure power and energy through many forms of transactions, some of which are contracts that impose a supply obligation seven days a week, 24 hours a day (7x24) or for a shorter period of time, which are referred to as “subset-of-hours” contracts. Given that the load duration curve for the ISO system shows that the MW needed to serve the highest peak loads occur for only a limited number of hours during the year, the electric system can be operated with a mix of resources that are 7x24 and less-than-7x24. An illustration of the ISO load duration curve is provided in Figure 1 below.

Figure 1



A. CPUC and Local Regulatory Authorities and Tariff Section 40.8

In the ISO Tariff, the ISO has deferred to the CPUC and local regulatory authorities (LRAs) to determine which resources “count” for RA purposes. The CPUC and LRAs establish counting methodologies that determine both the MW amount and the minimum number of hours that a resource must make their capacity available to the ISO to be considered a valid RA resource. For example, as part of its counting methodology the CPUC has implemented the concept of Maximum Cumulative Contribution or Maximum Cumulative Capacity (MCC) buckets for RA resources.

Under this arrangement, an LSE can fulfill its RA requirement each month by having 100% of its portfolio contracted with resources that have an obligation to make the capacity available to the ISO seven days per week and 24 hours per day (7x24). In contrast, a 5x4 RA contract (five days per week and four high load hours per day) can count as an RA resource under the CPUC RA rules to the extent it complies with the MCC buckets described in CPUC Decision D.09-06-028 and previous CPUC decisions. However, an LSE is limited on a monthly basis in the percent of its RA portfolio that can be composed of such subset-of-hours arrangements. The CPUC validates LSE showings each month to ensure that the MCC quantities are not violated and the ISO validates supply plans against the LSE showings. The CPUC's MCC buckets are described in Appendix A to provide an example of a current subset-of-hours arrangement.

B. ISO Systems Functionality – Current and Planned

The current market software functionality inserts bids in cases where internal RA resources do not submit bids themselves. The bids are submitted on a 7x24 basis, for both the day-ahead and real-time market, with the exception of use-limited resources. If the SC for an RA resource fails to insert bids for that resource up to the MW amount of RA capacity that has been procured by the applicable LSE and provided to the ISO by the Scheduling Coordinator (SC) through a RA supply plan showing, then the ISO will generate bids in its operating systems such that the bids are in the ISO operating systems for all hours in a given day and for both the day-ahead and real-time market. Current market software does not create bids for NSR-RA resources. These resources have an obligation to bid in the day-ahead market but not the real-time market. To date, due to operating systems limitations the ISO has not had the capability to insert generated bids for RA resources on anything other than a 7x24 basis.⁴

The ISO is currently developing enhanced functionality within its operating systems that will allow the ISO to generate bids for RA resources in a granularity greater than simply all hours of the trading day. This functionality is being developed by the ISO to streamline some of the data structures in the market software and is scheduled to be deployed to the market as an enhancement to the SIBR system on October 1, 2010. This new functionality will be capable of generating bids for RA resources that correspond to the time period of a subset-of-hours contractual arrangement.

Given that the ISO later this year will have the ability to insert bids on a “less than all hours in a trading day” basis, and that stakeholders have requested that the ISO consider generating bids only

⁴ Section 40.6.8 of the ISO Tariff describes the use of generated bids. Note that the ISO does not generate bids for Use-Limited Resources. Section 40.6.8 states: **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. If a Scheduling Coordinator for an RA Resource submits a partial bid for the resource's RA capacity, the CAISO will insert a Generated Bid only for the remaining RA capacity. 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.*

to the extent of the RA contract hours, the ISO proposes to apply this new functionality to RA resources with subset-of-hours RA contracts. The specific implementation date for this proposal has not yet been determined. What this would mean is that in instances where the SC for an RA resource fails to insert bids for that resource up to the MW amount of RA capacity that has been procured by the applicable LSE and provided to the ISO by the SC through a RA supply plan showing, the ISO would generate bids in its operating systems only to the extent of the hours and markets for which the resource has been procured as RA capacity. The ISO would not insert generated bids on their behalf in hours for which the resource does not have a contractual obligation to provide RA capacity. The ISO proposes to apply this functionality to all RA resources including NRS-RA resources.

C. Reliability

The ISO maintains both system and local reliability. This is accomplished through the use of a planning reserve margin (PRM) and an operating reserve margin. The CPUC's MCC buckets serve as a resource screen to limit the quantity of less than 7x24 RA resources. This is important because the ISO is required to maintain adequate reserve margins to comply with North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council standards to ensure system reliability.

To the extent this subset-of-hours straw proposal is implemented, there will be more granular representation of resources within ISO systems. For the CPUC jurisdictional entities, as long as the MCC buckets remain in place as currently defined and are enforced through monthly validation, the ISO does not anticipate reliability issues associated with the implementation of this straw proposal.

The ISO has evaluated the concern that moving to this approach could potentially lead to a decrease in reliability. Some RA resources that were subject to the SC bidding 7x24 will, under this proposal, be recognized as available to the ISO to the extent that their RA contractual obligation is limited to only a subset-of-hours in a trading day. That is a concern to the ISO given that the RA program is built around the concept of providing the ISO the ability to serve peak load and that the peak load can occur on any given day and over a broad range of hours. Although this proposed modification to the creation of generated bids would not change the total quantity of RA that would be available to the ISO each month, it could change the distribution of some portion of those MW over the course of some days during the month. The ISO has reviewed the historical mix of RA capacity provided to the ISO, confirmed that entities are complying with the MCC buckets, and is comfortable that this proposal can be implemented without reliability impacts. However, the ISO believes that it is prudent to monitor for any unintended consequences, which could include any significant change in LSE supply plan portfolio content. If the ISO implements the new functionality for all RA resources with subset-of-hours arrangements, the ISO will need to monitor the amount of RA capacity that has been converted from a 7x24 arrangement to something less than 7x24, the total amount of RA capacity that is subject to inserted bids, whether market participants are compliant in submitting bids for RA resources for which the ISO does insert bids, and whether market participants are compliant in submitting bids for use-limited resources for which the ISO does not insert bids. If reliability issues arise, the ISO may need to take steps at FERC to revise this proposal.

D. Straw Proposal

The ISO proposes to limit the amount of hours that the ISO will insert bids (if the SC for the RA resource fails to do so) to the hours specified in the RA contractual arrangement. For example, if the contractual arrangement is a 7x24 RA contract, if the SC for the RA resource fails to insert bids for all 7x24 hours, the ISO would generate bids as necessary for each hour of the 7x24 period. As another example, if the contractual arrangement is a 6x16 RA contract (six days per week and 16 hours per day and the RA procured is available during the high load hours) and the SC for the RA resource fails to insert bids for all 6x16 hours, the ISO would generate bids such that the entire 6x16 period is covered. This treatment would be applied to all RA resources with subset-of-hours contractual arrangements.

The ISO systems will be designed to accept the known, standard western power contract terms of 7x24, 6x16, 5x8 and 5x4 block-hour periods, which will serve as the basis for RA suppliers to elect subset-of-hours treatment. The ISO proposes that these standard terms be stated in the ISO Business Practice Manual, including the minimum hours of the day for each category that the resource must be procured to cover: (1) 7x24 period, unrestricted, the unit is available all hours; (2) 6x16 period, Monday-Saturday, Hour Ending 7-22, excluding NERC holidays; (3) 5x8 period, Monday-Friday, Hour Ending 13-20, excluding NERC holidays; and (4) 5x4 period, Monday-Friday, Hour Ending 15-18, excluding NERC holidays. This information could be provided by suppliers to the ISO in the supply plans by supplementing the current fields in the form. The western power contract terms and minimum hours of the day for each category listed above are the same as those used by the CPUC its RA program as the MCC buckets. The ISO is interested in hearing from stakeholders as to whether these terms and hours are sufficient, or whether more are needed.

Under this proposal, RA resources will be required to provide information about their subset-of-hours arrangements to the ISO. For a supplier of RA capacity to request subset-of-hours treatment in the ISO markets, the ISO will consider adopting requirements analogous to what the ISO used for establishing Existing Transmission Contract rights through the Transmission Rights and Transmission Curtailment instructions, as well as for eligibility for Congestion Revenue Rights allocations by external entities based on their energy contracts. For example, the supplier will need to provide a sworn statement by an appropriate executive of the company that attests to the RA contract provisions specifying subset-of-hours treatment, and include this with its supply plan. The sworn statement will be required to be provided to the ISO no less than once each year, and in each instance where a contractual arrangement changes. The ISO would also have the right to see the actual contract if needed. The ISO will cross check this information against the RA showing submitted by the LSE, and any discrepancy could trigger review of the contract.

3. Conclusion

The ISO appreciates stakeholder comments and discussion on the issues raised within the Revised Straw Proposal and this Addendum to the Revised Straw Proposal. The ISO will schedule a conference call to discuss all of the elements of this initiative. After that discussion, written comments will be requested. Comments or questions for the NRS-RA resources team may be directed to Gillian Biedler at gbiedler@caiso.com or to (916) 608-7203.

Appendix A

CPUC Maximum Cumulative Contribution Methodology

The information in this appendix is provided to describe the existing subset-of-hours policy established for LSEs regulated by the CPUC for its jurisdictional entities. LRAs can establish their own RA counting conventions, which can include a subset-of-hours construct.

Subset-of-hours RA resources that are less than 7x24 can count as RA capacity. Under Section 40.8 of the ISO Tariff, the CPUC or LRA has the option to determine what resources are eligible to provide Qualifying Capacity for RA purposes. In short, the CPUC and LRAs have the option to determine what capacity counts for RA. If an LRA fails to specify criteria, Section 40.8 of the ISO Tariff is applicable and controls, but if the LRA does specify criteria, the LRA criteria controls for RA capacity counting purposes. Therefore, for example, a 6x16 RA contract can count as an RA resource under the CPUC's RA rules to the extent it complies with the MCC buckets described in D.09-06-028 and previous CPUC decisions.

The CPUC MCC bucket methodology is used to categorize LSE resources based on the planned availability of each resource expressed in hours per month. The four MCC bucket categories that are applicable to CPUC-jurisdictional entities are shown below.⁵

Summary of Resource Categories	
Category	Consensus Agreement Resources may be categorized into one of the four categories shown below, according to their planned availability as expressed in hours available to run or operate per month (hours/month):
1	<p>"Greater than or equal to" the ULR [Use Limited Resource] monthly hours as shown in the Phase 1 Workshop Report, Table "Number Hours ISO Load Greater than 90% of the Monthly Peak," p.24-25, last line of table, titled "RA Obligation," http://www.cpuc.ca.gov/word_pdf/REPORT/37456.pdf</p> <p>These ULR hours for May through September are, respectively: 30, 40, 40, 60, and 40, which total 210 hour and have been referred to as "the 210 hours."</p>
2	"Greater than or equal to" 160 hours per month.
3	"Greater than or equal to" 384 hours per month.
4	All Hours (planned availability is unrestricted)

Each of the categories (or "buckets") roughly corresponds to the monthly hours in a standard commercial power contract: Category 1, 5x4; Category 2, 5x8; Category 3, 6x16; and Category 4, 7x24, all hours of the month. Under the MCC methodology, an LSE can claim only a limited

⁵ Summary of Resource Categories (aka, MCC Buckets) from the 2010 Filing Guide for System and Local RA Compliance Filings, p.9, http://www.cpuc.ca.gov/PUC/energy/Procurement/RA/ra_guides_2008-09.htm

amount of Category 1, 2 or 3 contract capacity MW toward its RA obligation in a given month. The MCC methodology prevents an LSE from over-relying on any of the less than 7x24 resource types (i.e., subset-of-hours resources).

The MCC bucket design is described in the CPUC's December 9, 2005 Energy Division Straw Proposal (<http://www.cpuc.ca.gov/PUC/hottopics/1Energy/resourceadquacy/strawproposal.htm>)

The Mirant methodology set forth in Exhibit 1 called for the specification of "several resource categories based on typical physical or contractual limitations. For example, Critical Peak (8 hrs/month); Super Peak (72 hrs/month); Peak (400 hrs/month); and Unrestricted (all hours of the month)" (emphasis added). In addition, D.05-10-042 specified additional eligibility criteria for some resources, such as the two-prong test for Use Limited Resources (ULR), and reserve requirements for imports. Given these requirements, Energy Division has opted to define four resource categories based on typical or standard power product types. These categories are shown in the table as 5x4, 5x8, 6x16, and 7x24.

The second step in establishing these categories is to translate these four power product types into specific hours for each month. The CPUC has used the actual hours, for each of the four summer months in 2006 that would be associated with actual delivery of each type of power product:

- *5x4 period (Monday-Friday, HE15-18, excluding NERC holidays);*
- *5x8 period (Monday-Friday, HE13-20, excluding NERC holidays);*
- *6x16 period (Monday-Saturday, HE7-22, excluding NERC holidays);*
- *7x24 period (Unrestricted, the unit is available all hours).*

The RA capacity submitted in a Month-Ahead RA Showing for each CPUC jurisdictional LSE is measured by the CPUC against the MCC bucket percentages every month to assess compliance with the MCC buckets. The MCC buckets are active on a monthly basis. The MCC bucket percentages have been in place since January 9, 2006, when the CPUC Energy Division issued an errata to the December 7, 2005 straw proposal that established the percentage of the total RA obligation that can be counted in each of the buckets. The current percentages for the MCC buckets are shown below:

Categories	MCC Allowed (%)
Category #1 Bucket	13.3%
Category #1,2 Buckets	18.6%
Category #1,2,3 Buckets	30.1%
Category #1,2,3,4 Buckets	100%