Draft Proposal for Reserve Scarcity Pricing Design

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Stakeholder Meeting
February 13, 2008
Objectives of Scarcity Pricing Mechanism

Scarcity Pricing is a mechanism for resolving short-term supply shortage by

- stimulating participation in demand response programs;
- attracting supply from inside and outside of the CAISO control area when needed;
- providing incentives for investments in new flexible generation resources.

Scarcity Pricing and capacity market complement each other.
FERC directed the CAISO to implement a reserve shortage Scarcity Pricing mechanism that

- has an administratively-determined operating reserve demand curve;
- applies to prices of energy and reserves, in DA and RT markets;
- needs to be implemented within 12 months after the start of MRTU Release 1.
Scarcity Pricing Scope

Scarcity Pricing scope:
- System-wide and zonal based on the A/S Regions and Sub-Regions defined in MRTU Tariff.

Stakeholder feedbacks
- Generally supportive
- Additional clarification about Sub-Regional A/S requirement criteria and market power mitigation measures
A/S Reserves in Scarcity Pricing

Reserve products to be included:
- Upward A/S Reserves: RegUp, Spinning, and Non-Spinning with joint Demand Curve;
- RegDown with a separate Demand Curve.

Stakeholder feedbacks
- Supported by stakeholders submitted written comments
Triggers of Scarcity Pricing

Triggers of Scarcity Pricing:
- Minimum A/S requirements in A/S Regions and Sub-Regions.

Stakeholder feedbacks
- Static MWs vs. percentage of load as minimum A/S requirement
- Criteria for minimum A/S requirements in Sub-Regions
- Linkage between Scarcity Pricing and a Staged Emergency
- Operators’ use of out-of-market resources vs. Scarcity Pricing
Table 1. Summary of Use of Out-Of-Market Resources

<table>
<thead>
<tr>
<th>Month</th>
<th>Called Times</th>
<th>Average MW</th>
<th>Called Times</th>
<th>Average MW</th>
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<td>3</td>
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<td>Annual</td>
<td>5</td>
<td>85</td>
<td>9</td>
<td>95</td>
</tr>
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### Table 2. Historical Record of Scarcity by ISO

<table>
<thead>
<tr>
<th>Year</th>
<th>PJM</th>
<th>MISO</th>
<th>NYISO</th>
<th>ISONE</th>
<th>CAISO</th>
<th>ERCOT</th>
</tr>
</thead>
</table>
| 2005 | July 26 – 5 h
July 27 – 4.5 h | None    | Aug 27 – 4 h     | None    | 9.9 h |        |
| 2006 | None                       | None    | July 18 – 9 h
July 19 – 9h
Aug 1 – 5h
Aug 2 – 11h
Aug 3 – 6h | Aug 1 – 40 m
Aug 2 – 4 h
45 m | 24.8 h |        |
| 2007 | June 15 – 15 m
June 20 – 30 m |         |                  |         |       | April 3 – 7 fifteen minute intervals |
Scarcity Reserve Demand Curve

- Benchmark price is linked to the CAISO energy bid cap.
- Scarcity Reserve Demand Curve Values (SRDCV)

Stakeholder feedbacks
- Analysis to support the proposed SRDCV
- Value of Lost Load (VoLL) as benchmark price
- A tiered structure of the Demand Curve
- Explanation of the price cascading rule
The CAISO proposes to extend the must-offer requirement to 100% A/S certified RA capacity, with conditional exception of

- RA capacity energy self-schedules.
- Hydro must-offer based Use Plan
- Non-Dispatchable Use Limited RA Resources

Stakeholder feedbacks

- Clarification of 100% A/S certified capacity
- Treat of energy self-schedule
A/ S Cost Allocation

The CAISO proposes to maintain system-wide A/S cost allocation that FERC accepted in Sep 21, 2006 Order. It will be reviewed at the end of the first year of effective of Scarcity Pricing.

Stakeholder feedbacks
- A/S costs allocation to SCs by A/S Sub-Regions
Scarcity Pricing and Capacity Payments

The CAISO proposes not to exclude RA capacity from receiving scarcity prices, nor to adjust capacity payments for now.

Stakeholder feedbacks

- Stakeholders are divided on this issue
## Next Steps

- **ISO Issue Paper**: 5/31/07
- **Stakeholder Meeting**: 6/6/07
- **ISO Straw Proposal**: 9/5/07
- **Stakeholder Meeting**: 9/12/07
- **Stakeholder Panel Conf. Call**: 11/1/07
- **ISO Revised Straw Proposal**: 11/19/07
- **Stakeholder Meeting**: 11/26/07
- **ISO Draft Proposal**: 2/6/08
- **Stakeholder Meeting**: 2/13/08
- **ISO Final Proposal**: Early March, 2008
- **Stakeholder Meeting**: Late March, 2008
- **Board Decision**: May, 2008
Written Comments

Please submit written comments to

SPComments@caiso.com

using the template posted at

http://www.caiso.com/1bef/1bef12b9b420b0.html

Written comments are due by February 27, 2008