

# **California Independent System Operator**

## **RAR Local Capacity Procurement Straw Proposal**

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RAR Local Capacity Procurement

Table of Contents

**Introduction** ..... 1

**Operational Characteristics** ..... 1

**Issue** ..... 1

**Access to Full Capability of Resources**..... 2

**Use-Limited Resources**..... 2

**PGA & MSS Market Operating Characteristics** ..... 2

**Dispatch For Any Reliability Reason** ..... 3

**Compliance Incentives**..... 3

**Dispatch Requirements** ..... 3

**Issue** ..... 3

**Day-Ahead Commitment** ..... 3

        Period 1 – Before RAR ..... 4

        Period 2 – RAR before MRTU ..... 4

        Period 3 – RAR and MRTU..... 4

**Real Time Dispatch**..... 4

**Transition** ..... 4

**Issue** ..... 4

        Before RAR (“Period 1”)..... 5

        RAR Before MRTU (“Period 2”) ..... 5

        RAR and MRTU (“Period 3”)..... 5

**CAISO Local Area Reliability Contract** ..... 5

**2006 LARS to June 2006 RAR Local Capacity** ..... 6

**Appendix 1 – Generation Characteristics**..... 7

## RAR Local Capacity Procurement Straw Proposal

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### Introduction

On January 25-26, 2005, the California Independent System Operator Corporation (“CAISO”) presented a revised proposal for satisfying the California Public Utilities Commission’s (“CPUC”) local capacity area requirement being developed through the Resource Adequacy (“RA”) Phase 2 workshops. While the revised proposal was largely accepted regarding the methodology the CAISO would use to define the local capacity requirements, certain information to facilitate procurement was unavailable. This document discusses the key issues regarding local capacity procurement and it is intended to be the starting point for development of the necessary local capacity procurement details that will enable load serving entities (“LSEs”) to optimize their procurement obligations to assist the CAISO in satisfying applicable reliability criteria.

The Phase 2 workshops have produced a consensus that 100% of local capacity requirements must be at the year-ahead timeframe and that units procured to meet the obligation must be available to the CAISO on a 24x7 basis. This document goes beyond these agreed upon general principles to discuss in greater detail the required operational characteristics of the resources eligible to satisfy the local capacity requirements, the CAISO’s ability to dispatch the procured resources, and the process for transitioning from the current local reliability paradigm to a new one following implementation of the CPUC Resource Adequacy Requirements (“RAR”) framework and the CAISO Market Redesign and Technology Upgrade (“MRTU”) project.

The CAISO requests that stakeholders provide comments on the topics discussed in this document and participate in an effort to develop a standard set of requirements all LSEs will use to meet the local capacity obligations. In this way, the CAISO hopes to promote an efficient means for LSEs to contract for local capacity.<sup>1</sup>

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### Operational Characteristics

#### Issue

Define the operational requirements of the resources eligible to satisfy the local capacity requirements. Payment terms for LSE contracts will be left to each LSE to negotiate with the resource provider on a case-by-case basis; however, the document will

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<sup>1</sup> A local capacity market is likely to be a more efficient means to procure the local capacity.

address some guidelines to ensure there are appropriate incentives.

### **Access to Full Capability of Resources**

The terms of the contract should provide the CAISO access to the full capabilities of the unit to provide Ancillary Services or Energy unless it is in an approved planned or force outage. This includes the ability to decrease and increase unit output, instruct shutdown or minimum load operations; i.e., the CAISO may instruct the unit to decrement its output or shutdown for reliability reasons. The CAISO will respect all resource limits that reflect the physical operating characteristics such as minimum run times, etc..

### **Use-Limited Resources**

Ideally, the local capacity resources should not be use-limited resources; however, realistically, use-limited resources may be capable of enabling the CAISO to operate under the applicable reliability criteria. The challenge is to define how much service will be required. Unfortunately, the CAISO does not have a crystal ball to determine the amount; therefore, the CAISO would like to use this document as an opportunity to solicit stakeholders proposals on a process or terms that will ensure the resources can fulfill the applicable reliability criteria. One alternative is for energy and/or service hour limited resources to provide a mechanism allowing the CAISO to obtain a “call option” on all or a portion of the applicable period energy and/or service hours to meet reliability requirements. Demand Response, Distributed Generation and Intermittent Resources will not be eligible to satisfy the Local Capacity RAR.

### **PGA & MSS Market Operating Characteristics**

Local capacity resources should be required to operate under the characteristics as specified for the resource in Schedule 1 of the Participating Generator Agreement (“PGA”) or Schedule 14 of the Metered Sub-System Agreement (“MSSA”) as applicable. CAISO should be provided the authority to dispatch the resource to the operating limits wherever necessary to maintain the applicable reliability criteria. Each resource should be required to comply with the CAISO Tariff as specified by the PGA or MSSA including compliance with the Outage Coordination Protocol or its replacement. This contrasts to the practice under the Reliability Must-Run Agreements in which the operating characteristics are in some instances different than the characteristics specified in the PGA or MSSA. The values for the PGA or MSSA are contained in the CAISO’s Master File and some of the values may be adjusted to reflect actual operating conditions. The CAISO desires this approach because it offers more operational flexibility and enables the Owners to make adjustment to reflect actual operational values such that the CAISO may consider these in its dispatch notices. The Operational Characteristics listed in Appendix 1 provides a guide to the types of information LSE’s should consider including in its local capacity procurement agreement. Stakeholders should also comment on the suggested guidance values provided. Questions: Under what circumstances will MSSA resources be eligible for use?

### **Dispatch For Any Reliability Reason**

While the CAISO will be identifying the local area reliability resources specifically for a “local area” requirement, these contracts shall allow the CAISO the ability to dispatch the resources for the purpose of maintaining any network element within its normal operating limits under any system-wide energy shortage and A/S requirement, not just local or intra-zonal congestion; i.e. complete dispatchability for any reason such as local/zonal/system. There shall not be a notice requirement associated with the intended use of resources.<sup>2</sup> With implementation of MRTU, congestion will be defined to include both the intra and inter categories, so a distinction will no longer be relevant and all LSE’s will be providing a proportionate share of the reliability capacity.<sup>3</sup>

### **Compliance Incentives**

There needs to be a strong incentive for the generation resource to remain available to the maximum extent possible and to respond whenever the CAISO requests a start or an increase or a decrease in output. In the RMR Agreements, this incentive has been provided through availability payments and non-performance penalties. However, there have been problems with this approach, so the CAISO desires a new approach be developed. Some suggested approaches would be to define critical periods of availability and impose severe penalties if the units did not respond if called during these periods. Questions: How is penalty determined? Is UDP in CAISO market sufficient? Is LSE or Resource owner penalized? Who will enforce penalty?

A just and reasonable rate should be paid in consideration of the key operational and dispatch capabilities that are established by the terms of the contract.

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### **Dispatch Requirements**

#### **Issue**

Define the dispatch elements of the local capacity obligation to provide the CAISO ability to dispatch the resources procured to meet the applicable reliability criteria.

#### **Day-Ahead Commitment**

The CAISO must have the ability to commit the local capacity resources at any level the day prior to the operating day if such commitment is necessary to maintain compliance with applicable reliability criteria. The commitment mechanism will be slightly different in each of the transition periods described below. The CAISO proposes the Day Ahead commitment as follows:

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<sup>2</sup> In addition to other requirements, the RMR Agreement requires a notice prior to dispatching an RMR Unit to provide Ancillary Services.

<sup>3</sup> As long as the dispatch mechanism appropriately covers the costs for dispatch, each LSE will be protected from paying a disproportionate share. While it would be nice to have an appropriate mechanism to ensure the cost is paid by the entities benefiting from any service, this is not likely to be feasible until the market design implements nodal pricing for loads.

***Period 1 – Before RAR***

The CAISO will dispatch the designated RMR Units using the current process and CAISO systems (e.g. the RMR Client and GRRMA).

***Period 2 – RAR before MRTU***

The CAISO proposes to issue dispatch notices to both LSE local capacity resources and any remaining RMR Units in the Day-Ahead (“DA”) time frame using the RMR dispatch systems. The dispatch can be optimized using one of three proposals:<sup>4</sup>

1. Use current Pre-dispatch process in which the units are selected based on their effectiveness;
2. Evaluate the initial DA schedules and only dispatch in accordance with the incremental RMR requirements which would be scheduled in the final DA Schedule;
3. Commit units under the must offer process and increment them up in real time to satisfy the reliability requirements; this is the least desirable option because it is likely to necessitate the decrementing of resources scheduled in the DA schedules to make room for the RMR/LARC units.

The CAISO will evaluate these alternatives further and make a recommendation on a preferred approach after receiving stakeholder comments.

***Period 3 – RAR and MRTU***

The CAISO would commit and dispatch all units to maintain applicable reliability criteria using the through the MRTU software. Resources with long-start characteristics may need to be dispatched using an off-line manual dispatch process if the MRTU functionality is unable to meet these limitations.

**Real Time Dispatch**

The Local Capacity resources must bid all available capacity and energy into the next available CAISO market, consistent with its physical operating parameters and including up to real-time, to offer CAISO access to all the energy and ancillary services the resource is capable of providing.

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**Transition**

**Issue**

Process for Transition from the current local reliability paradigm to a new one satisfied following implementation of the CPUC RAR framework and the MRTU project.

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<sup>4</sup> A cost based bid or an alternative ranking methodology may be required to implement options 2 or 3 to optimize the dispatch selection.

***Before RAR (“Period 1”)***

The “*Before RAR*” period is between the present and the date the RAR obligations are ordered by the CPUC to be effective (“Period 1”). Based upon current expectations that the RAR obligations will begin June 1, 2006, Period 1 would end on May 31, 2006. During this period the CAISO will continue to use the existing mechanisms to meet the applicable reliability criteria. For the 2006 Contract Year, designation of RMR Units will be determined using the RMR Criteria that was also used for the 2005 Contract Year designations (see discussion below under the heading “*2006 LARS to June 2006 RAR Local Capacity*” for further details regarding transition from RMR to RAR).

***RAR Before MRTU (“Period 2”)***

The “*RAR Before MRTU*” period begins on the date the RAR obligations are effective and ends the hour before the MRTU project is implemented (“Period 2”). Based upon current expectations Period 2 is expected to begin June 1, 2006 and end January 31, 2006. There is an opportunity to eliminate RMR Agreements during Period 2 if the LSE’s Local Capacity procurement provides the CAISO the ability to dispatch sufficient local capacity resources to meet the applicable reliability criteria. If the LSE’s local capacity procurement is not sufficient, the CAISO will continue to rely on the 2006 RMR Units and potentially additional resources procured through a new Local Area Reliability Contract as described below. The CAISO needs to determine whether or not its Tariff would need to include a mechanism to allow the CAISO to dispatch the resources procured by the LSE’s during this period (this will depend on FERC’s view of the existing must-offer obligation and waiver process).

***RAR and MRTU (“Period 3”)***

The “*RAR and MRTU*” period is defined by the period when both RAR and MRTU have been implemented (“Period 3”). This period is expected begin February 1, 2007 and continue on indefinitely. Integration Requirements: Identify the mechanism the CAISO will use to ensure the required capacity is offered into the CAISO markets and provides service when it is needed to meet local area reliability criteria and/or to relieve congestion.

**CAISO Local Area Reliability Contract**

The CAISO will propose a new reliability agreement or the CAISO Local Area Reliability Contract (“CAISO LARC”) to serve as a replacement for the existing Reliability Must-Run (“RMR”) Agreement. The CAISO LARC will continue to provide the market power mitigation role the RMR Agreement has played for generators located in constrained areas of the grid. The CAISO LARC would be fashioned to harmonize with both MRTU and RAR. In addition, the CAISO LARC should be written to ensure several RMR Agreement deficiencies do not persist. Among the RMR Agreement deficiencies are a restriction on use for system purposes, isolated cost allocation, limitations on use for ancillary services, and constraints on market participation. A stakeholder process will be conducted to provide Market Participants the opportunity to shape the final terms and conditions of the CAISO LARC. CAISO will propose the CAISO LARC will have similar terms and requirements as the ones guiding LSE local capacity procurement.

**2006 LARS to June 2006 RAR Local Capacity**

The CAISO will use the current RMR criteria to designate RMR Units in the 2006 Local Area Reliability Service ("LARS") process and proposes a process as described below to integrate the LARS 2006 process with the RAR, Local Capacity obligations expected to be effective beginning June 2006. The CAISO will rely on the designated RMR Units, the RAR Local Capacity procured by load serving entities ("LSEs") beginning June 1, 2006 and either the Must Offer Obligation ("MOO") or additional capacity the CAISO may secure under a new reliability contract as described above to provide the capacity for reliable operation of the ISO Controlled Grid in 2006.

With the RAR Local Capacity obligation beginning on June 1, 2006, RMR Units must be designated for 2006 to meet local reliability requirements for the January 1 through May 31, 2006 period; however, the RMR Agreement term is for the calendar year. The CAISO may extend the term for less than a full calendar year as to one or more RMR Unit but only if CAISO gives notice not less than 12 months prior to the date to which it proposes to extend the term. The CAISO will not know whether or not the extensions should be for less than a calendar year prior to October 1; therefore the CAISO intends to extend the 2005 RMR Units identified as required to meet the RMR Criteria for the entire 2006 Contract Year.

If an LSE contracts with an RMR Unit designated for 2006, the CAISO would be willing to terminate the RMR Agreement as to those RMR Units early with mutual agreement of the RMR Owner. To facilitate this, any agreement between the LSE and RMR Unit Owner intend to meet the RAR Local Capacity obligation should stipulate that the RMR Unit Owner be willing to mutually agree with the CAISO to terminate the RMR Agreement effective midnight on May 31, 2006; the CAISO will agree to this early termination only if the CAISO continues to have a mechanism to dispatch the affected RMR Unit(s) under the LSE contract as it currently has under the RMR Agreement.



## Appendix 1 – Generation Characteristics

### 1. Description of Facility/Units

	Unit 1	Unit 2	(min, reqmts)
ISO Resource ID			
Maximum Net Capacity <sup>5</sup>			10 MW
Fuel (Natural Gas, Diesel, Oil, etc.)			
Type (fossil, combustion turbine, etc.)			
Synchronous Condenser Capability (Y/N)			
Power Factor Range (lead to lag)			0.95-0.90
Maximum Reactive Power Leading, Mvar			
Maximum Reactive Power Lagging, Mvar			
Load at Maximum MVar Lagging, MW			
Load at Maximum MVar Leading, MW			
Black Start Capable (Y/N)			
Automatic Start or Ramp (Y/N) <sup>6</sup>			

### 2. Operational Limitations

- *List applicable NOx, CO, SO2, particulate, and other appropriate emissions limits; note the name and address of the lead agency; the agency's applicable rule number(s); and note those pollutants for which an emissions cap applies.*
- *List Maximum annual operation, Monthly Reserved MWh for Air Emission Limitations, Operating Limits related to Ambient Temperatures, Ambient Temperature Correction Factors (Provide a curve or table showing the Ambient Temperature Correction Factors for each Unit to describe the relationship between Ambient Temperature and Maximum Net Dependable Capability), FERC License Conditions (hydroelectric Units), Other Limits (e.g., cooling water discharge)*

### 3. Interconnection Point

*First point of interconnection with the ISO Controlled Grid. Must be a transmission node within the local area defined by grid planning*

Unit	Transmission Node	Voltage

### 4. Deliverability Limitations

Generation to be counted to meet Resource Adequacy reserve margin

<sup>5</sup> The maximum net capacity value shall to reflect any transformer line loss to the Delivery Point; reductions to this value shall be reported through the CAISO outage reporting system. Pmax's is validated through testing (to match unit rating), including all constraints under summer peak load hour conditions (ambient temperature, water temperature, Nox, Sox, common penstocks, etc.)

<sup>6</sup> If "Y", describe the conditions under which the Unit will start or ramp automatically

requirements and local capacity requirements must be deliverable during summer peak load conditions as determined by an CAISO Deliverability Assessment.

5. Metering and Related Arrangements

*Must be a meter polled by the CAISO*

Unit	Meter Location	Meter Type

6. Minimums: Load, Run Time, Off Time

- Pmin’s are uninhibited for over-generation, congestion, etc. (i.e. 10-20% of pmax, physical equipment limitations, not a function of heat rates, pollution, etc.)
  - Individual Pmin’s for combined cycle units
- Minimum up time based on physical equipment limitations
- Minimum down time based on physical equipment limitations
- Percentage of short-start units per local area (4000 MW generation in load area, 400 MW short-start for loss of largest unit)

*No specific requirements; values in agreement shall match the values in the CAISO Master File.*

Unit	Manual Minimum (MW)	Dispatchable Minimum (MW)	Minimum Load (MW)	Minimum Run Time (minutes)	Minimum Off Time (minutes)

7. Maximum Annual Generation Commitments: MWh; service hours; start-ups

- Unlimited start-ups based on physical equipment limitations

*Based on an average of the unit’s total annual net output (MWh) for the past five years, and an average of the unit’s total annual running hours for the past five years. Also, provide the number of start-ups each unit has incurred in each of the past five calendar years for each unit offered at the Facility; if less than five years of history; the requirements will be determined by consultation with O/E and their determination of expected MWh, service hours, and start-ups required to meet reliability needs..*

Unit	MWh	Service Hours	Start-ups

8. Start-up Lead Times (per unit)

- Start time based on physical equipment limitations

*Generating Unit Start-up Time (Minutes) shall be the time needed from notification to Pmin as defined in the CAISO Tariff. The Start-up Lead Time to be used for dispatches and settlements shall be the Startup Time submitted by the Owner through the process as defined in the CAISO Tariff.*

Unit	Start-up Segment Number	Generating Unit Down Time (Minutes)	Generating Unit Start-up Time (Minutes)

9. Ramp Rates

- Reasonable ramp rates – i.e. 5-10 MW / minute based on physical limitations

*Separate Ramp Rates will be shown for each load range and will describe any special restrictions affecting Ramp Rates at various load points, e.g., feed pump operation, heat soaks etc.. The Ramp Rate shall be the Operational Ramp Rate submitted by the Owner through the process described in the CAISO Tariff. The values in the CAISO Master File shall be equal to the values the applicable values for the agreement.*

Unit	Ramp Rate Point Number	Output of Point Range (MW)	Minimum Ramp Rate (MW/Minute)	Maximum Ramp Rate (MW/Minute)

10. Variable Costs

*LSE to cover the costs whenever the unit is required to operate to meet local area reliability needs*

11. ISO Dispatchable

*The Units the LSE's procure to meet their to cover the costs whenever the unit is required to operate to meet local area reliability needs*