California Independent
System Operator Corporation

Memorandum

To: ISO Board of Governors

From: Keith Casey,Vice President, Market & Infrastructure Development

Date: July 16, 2010

Re: **Decision on Modifications to Bidding Provisions for Commitment Costs**

This memorandum requires Board action.

EXECUTIVE SUMMARY

Shortly after the implementation of the new market, several suppliers identified issues related to the inefficient start-up and commitment of certain generation resources. In response, Management commenced a two phased stakeholder process to resolve these issues. Phase one, which was completed last year, resulted in rule changes to significantly reduce the time restrictions for changing start-up and minimum load costs from six months to thirty days. In phase two of this initative, Management proposes to: 1) further refine start-up and minimum load calculations and bidding rules and 2) apply mitigation rules for multi-stage generation transition costs.

> ***Moved, that the ISO Board of Governors approves the proposed tariff change regarding modifications to bidding provisions for commitment costs as detailed in the memorandum dated July 16, 2010; and***
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> ***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

BACKGROUND

At the start of the new market, generating units were evaluated for unit commitment by the market optimization based on their start-up and minimum load cost elections that were required to be in place for six months. Under these rules, a market participant could elect either a registered cost option or a proxy cost option for their start-up and minimum load bids. Under the proxy cost option, a unit's start-up and minimum load values are calculated daily by the ISO based on formulas that adjust for fuel costs using daily gas prices. On the other hand if a market participant selects the registered cost option, the unit owner provides specific values for start-up and minimum load that remain fixed for the selection period. The submitted values under this option cannot be greater than 200% of the projected proxy costs, which are calculated by the ISO on a monthly basis using future gas price indices.

Within the first few months of the new market, many market participants expressed concerns that their resources were being committed more frequently than good utility practice would dictate and were frequently held at minimum operating levels only to be de-committed one day and re-committed the next. Market participants observed that this caused extra wear and tear on their generating units, used up fixed numbers of unit start-ups and emissions allocations, and made it difficult for unit owners to recoup their operating costs.

While some of these cycling issues were due to generation and transmission outages and to extensive self-scheduling at the start of the new market, the ISO recognized that the market software was also contributing to this problem and that the software needed some fine-tuning and corrections. In addition, the ISO also recognized that market participants needed greater flexibility to manage their resources. To further address these concerns, the ISO launched a two-phased approach to enhancing market participants' options for electing start-up and minimum load cost compensation. The first phase, which was implemented in July 2009, significantly shortened the period in which scheduling coordinators could modify their start-up and minimum load elections between the registered and proxy cost options from six months to 30 days.

The second phase, which generated this proposal, provided the ISO and stakeholders the opportunity to further refine start-up and minimum load cost compensation. While the policy change resulting from the first phase of the initiative revised the timing of cost option elections, the calculations of those cost options themselves are revised through this second phase to better capture cost components of start-up and minimum load. Additionally, through this renewed initiative, the ISO and stakeholders have developed bidding rules that will be applied to multi-stage generating resources' transition costs.

Multi-stage generating resources are capable of operating in multiple output ranges due to their generating technology. The most common example of this is a combined cycle generator which is capable of operating under different turbine configurations. For example, a 2x1 combined cycle resource is comprised of two gas turbines, and one steam turbine. Even this relatively simple multi-stage generating resource can operate in one of a number of configurations at a given time: one gas turbine, two gas turbines, one gas turbine and the steam turbine, and both gas turbines and the steam turbine. The multi-stage generator modeling

functionality, which is scheduled to be launched on October 1, 2010, will enable market participants with multi-stage generators to bid in the various configurations of those units separately. Associated with transitions between any of the various configurations are transition costs. The mitigation of transition costs is included as an important component of this proposal as they could otherwise potentially be used strategically to withhold a multi-stage generating resource's capacity.

PROPOSAL

In this initiative, ISO staff worked with stakeholders to develop refinements to start-up and minimum load calculations and enhanced bidding options, and also formulated market power mitigation rules for multi-stage generator transition costs.

The changes to start-up and minimum load are designed to improve the extent to which these parameters capture the costs of starting up a generating unit and running it at its minimum load level. In so doing, the market optimization will make more efficient dispatch decisions and market participants will be better able to recoup the costs associated with starting a generating unit and running it at its minimum output level.

Management proposes the following modifications to the start-up and minimum load parameters:

General changes to start-up and minimum load cost rules

- Allow market participants to independently elect the proxy cost option or the registered cost option for their start-up and minimum load costs. The current election applies to both start up and minimum load costs. These elections would still be fixed for 30 days;

- Enable market participants to submit bids on a daily basis for start-up and minimum load values when they have elected the proxy cost option . The bids must be limited to a minimum of zero to a maximum of the calculated proxy value. Under the current rules, no daily bidding is allowed;

- Evaluate the default operations and maintenance values that are used in the proxy calculation for minimum load every three years. Currently the default O&M values for minimum load are fixed and no review cycle is specified; and

- Change the natural gas delivery point to Citygate from Border for Southern California to better reflect the price of delivered natural gas when calculating start-up, minimum load and transition costs under the proxy cost option.

Rules for Transition Costs

In addition to the changes to start-up and minimum load, Management proposes market power mitigation rules to mitigate the potential for strategic use of multi-stage generator transition costs to withhold capacity of those units. Just as start-up and minimum load costs figure into commitment decisions, transition costs figure into the optimization's decisions to move a multi-stage generator resource from one configuration to another. For this reason, transition costs must be constrained appropriately, while still providing enough flexibility for these complex resources to express the costs associated with moving between configurations. The market power mitigation rules developed for transition costs through this stakeholder initiative are summarized below:

- The first rule (Rule 1) limits the magnitude of the transition costs from offline to a certain configuration. The rule states that the sum of the transition costs for a multi-stage generator resource cannot exceed 125% of the cost associated with starting directly to the highest MW configuration (proxy cost value +10%);

- The second rule (Rule 2) is designed to limit transition costs between configurations such that the cost of moving from one configuration to another is between 100 and 125 percent of the direct transition to the highest MW configuration; and

- Costs associated with downward transitions (higher MW output configuration to a lower MW output configuration) will not be subject to Rule 1 and Rule 2. Rather, multi-stage generator units can submit a heat input value (fuel quantity) which is used to calculate the downward transition costs.

POSITIONS OF THE PARTIES

In the written comments, there were several common issues brought forward by stakeholders as described below. Stakeholder comments are further detailed in the stakeholder matrix which is *Attachment A* to this memo. The formal opinion from the Market Surveillance Committee is included as *Attachment B.*

Independent election of either the proxy or registered option for start-up and minimum load cost calculations

Comments submitted by stakeholders as well as the Market Surveillance Committee were uniformly supportive of this change. The change will enable participants to elect the proxy cost option, which is indexed to the gas price index, for minimum load costs while electing the registered cost option, which is governed only by a cap of 200% of the proxy cost option, for start-up costs.

Dynegy and NCPA/SVP expressed support for inclusion of an opportunity costs component for the proxy start-up calculation for environmentally use-limited resources. RRI Energy Services, Inc. and SCE requested that the ISO develop a fixed component to the start-up proxy cost calculation methodology through which they could recoup "per start" O&M costs. Given the flexibility associated with the independent election of proxy or registered cost options for start-up and minimum load, Management concluded that these more complex changes – for which there was not broad support among stakeholders – are not warranted at this time. Market participants are not required to provide justification for their registered cost value, which is restricted only in that it must be less than or equal to 200% of the calculated proxy cost option. Thus, if the per MWh O&M element of minimum load is insufficient to recoup their O&M costs, the registered cost option can be selected so that larger O&M costs associated with starting and/or running a resource at minimum load can be recouped.

Daily bidding of start-up and minimum load for costs calculated using the proxy cost calculation methodology provided those bids are between $0 and the calculated proxy value

This functionality was requested and strongly supported by stakeholders.

Dynegy advocated for unrestricted daily bidding of start-up and minimum load costs that would be subject to dynamic mitigation using the same methodology used for energy bids. Implementing daily bidding of start-up and minimum load in this manner would require significant changes to the market optimization through the inclusion of the dynamic mitigation of start-up and minimum load costs. Without broader support and evidence of the need to do so, Management does not propose such functionality at this time. The Department of Market Monitoring and the Market Surveillance Committee are in agreement with this approach.

Rebenchmarking of default O&M values every three years

Stakeholder feedback through the first phase of the initiative indicated the need to recover higher O&M costs related to unit start-up. As part of the initial straw proposal for the second phase of the initiative, ISO staff suggested for consideration the methodology PJM has employed for participants to submit detailed O&M cost accounting for their generating resources to the ISO. There was little support for this option, and stakeholders did not want this option to supplant the option currently available to negotiate a higher O&M value as part of developing a negotiated default energy bid.

Since the negotiated O&M rate has not been sought by any market participants, and there was not broad support for submitted O&M values as they have in PJM, we conclude that the current per MWh O&M default values used in the proxy minimum load calculations are not insufficient. Those participants who have contractural arrangements that include per-start O&M costs are encouraged to take advantage of the proposed ability to elect the registered cost option for start-up costs, while employing the proxy cost option for minimum load costs which are more dependent on fuel prices.

Change to the natural gas delivery point price used for generating resources south of Path 15

Stakeholders were supportive of the proposal to replace the Southern California Border natural gas delivery point price with the City Gate price for generating units south of Path 15. Use of this index will better reflect the cost of delivered natural gas in Southern California.

Dynegy, RRI and Wellhead brought up additional concerns with respect to natural gas pricing. Those issues included the need to recoup intra-state transportation charges, differences between day-ahead and real-time natural gas prices and the balancing charges associated with real-time deviations from day-ahead energy schedules, and costs resulting from operational flow orders. Although these may well be costs that participants may legitimately seek to recoup, support for these sporadic costs was not broad enough for Management to recommend the complex implementation of mechanisms to capture these costs.

Upward multi-stage generator transition costs will be bound by two rules; heat input values will be submitted for downward transition costs

Throughout the policy initiative, stakeholders provided invaluable feedback to help refine the transition cost bounding rules. Since this is a new approach to cost mitigation, there were many questions and clarifications, examples, and subsequent revisions before Management arrived at the final policy recommendation. This element of the proposal in particular has benefited from the collaborative and supportive participation of stakeholders. Stakeholders are supportive of this proposal.

RECOMMENDATION

Management requests Board approval of this proposal for modifications to bidding provisions for commitment costs. The mitigation rules for multi-stage generating resources' transition costs will be filed with the Federal Energy Regulatory Commission and implemented as part of the multi-stage generation design in October 2010, whereas the changes to start-up and minimum load are targeted for implementation by Fall 2011.