From: CRCommunications
Sent: Thursday, May 24, 2001 5:12 PM
To: ISO Market Participants
Subject: CAISO Notification - April 26 FERC Order

The following are a few more details related to the April 26 FERC order:

1. Implementation date is May 29 per the FERC order, not June 1 as I indicated in the MIF meeting.

2. Gas prices will be available in the new OASIS site starting 8:00 am on May 28. See http://oasisp.caiso.com.
If for some reason, OASIS is not able to publish the prices, we will be sending out the prices via e-mail to all market participants and/or system messages display in the SI workspace.

3. Replacing the bids for gas-fired generators with proxy bids during mitigation hours:
*   We will determine mitigation hours by checking system status between 45 and 10 minutes before the start of an operating hour. The decision will apply for a whole hour. We will not operate hours partially under mitigation and partially under non-mitigation. A report indicating which hours are mitigation hours will be published on the new OASIS site. The latest status will be posted at the top of each operating hour.
*   For generators in the control area only, that we have visibility to (individually scheduled unit, gross metering), we will be checking for available capacity, and we will be extending or inserting Supplemental Energy bids on behalf of the SC to include the extra capacity. The bids for the additional energy will be priced on the proxy curve.

4. Extending or inserting bids for must-offer generators by the ISO:
*   For generators in the control area only, that we have visibility to (individually scheduled unit, gross metering), we will be checking for available capacity, and we will be extending or inserting Supplemental Energy bids on behalf of the SC to include the extra capacity. The bids for the additional energy will be priced at $0.
*   Units awarded regulation will not be subject to ISO capacity checking, and therefore not subject to bid extending or inserting.
*   If a unit has not submitted a supplemental energy bid, we will only generate a new Supp Energy bid for that unit if it appears to be available and dispatchable during real-time.   In order to facilitate that we are using the following criteria: the unit is a combustion turbine, the unit has a non-zero hour ahead schedule, or the unit has been awarded ancillary services.

5. Submittal of single Heat Rate and Emission Rate points, or no points:
*   For those units that have only submitted data for one operating point, and are capable of generating over multiple operating ranges, or in general cases where we believe the data to be inadequate, we will substitute the operating point(s) with the data from current or pre-existing RMR contracts where possible. If RMR data does not exist for a unit, we reserve the right to use other data from other sources to replace the submitted data.
*   For those units that have not submitted any data, we will assume the unit is a price taker and generate proxy bids at $0.

6. For those of you trying to cover your GMMs:

        A SC asked about what happens when they have to overgenerate above their Hour Ahead schedule to cover their GMM, and then we dispatch them the difference between Pmax and their HA schedule to comply with the FERC order.

        Example:
        SC has a 31MW unit. Their GMM is 0.967, or about 1 MW of losses. They usually submit an HA schedule of 30 MW, and generate at 31 MW to cover the GMM.

        The answer is that A unit that keeps the ISO apprised of its availability in real-time and performs in accordance with its bid characteristics when dispatched should not receive penalties.
        A unit with a Final HA Schedule of 30 MW that is dispatched for the additional 1 MW and generates 31 MW according to meter data will not be penalized under CT 485. The Total Obligation for CT 485 for a unit that is dispatched for Incremental Energy is Final HA Schedule + 90% of Instructed Incremental Energy. The Total Obligation for the hour is compared to the hourly meter value for that unit and is not adjusted for transmission losses, i.e.. GMM is not taken into account. (Currently, penalties for failure to perform are assessed on an hourly basis, however CT 485 may be assessed on an interval basis in the future.) So the Total Obligation for the unit is 30 MW + .9 MW (90% of 1 MW) = 30.9 MW which is less than the meter of 31 MW. For CT 485 purposes, this unit will not receive any penalties.
        It is important to note that there is a 10% tolerance or 2 MW for Instructed Energy less than 20 MW on CT 485 penalties. If the unit is instructed for less than 20 MW, 2 MW will be taken off of the Instructed Incremental Energy instead of 10%. This means that any unit that has an Incremental Instruction for 2 MW or less would not be flagged for CT 485 review.
        For other Settlement charge types such as, CT 401 and No Pay charges on Spin, Non-Spin, and Replacement, a unit is required to provide the

Instructed Energy plus any transmission losses in order to receive full credit for providing the Scheduled Energy and Ancillary Services.

7. Example of proxy curve calculation is included in the attached document.

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Assume a unit has submitted the following information for 3 points, their Pmin is 75 and Pmax is 300:

MW	Heat Rate	ER
100	13000	0.8
200	11000	0.7
300	10500	0.6

The price of gas is $9, the emission price is $0.

The formula we will use is:

$$C_i' = \max\left(C_{i-1}', \ 0.001\left(\frac{HR_{i+1}\,Q_{i+1} - HR_i\,Q_i}{Q_{i+1} - Q_i} \right)P_{Gas} + \left(\frac{ER_{i+1}\,Q_{i+1} - ER_i\,Q_i}{Q_{i+1} - Q_i} \right)P_{NOx} + \alpha \right)$$

$$\therefore \quad \begin{cases} i = 1,2,\ldots,n-1 \\ Q_i \le Q \le Q_{i+1} \\ C_0' = 0 \end{cases}$$

C_i is the cost at point i, Q_i is the output at point i, for n number of points. α is the fixed cost adder, equal to $2.

Note: If the cost resulting from the heat rate portion or the emissions portion of the equation is negative, the portion will be adjusted to zero.

We first calculate the cost at the first point:

$$C_1 = \max\left(0, \ 0.001\left(\frac{11000x200 - 13000x100}{200 - 100} \right)9 + \left(\frac{0.7x200 - 0.8x100}{200 - 100} \right)0 + 2 \right) = \$83$$

Next, we calculate the cost at 2nd point:

$$C_2 = \max\left(83, \ 0.001\left(\frac{10500x300 - 11000x200}{300 - 200} \right)9 + \left(\frac{0.6x300 - 0.7x200}{300 - 200} \right)0 + 2 \right) = \$87.50$$

Next, to cover the unit's full range of operation, we would extend the curve down to Pmin by setting $Q_1 = 75$.

Finally, to convert the results into a bid, we would set $C_3 = C_2$. The resulting MW-price pairs are as follows:

(75, $83.00)
(200, $87.50)
(300, $87.50)