

UNITED STATES OF AMERICA  
BEFORE  
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System  
Operator Corporation

Docket Nos. EC96-19-\_\_\_\_\_  
ER96-1663-00\_\_

**SUBMISSION BY  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR  
CORPORATION  
OF  
REVISED STAGING PLAN NO. 3**

In compliance with the Commission's order issued October 30, 1997 in the above-referenced proceeding,<sup>1</sup> the California Independent System Operator Corporation ("ISO") respectfully submits the ISO Revised Staging Plan No. 3.

**I. BACKGROUND**

In its order issued July 30, 1997, the Commission instructed the ISO to file a staging plan proposing a plan to implement the remainder of the California restructuring proposal that would not be implemented on the ISO Operations Date.<sup>2</sup> Specifically, the Commission directed

the ISO and PX each to file with the Commission quarterly status reports regarding the status of any restructuring implementation, with particular emphasis on any significant changes in operations or timing that are anticipated, and we will respond as necessary. The Commission clarifies that these status reports would be filed to inform the Commission and the parties; we do not intend to notice these reports for public comments.<sup>3</sup>

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<sup>1</sup> *Pacific Gas and Electric Company, et al.*, 81 FERC ¶ 61,122 (October 30, 1997) (hereinafter "October 30 Order").

<sup>2</sup> *Pacific Gas and Electric Company, et al.*, 80 FERC ¶ 61,128 at 61,419-20 (July 30, 1997).

<sup>3</sup> *Pacific Gas and Electric Company, et al.*, 80 FERC ¶ 61,128 at 61,419-20 (July 30, 1997).

On November 21, 1997, the ISO filed Revised Staging Plan No. 1.<sup>4</sup> By notice submitted on December 23, 1997, the ISO informed the Commission of a delay in the commencement of ISO operations, which was scheduled for January 1, 1998. In that notice, the ISO informed the Commission that it would notify the Commission of the new projected initial operations date prior to January 1, 1998. On December 30, 1997, the ISO filed an additional notice with the Commission, advising the Commission of the Board decision to set the projected initial operations date of no later than March 31, 1998. On March 16, 1998, as required by the Commission's December 23, 1997 order,<sup>5</sup> the ISO filed with the Commission a notice of its intent to begin operations on March 31, 1998.<sup>6</sup> On March 30, 1998, the ISO and the Chief Executive Officers of the PX and the three Transmission Owners, filed their certificates regarding reliability, as required by the Commission's October 30, 1997 order.<sup>7</sup> On March 31, 1998, the ISO posted final schedules to open the Day-Ahead Market, beginning full operation the following day.

The ISO now submits Revised Staging Plan No. 3 in order to apprise the Commission, the parties to this proceeding, and the public at large of the current status of its implementation plans. A copy of this staging plan has been posted on the ISO's Web Site.

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<sup>4</sup> To avoid confusion to the extent possible, the ISO's Revised Staging Plans are numbered sequentially. When a new function is to be staged, the ISO will typically add it as a new function at the end of the current plan. The entire plan will then be resubmitted to the Commission, served on the parties to these proceedings and placed on the ISO's Home Page. All changed text is underlined, except Appendix A which is entirely new.

<sup>5</sup> *Pacific Gas and Electric Company, et al.*, 81 FERC ¶ 61,378 at 62,783 (December 23, 1997).

<sup>6</sup> The ISO filed the notice to comply with the Commission's December 23, 1997 order, *Pacific Gas and Electric Company, et al.*, 81 FERC ¶ 61,378 (December 23, 1997).

## **II. PLANNED ISO AND STAKEHOLDER REVIEW OF STAGING PLAN**

During the testing phase leading up to the ISO Operations Date, the ISO identified a number of instances where the software it uses to operate the system and certain markets varies from the design (a “software variance”). The ISO also identified a number of instances where the software performs as designed, but with unpredicted and undesired consequences. In the first weeks after the ISO Operations Date, efforts will be concentrated on correcting software variances and redesigning software as necessary. For that reason, this revised staging plan does not vary significantly with that filed on December 30, 1997, except in the Appendix.

The ISO will file its next staging plan at the end of the second quarter. That staging plan could include substantial changes from the current plan. Management will report to the ISO Board of Governors at the April 23 meeting on the status of the various software projects. In addition, since last October, stakeholders have been identifying changes they would like to see in various ISO functions, most of which will require software changes. The ISO will commence a stakeholder process in the near future to discuss whether the market participants desire to change the priority of certain staged functionalities. Management expects to present a comprehensive plan for software implementation by the May 28 Board meeting.

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<sup>7</sup> *Pacific Gas and Electric Company, et al.*, 81 FERC ¶ 61,122 at 61,572-73 (October 30, 1997).

### **III. APPENDIX A TO THE STAGING PLAN**

Since January 1, 1998, the ISO has concentrated on the steps required to meet the scheduled ISO Operations Date. As work intensified and testing identified software and other concerns, the ISO adopted a series of temporary measures, proposed in Tariff Amendment Nos. 4 – 7.<sup>8</sup> The ISO views the staging plan as a report on deferred functionality – what the ISO intends to add in the future. Under that standard, the temporary measures have not been included in the body of Revised Staging Plan No. 3, but rather in an Appendix, since they cover functions in place on the ISO Operations Date, rather than functions to be put into place in the future.

The ISO has included them in the Appendix to provide the Commission and the Parties with a comprehensive summary of the temporary provisions. The ISO will update the Appendix in future staging plans to keep the Commission and the parties apprised of what provisions remain in place and which have terminated.

### **III. CONCLUSION**

Wherefore, for the foregoing reasons, the ISO respectfully submits Revised Staging Plan No. 3.

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<sup>8</sup> ISO Tariff Amendment No. 4,5 and 6 were conditionally accepted by the Commission for filing, *California Independent System Operator Corporation*, 82 FERC ¶61,327 (March 30, 1998). ISO Tariff Amendment No. 7 was filed on March 31, 1998, has not been noticed by the Commission yet.

Respectfully submitted,

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Fiona Woolf  
Linda C. Ray  
**CAMERON MCKENNA LLP**  
2000 Pennsylvania Avenue, N.W.  
Washington, D.C. 20006  
Tele: 202-466-0060  
Fax: 202 466-0077

N. Beth Emery  
Vice President and General Counsel  
**CALIFORNIA INDEPENDENT SYSTEM  
OPERATOR CORPORATION**  
151 Blue Ravine Road  
Folsom, California 95603  
Tele: 916-351-2334  
Fax: 916-351-2350  
email: [bemery@caiso.com](mailto:bemery@caiso.com)

**COUNSEL FOR THE CALIFORNIA INDEPENDENT  
SYSTEM OPERATOR CORPORATION**

Dated: April 6, 1998

## CERTIFICATE OF SERVICE

I hereby certify that I have this day served the forgoing ISO Revised Staging Plan No. 3 upon each person designated on the Official Service List compiled by the Secretary in this proceeding.

Dated at Washington, D.C. on this 6th day of April, 1998.

— \_\_\_\_\_  
Harry Dupre

# **ISO REVISED STAGING PLAN NO. 3**

## ***ISO System Functionality***

### ***Staged for Implementation After the ISO Operations Date***

#### **ISO Operations Date**

The ISO commenced Operations on March 31, 1998.

#### **Settlements and Billing**

##### ***1. Imbalance Energy Settlement Period***

###### **Full Functionality**

Real-Time Imbalance Energy charges for Energy deviations from schedules will be calculated on a sub-hour interval basis (based on Energy price bids associated with Ancillary Services and Supplemental Energy).

###### **ISO Operations Date Functionality**

Real-Time Imbalance Energy charges for uninstructed Energy deviations will be calculated on an hourly basis. The hourly charge applicable to uninstructed Energy deviations will be calculated using the weighted average of the sub-hour interval Dispatch instructions.

###### **Reason for Staging**

The ISO's Settlements system is not yet capable of settling based on sub-hour interval prices. Metering data will also be passed in hourly increments until the Settlements system is ready to accept sub-hour interval metered quantities. The Settlements system is highly complex, and given the experience gained in the ISO's coupled testing prior to the ISO Operations Date, the ISO has concluded that implementing this highly complex function will require a full nine months after the ISO Operations Date.]

###### **Implementation Date**

January 1, 1999

## **2. *Calculation of Generator Meter Multipliers***

### **Full Functionality**

Transmission Losses will be calculated based upon ex-post Generation Meter Multipliers (GMMs) derived from measurements of actual metered quantities.

### **ISO Operations Date Functionality**

Transmission Losses will be calculated based upon GMMs derived from Final Hour-Ahead Schedules.

### **Reason for Staging**

Actual metered quantities will not be available to the software calculating GMMs, and the GMMs derived from Final Hour-Ahead Schedules will provide reasonable approximations of Transmission Losses until such time as actual metered quantities are available.

### **Implementation Date**

October 1, 1998

## **3. *Allocation of Replacement Reserve Costs***

### **Full Functionality**

The ISO's Settlement system will allocate dispatched Replacement Reserve costs based on deviations between Scheduling Coordinators' scheduled and actual Demand. The ISO's Settlement software will allocate undischarged Replacement Reserve costs pro rata to all Scheduling Coordinators based on actual Demand.

### **ISO Operations Date Functionality**

The ISO's Settlement software will allocate dispatched Replacement Reserve costs based on each Scheduling Coordinators proportion of total Imbalance Energy (Generation and Load). Undischarged Replacement Reserve costs will be allocated to all Scheduling Coordinators pro rata based on Scheduled Demand.

### **Reason for Staging**

The allocation of Replacement Reserves, based upon actual metered quantities (e.g., deviations in scheduled Demand versus metered Demand), will require significant modification to the ISO Settlements software.

## **Implementation Date**

October 1, 1998

## **Metering**

### **4. *Access to MDAS***

#### **Full Functionality**

Scheduling Coordinators, ISO Metered Entities, and authorized users will be able to request data from the ISO's revenue meter data acquisition and processing system (MDAS).

#### **ISO Operations Date Functionality**

Only Scheduling Coordinators will be able to request data from MDAS.

#### **Reason for Staging**

For an interim period, the ISO software does not allow more than one party to access MDAS data while ensuring the security of the information. Software changes will be required to accomplish full security and multiple-party access.

## **Implementation Date**

October 1, 1998

### **5. *Profiled Meter Data***

#### **Full Functionality**

Scheduling Coordinators that submit profiled Settlement Quality Meter Data will be required to submit the cumulative Meter Data to which the Approved Load Profile was applied, the applicable Approved Load Profile and the dates and hours covered by that data. The ISO will develop a procedure to verify the correct application of the Approved Load Profile to that cumulative Meter Data.

#### **ISO Operations Date Functionality**

Scheduling Coordinators will submit cumulative Settlement Quality Meter Data which will not include a flag indicating hourly time-stamped values or profiled values.

## **Reason for Staging**

The ISO's revenue meter data acquisition and processing system and the prescribed format for submitting Meter Data to the ISO will not permit the verification of Approved Load Profiles on ISO Operations Date.

## **Implementation Date**

October 1, 1998

# **Real-time Operations**

## **6. *Monitoring and Control***

### **Full Functionality**

The ISO will monitor and control the ISO Controlled Grid, as well as control those Generating Units providing Regulation, directly with the ISO's Energy Management System (EMS).

### **ISO Operations Date Functionality**

The ISO will monitor and control the ISO Controlled Grid, as well as control those Generating Units providing Regulation, through existing utility control centers' energy management systems.

### **Reason for Staging**

Based upon the aggressive timeline for developing and implementing the new California market and operational protocols, a second level of security has been planned until full implementation of the ISO's second phase of operation. While the balance of the ISO's EMS functions are developed, the existing utilities' energy management systems infrastructure will provide the level of security necessary to accommodate the safe and reliable transition of all monitoring and control functions to the ISO.

### **Implementation Date**

January 1, 1999

# **Transmission Assessment**

## **7. *Transmission Assessment Tools***

## **Full Functionality**

Transmission capability assessment will use an on-line AC Optimal Power Flow model. Assessment includes Voltage Collapse Analysis, Available Transfer Capability, Transient Stability Analysis, and State Estimator.

## **ISO Operations Date Functionality**

Transmission capability assessment will use existing off-line power flow models and existing system operating procedures.

## **Reason for Staging**

The ISO's on-line transmission assessment tools have been planned for the ISO's second phase of operation.

## **Implementation Date**

January 1, 1999

# **Intra-Zonal Congestion Management**

## **8. *Intra-Zonal Congestion Management Performance and Tools***

### **Full Functionality**

Day-Ahead and Hour-Ahead Intra-Zonal Congestion Management will be performed and charges and adjustments will be determined using an on-line AC Optimal Power Flow model

### **ISO Operations Date Functionality**

The ISO will manage Intra-Zonal Congestion in Real Time using Adjustment Bids available from the Day-Ahead and Hour-Ahead scheduling process.

### **Reason for Staging**

The ISO's Day-Ahead and Hour-Ahead management of Intra-Zonal Congestion requires scheduling system processes that have been planned for the ISO's second phase of operation.

### **Implementation Date**

January 1, 1999

## **Archiving**

### **9. *Archiving Tools***

#### **Full Functionality**

Bidding, price, and schedule data will be stored in a permanent Historical Information Management storage system.

#### **ISO Operations Date Functionality**

Bidding, price and Schedule data will be temporarily stored in system files. System files have been sized relative to initial market activity to handle at least 90 days of activity.

#### **Reason for Staging**

The ISO's Historical Information Management system requires an information system that will be available after the ISO has commenced operations. The deferral of the ISO Operations Date requires a deferral of this implementation.

#### **Implementation Date**

July 1, 1998

## **Scheduling**

### **10. *Standing Schedules***

#### **Full Functionality**

The ISO provides for the use of Standing Schedules by Scheduling Coordinators. Standing Schedules are Schedules that are submitted once and are used until changed.

#### **ISO Operations Date Functionality**

Standing Schedules will not be accepted, but the ISO will support Scheduling Coordinators' submission of Schedules seven days in advance.

## **Reason for Staging**

Scheduling system software development limitation. The deferral of the ISO Operations Date requires a deferral of this implementation.

## **Implementation Date**

October 1, 1998

# **Ancillary Services**

## **11. *Ancillary Services Bid Evaluation and Pricing Algorithm***

### **Full Functionality**

The bid evaluation and pricing of the Ancillary Services of Regulation, Spinning Reserves, Non-Spinning Reserves, and Replacement Reserves will take into account applicable Usage Charges.

### **ISO Operations Date Functionality**

The bid evaluation and pricing of the Ancillary Services of Regulation, Spinning Reserves, Non-Spinning Reserves, and Replacement Reserves will not take into account Usage Charges.

## **Reason for Staging**

Scheduling system software development limitation.

## **Implementation Date**

January 1, 1999

## **12. *Bidding into ISO Ancillary Services Auction from Outside ISO Control Area***

### **Full Functionality**

The Ancillary Services of Spinning Reserves, Non-Spinning Reserves, and Replacement Reserves can be bid into the ISO's auctions or self-provided from resources located outside of the ISO Control Area.

### **ISO Operations Date Functionality**

No Scheduling Coordinator will be permitted to self-provide Ancillary Services (Spinning Reserves, Non-Spinning Reserves and Replacement Reserves) from resources located outside of the ISO Control Area unless

those Scheduling Coordinators are using transmission service available under Existing Contracts or Existing Control Agreements. No Scheduling Coordinator will be permitted to bid into the ISO's auctions for Ancillary Services (offer to sell) from resources located outside of the ISO Control Area.

### **Reason for Staging**

Scheduling system software development limitation.

### **Implementation Date**

June 1, 1998

### **13. *ISO to Make Available Operating Reserves to Cover Interruptible Imports and On-Demand Obligations***

#### **Full Functionality**

Scheduling Coordinators will be able to self-provide, or purchase from the ISO, Operating Reserves required for on-demand obligations.

#### **ISO Operations Date Functionality**

Although Scheduling Coordinators are now able to self-provide, or purchase from the ISO, Operating Reserves required for Interruptible Imports, Scheduling Coordinators will not be able to purchase Operating Reserves associated with on-demand obligations from the ISO. Scheduling Coordinators must self-provide Operating Reserves to cover on-demand obligations. For those Scheduling Coordinators that are unable to self-provide these Operating Reserves, the ISO will support a "work-around" to allow these Scheduling Coordinators to notify the ISO of their requirements prior to the deadline for Day-Ahead Preferred Schedules.

### **Reason for Staging**

Scheduling system software development limitation.

### **Implementation Date**

June 1, 1998

### **14. *Ancillary Services Self-Provision and Bidding from the Same Resource***

## **Full Functionality**

Scheduling Coordinators will be able to self-provide and bid the same Ancillary Service from the same resource in a particular Settlement Period. For instance, a Scheduling Coordinator with 100 MW of unloaded capacity available from a particular resource could self-provide its Spinning Reserve obligation (e.g., 25 MW) for the Settlement Period from the resource and bid the balance (i.e., 75 MW) of the same resource into the ISO's auction for Spinning Reserves for the same Settlement Period.

## **ISO Operations Date Functionality**

Scheduling Coordinators will not be able to self-provide and bid Ancillary Services from the same resource in the same Settlement Period.

## **Reason for Staging**

Scheduling system software development limitation.

## **Implementation Date**

January 1, 1999

## ***15. Acquisition of Black Start Services***

### **Full Functionality**

The ISO will procure Black Start capability competitively through contracts (let on an annual or other basis) based on ISO location specific requirements.

### **ISO Operations Date Functionality**

The ISO will procure its Black Start capability requirements from designated units that have such capability, based on ISO location specific requirements.

### **Reason for Staging**

Sufficient time does not exist to implement a competitive procurement process for the ISO's Black Start requirements. The ISO has identified the critical resources it believes are necessary to meet its Black Start requirements, including those required due to certain regulatory obligations, and will negotiate short-term interim agreements (expected to be no longer than 1 year) until a competitive procurement process can be implemented.

## **Implementation Date**

January 1, 1999

### ***16. Acquisition of Voltage Support Services***

#### **Full Functionality**

The ISO will procure additional Voltage Support capability competitively through contracts (let on an annual or other basis).

#### **ISO Operations Date Functionality**

The ISO will meet its Voltage Support requirements using the mandatory power factor range requirements of all Generators and will call on Reliability Must-Run Units if additional Voltage Support is required.

#### **Reason for Staging**

Sufficient time does not exist to competitively procure the ISO's Voltage Support requirements. Reliability Must-Run Units will be available in those areas of the ISO Controlled Grid where Voltage Support will be required.

## **Implementation Date**

January 1, 1999

### ***17. Non Spinning Reserve and Replacement Reserve Bids***

#### **Full Functionality**

When selecting Generating Units bid into the ISO's Non-Spinning Reserve and Replacement Reserve auctions, the ISO will require that a Generating Unit's bid capacity must be less than or equal to the Generating Unit's ramp rate times (i) ten minutes less the time required for synchronization, in the case of Non-Spinning Reserve, or (ii) sixty minutes less the time required for synchronization, in the case of Replacement Reserve.

#### **ISO Operations Date Functionality**

When selecting Generating Units bid into the ISO's Non-Spinning Reserve and Replacement Reserve auctions, the ISO will require that a Generating Unit's bid capacity must be less than or equal to the Generating Unit's ramp rate times (i) ten minutes, in the case of Non-Spinning Reserve, or (ii) sixty minutes, in the case of Replacement Reserve.

#### **Reason for Staging**

Scheduling infrastructure and system software development limitation.

## **Implementation Date**

January 1, 1999

## **Congestion Management**

### ***18. Final Schedule Selection by ISO***

#### **Full Functionality**

After the completion of Congestion Management, the ISO will select either (i) the first set (Preferred Schedules) of tentative allocations and prices or (ii) the second set (Revised Schedules) of allocations and prices. The ISO will make its selection based on which of the two sets of allocations results in the lower total amount of Usage Charge revenues to the ISO for the hour.

#### **ISO Operations Date Functionality**

The ISO will select as Final Schedules the last set of Revised Schedules received and modified for Congestion.

#### **Reason for Staging**

Scheduling system software development limitation. The necessary design changes are being planned to accommodate the full functionality on a high priority basis. The deferral of the ISO Operations Date requires a deferral of this implementation.

## **Implementation Date**

October 1, 1998

### ***19. ISO to Publish Results of Comparative Congestion Costs Based on Full System Optimization***

#### **Full Functionality**

The ISO will perform its Congestion Management process while respecting the constraint to maintain Balanced Schedules in each

Scheduling Coordinators portfolio. For information purposes, the ISO will calculate and publish the cost of Congestion which would have been incurred if this constraint were relieved.

### **ISO Operations Date Functionality**

The ISO will perform its Congestion Management process while respecting the constraint to maintain Balanced Schedules in each Scheduling Coordinator's portfolio.

### **Reason for Staging**

Scheduling system software development limitation.

### **Implementation Date**

October 1, 1998

## **Appendix A to ISO Revised Staging Plan No. 3**

### ***Interim Measures***

This attachment describes interim measures. The first eight measures have been accepted by the Commission and permitted to go into effect.<sup>9</sup> The last two were filed and acceptance is being sought by the Commission.<sup>10</sup> Each filing amends the ISO Tariff, including Protocols, to allow these interim measures to take effect as of the ISO Operations Date and to expire upon notice to the stakeholders. This attachment provides the Commission and the Parties a convenient reference for these interim measures.

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<sup>9</sup> California Independent System Operator Corporation, 82 FERC ¶161,327 slip op. pg. 12 (March 30, 1998).

<sup>10</sup> The last two measures were proposed in ISO Tariff Amendment No. 7 filed on March 31, 1998.

## FROM AMENDMENT NO. 4

### **1. *Calculation of Net Usage Charge Revenues and Methodology for Applying Debits to Participating TOs***

#### **Full Functionality**

The ISO will remit the net Usage Charge revenues collected from Scheduling Coordinators for each Inter-Zonal Interface based on Participating TOs' ownership of the interface without any reductions.

#### **ISO Operations Date Functionality**

If, after the ISO's issuance of Final Day-Ahead Schedules, (a) Participating Transmission Owners (TOs) instruct the ISO to reduce interface limits based on operating conditions or (b) an unscheduled transmission outage occurs and as a result of either of those events, Congestion is increased and Available Transfer Capacity of the Inter-Zonal Interface is decreased in the Hour-Ahead Market, the ISO will charge the Participating TOs with an amount equal to the net Usage Charge revenues in respect of reductions of Available Transfer Capacity across the Congested Inter-Zonal Interface (such amount to be debited by them in turn from their Transmission Revenue Balancing Account).

#### **Reason for the Interim Measure**

During the course of the development of the ISO system, stakeholders agreed that Participating TOs should not incur such charges. However, the ISO software cannot be configured to prevent the charge absent redesign and the ISO currently does not have a feasible manual workaround. The software will be modified as soon as possible to eliminate charges to Participating TOs. In the interim, a process for assigning the charge is necessary.

#### **Termination Date**

Actual dates to be determined. A Tariff amendment will be required.

### **2. *Wheeling Access Charges***

#### **Functionality**

The Wheeling Access Charge will be calculated and disbursed in accordance with ISO Tariff sections 7.1.4.1, 7.1.4.2 and 7.1.4.3 and Scheduling Coordinators will not be obligated to provide the ISO with information on Wheeling Out or Wheeling Through transactions.

## **ISO Operations Date Functionality**

Scheduling Coordinators that schedule Wheeling Out or Wheeling Through transactions to a Bulk Supply Point, or other point of interconnection between the ISO Controlled Grid and the transmission system of a Non-Participating TO, that are located within the ISO Control Area, shall provide the ISO, within five (5) days from the end of the calendar month to which the Trading Day relates, details of such transactions scheduled by them (other than transactions scheduled pursuant to Existing Contracts or Existing Control Agreements) sorted by Bulk Supply Point or point of interconnection for each Settlement Period (including kWh scheduled). Such information will be used to settle Wheeling Access Charges and payments.

## **Reason for the Interim Measure**

The ISO's settlement software calculates and allocates Wheeling Access Charges using a methodology that is different from the methodology specified in the ISO Tariff. The ISO has identified a manual work-around for use until the software is corrected, but must have information regarding Wheeling Transactions at Bulk Supply Points or other points of interconnection between the ISO Controlled Grid and the transmission system of a Non-Participating TO to make the manual calculations. The ISO will use such information to settle Wheeling Access charges until the software variation is corrected.

## **Termination Date**

Actual dates to be determined.

### **FROM AMENDMENT NO. 5**

## **3. *Generation Meter Multiplier***

### **Full Functionality**

Scheduling Coordinators, except the PX, shall use forecasted Generation Meter Multipliers (GMMs), as published by the ISO in their Schedules. After the PX's software is able to process forecasted GMMs, the PX shall also use forecasted GMMs in its Schedules.

## **ISO Operations Date Functionality**

For purposes of the ISO's Balanced Schedule validation processes, the ISO has proposed a new ISO Section 21 that will validate all Scheduling Coordinators' schedules based on an assumed value of 1.0, including schedules submitted by the PX.

## **Reason for the Interim Measure**

During the ISO's coupled testing prior to the ISO Operations Date, GMMs were found to be a root cause of problems associated with the ISO's Balanced Schedule validation process. Validating Balanced Schedules with GMMs assumed to be 1.0 will make it easier for Scheduling Coordinators to balance Energy portfolios during the first several weeks following the ISO Operations Date. Once the ISO has several weeks of operating experience and has established a consistent record of timely validation and posting of Schedules, the ISO will return to the original plan of validating Schedules based on forecasted GMMs. PX Schedules will continue to be validated based on the assumption of a 1.0 GMM until the PX's software is able to process forecasted GMMs. Termination Date

Actual dates to be determined. Any change as well as termination would take effect upon seven (7) days notice by the ISO Chief Executive Officer.

## **4. *Schedule Validation Tolerances***

### **Full Functionality**

The Balanced Schedule validation tolerance will be set at 1 MW.

### **ISO Operations Date Functionality**

The ISO in Amendment No. 5 proposed a new Section 22 that would set the Balanced Schedule validation tolerance at 20 MW. In Amendment No. 6, the ISO modified this to set the tolerance initially at 2 MW, with the ability to move it on a sliding scale of between 1 MW to 20 MW, with notice to Scheduling Coordinators.

## **Reason for the Interim Measure**

This temporary increase in schedule validation tolerance reduces the risk of Schedules being rejected as unbalanced, thereby averting delays in the scheduling process. Under this temporary change to the ISO Tariff, a Schedule will be treated as a Balanced Schedule when aggregate Generation, adjusted for Transmission Losses by the relevant GMM (initially set equal to 1.0), is within the ISO-specified tolerance of aggregate Demand.

## **Termination Date**

Actual date to be determined. Any change as well as termination would take effect upon seven (7) days notice by the ISO Chief Executive Officer.

## FROM AMENDMENT NO. 6

### 5. *Real Time Market for Imbalance Energy*

#### **Full Functionality**

The ISO's will issuance Dispatch instructions and settle for charges on the same time interval (*i.e.*, the ISO's Settlement Period will be the same as the

Dispatch interval for balancing Energy). This full functionality is intended to occur subsequent to the ISO and its stakeholders reaching consensus on the design, operation, and settlement of the real-time balancing Energy market on the timeline originally contemplated in staged function No. 1 of the ISO Staging Plan.

#### **ISO Operations Date Functionality**

The ISO has proposed a new interim Section 23 of the ISO Tariff that will substantially remove the risk and uncertainty Scheduling Coordinators faced in offering balancing Energy to the ISO.

- Under the interim Tariff section, until the Settlement Period and the Dispatch interval for real-time balancing Energy are the same, the ISO will settle with Scheduling Coordinators, for **instructed deviations** from their schedules, as follows: for incremental Energy, the ISO will pay the Scheduling Coordinator, for each interval (*i.e.*, 10 minutes, initially), at the higher of the bid price or the marginal incremental price for each interval, for the duration of the instructed deviation; and
- for decremental Energy, the Scheduling Coordinator will pay the ISO for each interval (*i.e.*, 10 minutes, initially), at the lower of the bid price or the marginal price for each interval, for the duration of the instructed deviation.

The ISO will to settle with Scheduling Coordinators for **uninstructed deviations** from their schedules based on the weighted average of the marginal prices for each interval of the operating hour ("Settlement Period").

#### **Reason for the Interim Measures**

Based on coupled testing by the ISO, prior to the ISO Operations Date, and actual operations, the ISO believes it may routinely receive an insufficient number of Supplemental Energy bids and Ancillary Service Energy bids, resulting in a "thin" market for balancing Energy. The lack of balancing Energy bids was driven, in part, by Scheduling Coordinators' aversion to being called to provide

Energy at a marginal price (*i.e.*, during the first days of testing, at the 5-minute Ex Post Price) that is different than the Hourly Ex Post Price. If this were allowed to continue, the ISO's ability to balance Generation and Demand on a real time basis, in compliance with NERC and WSCC minimum operating reliability criteria, could be threatened. Accordingly, the ISO quickly modified the BEEP software for these purposes.

This amendment makes the ISO Tariff consistent with the modified software.

### **Termination Date**

Actual date to be determined. Changes in the sub-hour increment (currently set at 10 minutes) would take effect upon seven (7) days notice by the ISO Chief Executive Officer. The temporary measure will terminate when the ISO implements staged functionality No. 1.

## **7. *Physical Constraints on Schedules***

### **Full Functionality**

The requirement that scheduled Generation within a Scheduling Coordinator's Balanced Schedule accurately reflect the physical capability of each Generating Unit will be relaxed. This full functionality will be implemented subsequent to the ISO implementing sub-hour Settlement Periods.

### **ISO Operations Date Functionality**

The ISO is proposing a new ISO Tariff Section 24 to provide that the Generation section of a Balanced Schedule, and any associated Adjustment Bids, must accurately reflect the physical capability of each Generating Unit identified in the Schedule. In addition, Generating Units must be capable of the degree of ramping reflected in any schedule submitted by a Scheduling Coordinator.

### **Reason for the Interim Measure**

The ISO requires a rule requiring accurate representations of Generating Unit capabilities, as a measure for insuring against an inadequate supply of balancing Energy in real-time. Without such a rule, the ISO runs the risk of being incapable of balancing Generation and Demand in real-time. Although the Schedules and Bids Protocol requires that the minimum and maximum output levels contained in Adjustment Bids must be physically achievable, the ISO Tariff did not require that each Generating Unit's schedule, nor any associated Adjustment Bids, be within the Generating Unit's physically achievable capability. This amendment makes this capability a requirement in the submission of schedules and Adjustment Bids, addressing a related problem of the duration of the BEEP Dispatch interval and the hourly Settlement Period not being the same.

## **Termination Date**

Actual date to be determined. Termination would take effect upon seven (7) days notice by the ISO Chief Executive Officer.

## **8. *Temporary Changes to Ancillary Services Penalties***

### **Full Functionality**

Scheduling Coordinators are penalized for non-performance with respect to Ancillary Services.

### **ISO Operations Date Functionality**

The ISO is proposing a new ISO Tariff Section 26 to temporarily waive the penalty provisions of Section 2.5.26 of the ISO Tariff.

### **Reason for the Interim Measure**

A significant concern identified in the coupled testing prior to the ISO Operations Date related to the ISO's sequential analyses of Congestion and Ancillary Services. The concern stems from the fact that the Ancillary Services management software does not take into account the adjusted schedules resulting from Congestion Management. Results of Congestion Management could, in certain instances, cause Scheduling Coordinators to fail to meet their Ancillary Services bids and incur the penalties in Section 2.5.26. The ISO is planning to change its Ancillary Services management software to eliminate this problem. These changes to the Ancillary Services management software could not be implemented prior to the ISO Operations Date.

### **Termination Date**

Actual date to be determined. Termination would take effect upon seven (7) days notice by the ISO Chief Executive Officer.

## **PROPOSED FROM AMENDMENT NO. 7**

## **9. *Adjustment Bids Applicable to Dispatchable Loads and Exports***

### **Full Functionality**

Scheduling Coordinators will be able to submit incremental Adjustment Bids for Dispatchable Loads or exports.

## **ISO Operations Date Functionality**

A temporary rule will require that only decremental Adjustment Bids be associated with Loads and exports (*i.e.*, Scheduling Coordinators cannot submit incremental Adjustment Bids for Dispatchable Loads or exports).

## **Reason for the Interim Measure**

The ISO identified a software design flaw relating to the use of incremental Adjustment Bids for Dispatchable Loads and exports available for managing Congestion on a given Inter-Zonal Interface. In both the first and second coupled tests prior to the ISO Operations Date, it was clear that the Congestion Management software ("CONG") was taking incremental bids for exports and Dispatchable Load into account. However, during the second coupled test, the ISO employed a comparative analysis of Adjustment Bids to quantify the effectiveness of incremental versus decremental Adjustment Bids on Generators, Dispatchable Loads, imports, and exports. From this comparative analysis, it was determined that CONG was not properly implementing incremental export Adjustment Bids to counter-flow power across Congested paths. Therefore, the degree of Congestion relief, and the resulting transmission prices for Congested paths, was found to be in error. Removing the incremental export Adjustment Bids in the analysis produced accurate CONG results.

## **Termination Date**

Actual date to be determined. Termination would take effect upon seven (7) days notice by the ISO Chief Executive Officer.

## **10. Disqualification of Certain Energy Bids**

### **Full Functionality**

Dispatch instructions issued to Scheduling Coordinators by the ISO for real-time balancing Energy will be synchronized with the Dispatch instructions written to the ISO's settlements database. The synchronism of such instructions will eliminate the ISO's need to set, and publish, a price limit above which Energy bids during the Trading Day will be rejected.

### **ISO Operations Date Functionality**

The ISO may at any time between the issue of the Final Day-Ahead Schedule for a Trading Day and the issue of the Final Hour-Ahead Schedule for the first Settlement Period in that Trading Day, publish, either through WEnet or on the ISO Home Page, a price level above which Energy bids will be rejected. If the ISO does not publish a price level for a Trading Day, the price level from the previous Trading Day shall apply.

## **Reason for the Interim Measure**

The ISO is proposing a temporary rule affecting the calculation of Ex Post Prices. Both the two-week coupled run simulation and the subsequent two-day coupled simulation prior to the ISO Operations Date, generated several unusually high balancing Energy prices. In brief, the balancing Energy software (“BEEP”) calculated prices based on the premise that each and every Dispatch instruction calculated by BEEP, and written to the ISO's database, is synchronized with a corresponding call from the ISO to a Scheduling Coordinator for the required balancing Energy. The ISO's temporary rule allows BEEP to set prices more closely approximating the Energy bids actually used, until such time as the BEEP software is upgraded.

## **Termination Date**

Actual date to be determined. Termination would take effect upon seven (7) days notice by the ISO. Changes to the price cap may occur daily with notice. The ISO may at any time between the issue of the Final Day-Ahead Schedule for a Trading Day and the issue of the Final Hour-Ahead Schedule for the first Settlement Period in that Trading Day, publish, either through WEnet or on the ISO Home Page, a price level above which Energy bids in respect of any Settlement Period during the Trading Day will be rejected. If the ISO does not publish a price level for a Trading Day, the price level applicable on the previous Trading Day shall apply.