Straw Proposal

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

January 19, 2010

Generated Bids and Outage Reporting for NRS-RA Resources

Prepared for Discussion on a Stakeholder Call – January 27, 2010

1 Introduction

The California Public Utilities Commission (CPUC) administers the Resource Adequacy (RA) program, which requires load-serving entities under its jurisdiction to procure sufficient capacity, termed RA capacity, to be available to the ISO to provide energy and reserves to serve load and maintain reliable operation of the ISO controlled grid. RA contracts between load serving entities and suppliers of RA capacity require the supplier to submit bids into the California Independent System Operator (ISO) markets for the RA resource up to the procured MW volume, in compliance with Section 40 of the ISO tariff. In return, the supplier receives a capacity payment.

Because suppliers have an obligation to bid in their RA capacity, the ISO has Tariff authority to insert bids for RA resources that fail to bid into the market.[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 supplier's supply plan. There are gaps in this process, however, when it comes to the case of system (or import) resources that are not resource-specific but do have RA contracts. For ease, non-resource-specific system resources with resource adequacy contracts will be denoted as NRS-RA resources. For example, for the November 2009 RA compliance month, there were 63 NRS-RA resources with a combined contracted resource adequacy capacity of 5,215 MWh.

Currently, the ISO is not inserting bids for NRS-RA resources that fail to bid into the market. This practice, however, will change.[2] Through this stakeholder effort, the ISO will work with market participants to address two issues required for implementing insertion of generated bids for NRS-RA resources that fail to offer into the ISO's day-ahead market. The first issue is the question of what bid price to insert for automatically generated bids for these resources. Since they are not linked to specific generating units, there is no obvious cost basis for the price component of the default bid for NRS-RA resources.[3]

---

1 According to §40.6.8 of the CAISO 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 Paragraph 133 of FERC Docket No. ER09-1064-000 *Order Accepting in Part and Rejecting in Part Tariff Revisions Subject to Modification*, Issued June 26, 2009.

3 A non-resource specific system resource that does in fact have a designated generating resource that supplies the RA capacity has the option to become a resource-specific system resource. For more information on the resource-specific system resource agreement, please contact Daune Kirrene (dkirrene@caiso.com) in the ISO's Infrastructure Policy and Contracts group.

Second is the issue of outages and outage reporting. For internal RA resources, and for 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. The SLIC notification then informs the ISO market software that the RA capacity from the resource or a portion thereof is not available, so that the software will not utilize generated bids to schedule the RA capacity. The complication with the outage reporting requirements in the case of NRS-RA resources is that these resources are not specifically tied to actual generating units. This spurs the question of what it actually means for a non-resource specific system resource to have an outage or derate, and how such an outage or derate would flow through the market and settlements systems.

In this *Straw Proposal*, the ISO is putting 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 outage reporting for those resources. The Straw Proposal is based on feedback provided by market participants to the *Issue Paper* posted December 18, 2009, as well as on the ISO's own analysis of the issue. The ISO seeks additional feedback and suggestions from interested stakeholders to help finalize the resolution for these open issues.

2 Process and Timetable

The purpose of the present *Straw Proposal* is to put forward a policy design that the ISO believes is a sound and equitable approach for resolving the issues described briefly above. The proposed timeline for the Stakeholder initiative is relatively compact in an effort to take the policy resolution to the CAISO Board of Governors in March, 2010. The table below summarizes the key steps in the stakeholder process on refinements to processes relative to NRS-RAs, starting with the release of the *Issue Paper* and ending with submission of the ISO management proposal to the Board. The ISO invites stakeholder input on this *Straw Proposal*.

December 18, 2009	*Issue Paper* Posted
December 30	Stakeholder conference call
January 8, 2010	Stakeholder comments due *
January 19	*Straw Proposal* Posted
January 27 (revised date)	Stakeholder conference call
February 3 (revised date)	Stakeholder comments due *
February 16	*Draft Final Proposal* Posted
March 25-26	Presentation to ISO Board of Governors

* Please e-mail comments to Gillian Biedler at gbiedler@caiso.com

3 Key Criteria for Evaluating Potential Solutions

This section provides some key evaluation criteria the ISO believes are important. Stakeholders are invited to identify other criteria that should be considered in assessing potential solutions.

- The policy that is developed should increase the ISO's ability to reliably operate the grid given its lack of visibility into the generation source(s) behind an NRS-RA resource.

- The policy that is developed should provide consistent rules and effective incentives for suppliers of Resource Adequacy capacity with must-offer obligations to fully comply with §40 of the ISO tariff.

- Policy and design options should be evaluated for implementation feasibility and costs for both the ISO stakeholder and for the ISO.

4 Description of the Issues

Resource Adequacy resources must submit Economic Bids or Self-Schedules for their Resource Adequacy Capacity into the IFM and RUC" *per* CAISO Tariff §40.6.1(1). Furthermore, the CAISO Tariff §40.6.2. states that:

> Resource Adequacy Resources 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, including capacity reflected in the Day-Ahead Schedule and any remaining capacity, for the scheduled and non-scheduled portions of their Resource Adequacy Capacity.

Finally, "Resource Adequacy Resources must participate in the RUC to the extent that the resource has available Resource Adequacy Capacity in the IFM," *per* §40.6.1(5) of the CAISO Tariff.[4]

Prior to the close of the Day Ahead market, the ISO systems check for RA capacity that is bid in, and will insert a generated bid for any dispatchable RA capacity for which an outage was not reported. Some non-resource-specific system resources may not have an obligation to be offered in all hours. Rather, they have an obligation only to be offered in the hours for which they are contracted to provide RA capacity.[5] Thus, it seems as if any approach for generating bids for non-resource specific system resources needs to recognize these resources as RA capacity in some hours but not in others.

Currently, the ISO is not calculating or inserting generated bids on behalf of NRS-RA resources that fail to bid into the Day Ahead market as required by the CAISO Tariff. *Per* FERC's June 26, 2009 Order on the Resource Adequacy Standard Capacity Product (SCP) filing, "the CAISO should be submitting generated bids for non-bidding resource adequacy capacity at the interties if it is not already doing so, however, a tariff change is not required to make this clear. To the extent that the CAISO has not been submitting such generated bids, the Commission directs the CAISO to do so as soon as possible." [6] Non-resource specific System Resources that supply Resource Adequacy

---

4 Additional provisions in CAISO Tariff §40.6.5 are applicable to NRS-RA resources.

5 From the table on page 36 of the BPM for Reliability Requirements which describes the bidding obligation for these resources as follows: "Economic Bids or Self-Schedules are to be submitted for all RA Capacity consistent with inter-temporal constraints such as multi-hour run blocks or contractual limitations (e.g. 6 X 16). (CAISO Tariff 40.6.1, 40.8.1.12.2)"

6 Please see footnote 2 above for citation.

capacity pose two important policy questions that must be resolved in implementing procedures for inserting generated bids for these resources when they fail to offer their capacity into the day-ahead market. These questions concern: (1) the bid price associated with a generated bid, and (2) the rules and procedures regarding outage reporting.

Determination of a Generated Bid

CAISO Tariff §40.6.8 states that the ISO will insert a generated bid on behalf of Resource Adequacy resources with must-offer obligations that fail to bid into the market. Furthermore, if such a resource does not bid the full RA MW quantity, the ISO is authorized to extend the resource's highest bid segment out to the MW quantity specified by the Scheduling Coordinator in the resource's supply plan.

The Scheduling Coordinator for a resource-specific RA resource with a must-offer obligation has several choices over the method by which the generated bid is calculated; tariff section 39.7.1 describes these options. One of these methods, the variable cost option, is based on resource-specific operating and fuel costs of the generating unit. Since NRS-RA resources are not specific to a particular generating unit, basing their generated cost calculation methodology on resource-specific cost-based factors is not feasible. Three non-cost based options were presented in the *Issue Paper* for methods by which to arrive at generated bids for NRS-RA resources. In coming to its *Straw Proposal*, the ISO sought to offer options for generated bids that parallel, as much as possible, those for resource-specific resources.

Outage Reporting

In the event that an internal RA resource or a resource-specific system resource is not available to meet its RA obligation due to an outage or derate, a SLIC outage ticket must be submitted for the resource. The receipt of a SLIC outage ticket informs the ISO that the RA capacity will not be available, so that when the capacity is not offered into the ISO markets, the ISO market software will not use generated bids to implement the must-offer obligation for the capacity.[7] For NRS-RA resources, however, an outage or derate of an associated physical generating resource is not applicable because these resources are, by definition, not resource specific. This *Straw Proposal* seeks to provide an equitable definition of circumstances in which an NRS-RA resource would be unavailable to meet its RA must-offer obligation.

5 Straw Proposal for Addressing the Issues

5.1 Straw Proposal for Generated Bid Calculation Methodology

For an NRS-RA resource that submits a bid into the IFM/RUC but not to the full MW capacity specified in the resource's Supply Plan submitted by its Scheduling Coordinator, the ISO recommended in the *Issue Paper* that the last segment of the resource's energy bid curve be extended out to the full RA MWh quantity. This is consistent with the practice for resource-specific RA resources with must-offer obligations.

[7] This requirement is stated in CAISO Tariff §40.6.8.

As detailed in the *Issue Paper*, the ISO identified three options for generated bids to be inserted on behalf of NRS-RA resources that fail to bid into the IFM. First, the ISO could insert a price-taker ($0/MWh) bid on behalf of NRS-RAs that don't offer into the market. As another option, the ISO could employ the LMP-based calculation used for default energy bids as described in CAISO Tariff § 39.7.1.2.[8] A third option is to enable a market participant to submit for negotiation a bid to be used on its behalf in the event that it doesn't offer its NRS-RA resource into the market as obligated. The negotiated option for NRS-RA resource generated bids would parallel that for resource-specific resources, which is described in CAISO Tariff §39.7.1.3.

Stakeholder Feedback

Of the five sets of written Stakeholder comments received, there was round support for the extension of the last bid segment for a NRS-RA resource that was incompletely bid into the market, as well as for the negotiated option for generated bids. With one exception, Stakeholder comments expressed a lack of support for the price-taker generated bid option. Feedback was mixed with respect to the LMP-based calculation methodology for generated bids. Comments reflected one Stakeholder in favor, and one Stakeholder opposed to this option. Additionally, one Stakeholder proposed that the ISO develop a generated bid calculation methodology analogous to the cost-based options available to resource-specific resources.

Straw Proposal

To be consistent with the treatment of internal RA resources, the ISO proposes that an NRS-RA resource's bid curve be extended to the full RA obligation at the same price as the last segment of bid-in supply in the event that it bids in only part of its obligated MWh volume. This would apply to each tie point specified in the NRS-RA resource's Supply Plan.

Further, the ISO proposes that, with the exception of the cost-based calculation methodologies, NRS-RA resources have available to them the same options for generated bids as are available to resource-specific resources. Specifically, the ISO recommends that NRS-RA resources be able to choose between the LMP-based bid option and the negotiated bid option. If the LMP-based bid option is elected, the resource must have a "back-up" negotiated bid value to be used in the event that the feasibility test fails for the LMP-based bid option due to lack of sufficient data. Stakeholders expressed some concerns about using 90 days of data to calculate the LMP-based option, stating that energy prices vary greatly over that period, and that the LMP-based generated bid can therefore be out of line with contemporary market conditions. Allowing for a choice between the negotiated bid option and the LMP-based option will provide an alternative to the LMP-based bid option for market participants unwilling to accept this risk.

Due to lack of Stakeholder support, the ISO will not pursue the price-taker generated bid option.

[8] Two examples illustrating how the LMP-based approach would work are provided in Appendix A of this *Straw Proposal.*

The ISO will not undertake the estimation of a cost-based generated bid for NRS-RA resources although one Stakeholder suggested so. Rather, the ISO proposes to defer to the independent entity which, if it deems appropriate, can determine how to develop negotiated bids that reflect the costs of providing energy from NRS-RA resources.

With regard to implementation, the ISO proposes that the functionality to insert bids on behalf of NRS-RA resources be implemented no earlier than the implementation of the SIBR release planned for Fall 2010. The current version of the SIBR software is not able to submit generated bids on behalf of RA resources for a subset of hours. Many NRS-RA resources, however, have must-offer obligations for less than 24 hours *per* day, seven days *per* week. Thus, this recommendation is made in order to avoid the complications of generating bids for resources when they are not required to offer into the market. The ISO further recommends that the insertion of generated bids for NRS-RA resources that fail to bid into the market per their offer obligations and the SLIC outage reporting functionality for these resources be targeted for implementation by or before the implementation of SCP II on January 1, 2011.

5.2 Straw Proposal for Outage Policies for NRS-RA Resources

Non-resource specific system resources that supply RA capacity have the flexibility to provide that capacity from a variety of sources, for examples a single unit, a group of resources, or *via* a bilateral transaction that is not tied to any specific physical resource. Thus, NRS-RA system resources technically do not experience outages as they are, by definition, not linked to a specific generating resource. None-the-less, the ISO recognizes that there may be circumstances over which the NRS-RA supplier has no control that can adversely impact the supplier's ability to meet its RA obligation. In order for the supplier to report an NRS-RA resource's unavailability to the ISO, the ISO will add the resource identification numbers for those resources to the SLIC system.

Stakeholder Feedback

Two Stakeholder comments were supportive of having unavailability of NRS-RA resources resultant from curtailments of critical transmission paths outside the CAISO system. However one comment pointed out additional circumstances, not adequately captured by this criterion, that might legitimately lead to NRS-RA resource unavailability. More detail is provided below on the circumstances offered for consideration, along with the ISO's determination, as of this *Straw Proposal*, on those reasons for NRS-RA resource unavailability.

Two Stakeholder comments reflected a reluctance to apply the kind of requirements for reporting of forced outages for resource-specific resources to the unavailability of NRS-RA resources. Generally, these comments expressed concerns about a requirement to disclose transmission arrangements outside the CAISO-controlled grid in the event that such circumstances rendered the NRS-RA resource unavailable.

Stakeholders requested that the SCP rules be reviewed to determine the effects (if any) of NRS-RA resource forced outages on SCP availability and/or compliance standards. Please note that this issue will be addressed as part of the Standard Capacity Product Phase II (SCP II) stakeholder initiative.[9]

Straw Proposal

Resource-specific RA resources have an availability standard which is less than 100% of their RA contracts in recognition of the fact that physical resources can experience circumstances that can render them unable to provide some or all of their RA capacity. FERC's order that NRS-RA resources also have such an availability standard was made based on the argument of equity among market participants. Out of continued concern for equity among market participants, the ISO has analyzed reasons put forward by Stakeholders as to why an NRS-RA resource would be unable to offer in its RA capacity. These fall into four general categories, which are listed below along with an explanation of the rationale for the CAISO's straw proposal:

- **Limitations of a particular resource or external transmission path can lead to the unavailability of an NRS-RA resource.** It is the ISO's position that such limitations are not valid reasons for an NRS-RA resource to be unavailable to fulfill its offer obligation. The benefit of not being linked to a specific generating resource is that market participants bidding in NRS-RA resources can use their discretion in choosing the source of energy that best suits their logistical constraints and economic circumstances. Since these suppliers have the flexibility to procure power from alternate sources and to arrange alternate transmission, NRS-RA resources are expected to use that flexibility to provide the ISO with a "firm" capacity product;
- **The lack of synchronicity between the ISO's scheduling timeline and those of other BAAs can result in limitations to the deliverability of energy.** The fact that the scheduling timelines of the ISO and other BAAs are unsynchronized may result in the inability of an NRS-RA resource to tag its schedule. This would not, however, prevent the resource from fulfilling its RA must-offer obligation by offering its RA capacity into the ISO markets. Therefore, it is the ISO's position that the lack of synchronicity between these scheduling timelines is not a valid reason for the unavailability of an NRS-RA resource;
- **Transmission limitations at the CAISO injection points can consequently lead to transmission constraints in adjacent BAAs, and this can compromise availability of NRS-RA capacity.** The ISO's position is that situations at the intertie points that limit or prohibit delivery to the ISO BAA are not valid reasons for the unavailability of an NRS-RA resource. Such situations do not preclude the NRS-RA resource from offering its RA capacity into the ISO market, and the ISO's market software will only procure what is feasible over the intertie; and
- **Extraordinary operational circumstances in adjacent or intermediate BAAs can lead to the inability of an NRS-RA resource to offer its capacity into the market.** In the event that an adjacent or intermediate BAA experiences such unusual circumstances, the ISO agrees that the NRS-RA resource's capacity can be legitimately unavailable.

[9] More information on this initiative is available on the CAISO website at the following link: http://www.caiso.com/2479/2479e7362d1e0.html.

The ISO proposes that legitimate unavailability of NRS-RA resources be defined as being due to circumstances in external Balancing Authority Areas (BAA) (adjacent or intermediate) that result in the inability of an NRS-RA resource to fulfill its RA offer obligation. The BAA experiencing these extraordinary circumstances would be in communication with the ISO to coordinate actions necessary to preserve reliability. This removes the burden of substantiating the reason for the unavailability from the market participant bidding in an NRS-RA resource. Additionally, it removes the question of how the ISO would verify the circumstances leading to the NRS-RA resource's unavailability. In effect, SLIC will offer NRS-RA resources only one reason for their unavailability – that of extraordinary circumstances faced by a neighboring or intermediate BAA.

The ISO proposes that, for the purposes of NRS-RA resources, the linkages between SLIC and other applications be limited to the Resource Adequacy Availability Management (RAAM) tool.

6 Conclusion

The ISO will conduct a conference call to review this *Straw Proposal* on Wednesday January 27, 2010 from 1:00 p.m. to 2:00 p.m. Please note that this call is moved one day later to accommodate the full Stakeholder engagement calendar on its originally scheduled date. Correspondingly, the due date for comments on this *Straw Proposal* is moved to February 3, 2010. The ISO invites stakeholder comments and discussion on the issues raised within this paper as well as other issues that should be examined. Please send your comments by close of business to Gillian Biedler at gbiedler@caiso.com.

Appendix A: Two examples of the LMP-based option for generated bids

Example 1: NRS-RA Resource A

The Scheduling Coordinator for Resource A has submitted a Supply Plan for that resource that indicates its capacity will be available over one intertie point. The table below shows all eight dispatches that occurred at the tie point in the last ninety days. The dispatches are sorted by LMP from lowest to highest. The lowest quartile is comprised of the two dispatches around which the box is drawn.

Lowest Quartile Dispatch

Dispatch (MWh)	LMP ($/MWh)
500	7
150	8
100	10
275	12
120	15
75	17
230	22
300	25

To calculate the LMP-based generated bid, take the average of the LMPs weighted by their associated MWh dispatches. For this example, the LMP-based generated bid would be calculated as

$$\frac{7\ \$/\text{MWh} * 500\ \text{MWh} + 8\ \$/\text{MWh} * 150\ \text{MWh}}{500\ \text{MWh} + 150\ \text{MWh}} = \$7.23\ \textit{per}\ \text{MWh}.$$

So if Resource A fails to bid into the market, a generated bid of $7.23 *per* MWh would be inserted for it up to the MW capacity it is obligated to offer into the market as indicated in its Supply Plan.

Example 2: NRS-RA Resource B

The calculation of the LMP-based generated bid for an NRS-RA resource can be complicated by the fact that a Scheduling Coordinator is able to submit a Supply Plan for an NRS-RA resource that specifies capacity quantities to be available at each of multiple tie points. In such cases the supplier is obligated to offer the specified quantity at each tie point, and therefore it is necessary to create an LMP-based generated bid for each of the specified interties. In this second example, we'll calculate the LMP-based generated bids for NRS-RA Resource B for which the Supply Plan indicates its capacity will be available over four intertie points – A, B, C, and D. For this example, the Scheduling Coordinator's Supply Plan for meeting its obligation to provide 600 MW of capacity is summarized in the table below:

Supply Plan – 600 MW RA Capacity

Tie Point	MW
A	150
B	150
C	200
D	100

The following table captures the lowest quartile of LMPs received (as well as the associated dispatched MWh quantities for the particular resource) for all the dispatches of the RA resource over those four tie points during the past ninety days for a particular market and for a particular time period (either Peak or Off-Peak). The *per* MWh prices to the right of the table below are calculated by taking an average of the prices weighted by the MWh volumes dispatched at those prices just as in the above example.

Lowest Quartile Dispatch by Tie Point

	Dispatch (MWh)	LMP ($/MWh)	
Tie Point A	150	$5	$9.65
	140	$10	
	275	$12	
Tie Point B	300	$25	$28.67
	350	$30	
	100	$35	
Tie Point C	75	$18	$22.62
	50	$20	
	200	$25	
Tie Point D	250	$14	$16.57
	80	$16	
	200	$20	

For Resource B, failure to bid in at any one of the four tie points would result in the applicable LMP-based generated bid at that location. For example, if Resource B was not bid in at Tie Point A as *per* its Supply Plan, a bid for 150 MWh at $9.65/MWh would be inserted on its behalf even if 150 MW was bid in at Tie Point C. Failure to deliver at Tie Point A would result in Resource B having to buy back that power at Tie Point B's HASP price.