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September 7, 2004

The Honorable Magalie R. Salas  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**Re: California Independent System Operator Corporation  
Compliance Filing  
Docket No. ER04-609-\_\_\_**

Dear Secretary Salas:

The California Independent System Operator Corporation ("ISO")<sup>1</sup> respectfully submits six copies of this filing in compliance with the Commission's August 5, 2004 "Order on Tariff Amendment No. 58," issued in the captioned docket, 108 FERC ¶ 61,141 ("Amendment No. 58 Order"). The Commission directed the ISO to comply with the Amendment No. 58 Order as described below. (The underlined headings shown below correspond to the headings used in the Amendment No. 58 Order.)

## Specification of Minimum Load (Pmin) and Start-Up Lead Time

The Commission rejected the ISO's proposal to require Reliability Must-Run ("RMR") generators to use only one set of values for minimum operating level and start-up lead time; it directed the ISO to maintain the *status quo* and permit different values for minimum load and start-up lead time as set out in Schedule A of the RMR Contract and in the ISO's Master File. Amendment No. 58 Order at P 22. Therefore, the ISO has returned to the *status quo* with regard to the additions proposed in Amendment No. 58 to Section 5.11.6.1.2 of the ISO Tariff and to Section 6.6 of the Schedules and Bids Protocol.

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<sup>1</sup> Capitalized terms not otherwise defined herein are used in the sense given in the Master Definitions Supplement, Appendix A to the ISO Tariff.

The Real-Time Market Application ("RTMA"), which the ISO anticipates will go into service on October 1, 2004, is currently not designed to accommodate two sets of operational values. When an RMR Unit is dispatched under the RMR Contract, the RMR Dispatch Instruction will be sent out through the RMR client or telephone call and will be based on the RMR Contract values. However, RTMA will dispatch the unit through the ISO's Automated Dispatch System ("ADS") and calculate the unit's Expected Energy based on the unit's Master File values, not on the RMR Contract values. If the RMR values are significantly different than the Master File values, the difference in the Expected Energy values could be significant. If the unit were to operate at the level dispatched under ADS it could operate at levels for which it would not be fully compensated under the RMR contract. Alternatively, if it operates in accordance with the RMR dispatch instruction, the difference between the Energy produced at its RMR operational level and the Expected Energy calculated by RTMA could appear as a deviation that would be subject to Uninstructed Deviation Penalties ("UDP").

The RTMA cannot be re-coded to be able to use two sets of values depending on whether the dispatch is issued under the RMR Contract or through the market prior to the Phase 1B scheduled implementation date of October 1, 2004. The ISO expects it will take up to six months to re-code the RTMA so it can store two sets of different operating characteristics and use different values to calculate the Expected Energy based on whether the instruction is issued under the RMR Contract or through the market.

The following examples set forth the problem:

**Example 1:**

Master File minimum operating level (Pmin) = 75 MW

RMR Contract minimum operating level = 50 MW

If the unit is dispatched at its RMR Contract minimum operating level for an hour under the RMR Contract, the unit will produce 50 MWh of Energy. However, RTMA cannot calculate a dispatch trajectory at values less than the 75 MW minimum operating level listed in the Master File and, as such, will dispatch the unit to operate at 75 MW and calculate 75 MWh of Expected Energy. If the unit delivers 50 MWh of Energy, as requested under the RMR dispatch, the unit would be subject to the UDP for 25 MWh of apparently under-delivered Energy. Alternatively, if the unit operates at 75 MW, it will not be compensated under the RMR Contract for the additional 25 MWh of Energy.

**Example 2:**

Master File minimum operating level (Pmin) = 50 MW  
RMR Contract minimum operating level = 75 MW

When the opposite situation from Example 1 exists, that is, the RMR Contract minimum operating level is greater than the minimum operating level listed in the Master File, RTMA will calculate Expected Energy for the unit once it has reached its minimum operating level listed in the Master File. However, for settlement purposes under the RMR Contract, the RMR Unit is still operating in start-up mode until it reaches the minimum operating level specified in its RMR Contract. As a result, the unit may deviate from the ramp trajectory calculated by RTMA, resulting in a different Expected Energy and the potentially subjecting the unit to UDP. This deviation would not be fully addressed by the effective UDP suspension for start-up proposed by the ISO in Amendment No. 62 to the ISO Tariff ("Amendment No. 62"),<sup>2</sup> as the UDP suspension's duration ends once the unit reaches the minimum operating level listed in the Master File and only applies to positive Uninstructed Imbalance Energy.

**Example 3:**

Similar to the situation that will exist for a difference between the minimum operating level under the RMR Contract and that listed in the ISO's Master File, differences between the start-up lead times in the RMR Contract and the ISO Master File will also result in significant differences in Expected Energy.

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<sup>2</sup> See Transmittal Letter for Amendment No. 62, Docket No. ER04-1087-000 (Aug. 3, 2004), at 8-9.

Master File start-up time = 20 minutes  
RMR Contract start-up time = 30 minutes  
Master File and RMR minimum operating level = 75 MW  
RMR dispatch = 100 MW

If the unit is dispatched to start-up using its RMR Contract start-up time, the unit will reach its 75 MW minimum operating level in 30 minutes. However, RTMA will utilize the 20-minute start-up time listed in the Master File and will calculate that the unit will reach its 75 MW minimum operating level in 20 minutes, rather than in 30 minutes, and dispatch the unit accordingly. After 20 minutes, RTMA will then dispatch the unit to ramp up to the 100 MW operating level desired under the RMR dispatch instruction, while the unit will actually still be in the process of ramping up to its minimum operating level.

This situation will result in significant differences in Expected Energy between what will be dispatched under the RMR Contract and what will be calculated by RTMA, resulting in the RMR Unit incurring negative Uninstructed Imbalance Energy that would be subject to UDP. The effective UDP suspension proposed by the ISO in Amendment No. 62 would not address this situation because the proposed effective UDP suspension applies to positive Uninstructed Imbalance Energy, not negative Uninstructed Imbalance Energy. Additionally, the differences in Expected Energy will exist after the maximum start-up time listed in the Master File, which is the end of the time period for which the effective UDP suspension proposed in Amendment No. 62 applies.

Calpine is the only ISO Market Participant that protested the ISO's proposal in Amendment No. 58 to allow the RMR Owner to change the RMR Contract to specify that the value used to settle RMR transactions will be the minimum operating level or start-up lead time bid into the market, or, if no values are bid, the default value in the Master File. The ISO has discussed with Calpine options to implement the Commission's directive to allow for the use of two separate operating values without delaying the implementation of the Phase 1B modifications.

The ISO proposes the procedures set forth below as the best and practically only way to implement the Commission's directive to allow for the use of two separate operating values without delaying the implementation of the Phase 1B modifications. The ISO believes that these procedures may be workable on a long-term basis, but the ISO and Calpine propose a six-month trial period to provide the parties with the opportunity to review these procedures to determine if they are workable in practice.<sup>3</sup> To effectuate the six-month trial period, and to preserve the parties' rights, the ISO is filing a request for rehearing of the Amendment No. 58 Order simultaneously with the submission of this compliance filing. In this request for rehearing, the ISO will also request that the Commission not take any action, other than issuance of a tolling order, insofar as the request for rehearing seeks rehearing of the Commission's directive to allow two values for minimum load and start up lead time for this six-month trial period. During the six-month trial period, the ISO shall have no obligation to commence any work related to implementing software revisions that would enable the ISO to incorporate two values (for RMR and non-RMR) for minimum load and start-up lead time, or any other criterion, in its RTMA systems.<sup>4</sup> At the end of the six-month period, if the procedures set forth below work to the ISO's and Calpine's satisfaction, the ISO would put these procedures into effect permanently, and the RTMA would not have to be modified. If, at the end of the six-month trial period, the procedures do not work for either the ISO or Calpine, the relevant party would so notify the Commission and the Commission would then act on the ISO's request for rehearing.

To accommodate the Commission's direction to allow two sets of operating values and prevent a unit from incurring UDP, the ISO has developed the following procedure:

1. Where an RMR Unit has different minimum operating level values in the Master File and the RMR Contract, the Scheduling Coordinator for the RMR Unit will establish the lesser value in the Master File.

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<sup>3</sup> For example, these procedures may result in unanticipated conflicts with a generator's federal or state reporting requirements.

<sup>4</sup> The request for rehearing is not limited to the minimum load/start up lead time issues and the ISO is not requesting that the Commission delay consideration of any other rehearing issue.

2. Using the ISO's computer-based scheduling and logging system ("SLIC") web client, the Scheduling Coordinator for the RMR Unit will then be able to change the unit's minimum operating level to higher values than those established in the Master File. This will allow the Scheduling Coordinator the flexibility to change the minimum operating level as conditions change from time to time and to respond to market opportunities for which a different minimum operating level than for RMR operations may be appropriate. This will ensure that RTMA will calculate Expected Energy for either an RMR dispatch or a market dispatch correctly and will address the issues described in Examples 1 and 2, above.
3. Similarly, where the start-up lead time specified in the RMR Contract is different than that specified in the Master File, the Scheduling Coordinator for the RMR Unit must specify the longer of the two start-up lead times (presumed to be from the RMR Contract) in the Master File. This value will be used for both RMR and market transactions.
4. If the RMR Unit wants to use the shorter market time for a market transaction, the RMR Unit may bid in a shorter start-up lead time for use in the market.
5. The Expected Energy for the start-up will be calculated using the appropriate start-up lead time, addressing the issue discussed in Example 3, above. However, as start-up lead times for market transactions are submitted one hour prior to the operating hour, the possibility exists that an RMR dispatch instruction could be issued in an hour for which the owner has submitted a shorter market start-up lead time, in which case the issue described in Example 3 would still exist. This situation will be resolved if the RMR unit agrees to use any shorter start-up time that has been bid in for the applicable operating hour.

Calpine has expressed a willingness for the purposes of testing these procedures to voluntarily file to change its applicable RMR Contracts' Schedule A to specify that the start-up lead time value to be used for RMR dispatch would be either the exciting RMR lead time, or the same as that bid into the market for use in the market. This is the proposal the ISO had made in Amendment No. 58 – to allow an RMR Owner to specify in their RMR Contract that RMR and market transactions will both use the operating characteristic that the RMR Owner's Scheduling Coordinator bids into the ISO's market.

The ISO appreciates Calpine's willingness to work with the ISO to develop a procedure by which the ISO can best implement the Commission's direction to accommodate two different operating values in the interim.

#### Use of Scheduling and Logging Program

The Commission accepted the clarification, provided by the ISO in the answer it submitted in the captioned docket on April 7, 2004 ("Amendment No. 58 Answer"), that Scheduling Coordinators for dynamically scheduled System Resources will have the same ability as Generating Units in the ISO Control Area to notify the ISO of outages through the ISO's SLIC, and directed the ISO to amend its Tariff accordingly. Amendment No. 58 Order at PP 31-32. To comply with this directive, the ISO has modified Section 11.2.4.1.2(p) of the ISO Tariff as described in the Amendment No. 58 Answer.

#### Out-of-Market Transactions from Dynamically Scheduled System Resources

The Commission accepted the clarification in the Amendment No. 58 Answer of Section 11.2.4.1.2(o) of the ISO Tariff to provide that UDP will apply to out-of-market transactions from dynamically scheduled System Resources if the delivered Energy differs from the agreed-upon Energy by more than the Tolerance Band, just as UDP would be applied to resources within the ISO Control Area. The Commission directed the ISO to amend its Tariff to reflect this clarification. Amendment No. 58 Order at P 35. The ISO has modified Section 11.2.4.1.2(o) to comply with the Commission's directive.

#### Dynamically Scheduled Imports Delivered by a Qualifying Facility

The Commission noted the ISO's agreement, in the Amendment No. 58 Answer, that Energy from dynamically scheduled System Resources which are Qualifying Facilities ("QFs") that are not under a Participating Generator Agreement ("PGA") should be exempt from UDP, and directed the ISO to revise Section 11.2.4.1.2(e) of the ISO Tariff to clarify this point. Amendment No. 58 Order at P 38. The ISO has modified that section accordingly.

#### Action by Control Area Operator

The Commission noted the ISO's proposed modification, in the Amendment No. 58 Answer, of Section 11.2.4.1.2(o) to clarify that deviations

from either hourly scheduled System Resources or from dynamically scheduled System Resources should not be subject to UDP if the deviations are due to the actions of another Control Area. The Commission directed the ISO to file the proposed modification. Amendment No. 58 Order at P 41. The ISO has modified Section 11.2.4.1.2(o) to comply with this directive.

#### Expected Energy for Out-of-Market Transactions

The Commission directed the ISO to modify Section 11.2.4.1.2(o) to contain certain language, specified by the Commission, for the purpose of ensuring that UDP applies only to out-of-market transactions that are fully specified and reflected in the ISO's automated real-time instructions and its expected Energy calculation. Amendment No. 58 Order at P 43. The ISO has modified the section as directed.

#### Constrained Output Resources

The Commission directed the ISO to "incorporate into its Phase 1B dispatch software operating data on intermediate dead bands and intermediate ramp rates for combined cycle combustion turbines, or provide a full explanation of why this should not be done, and the date when it would be implemented." Amendment No. 58 Order at P 55. The ISO has provided for Market Participants to bid in intermediate dead bands and multiple ramp rates across the operational range of the unit for a single given configuration of the combined cycle facility in the RTMA slated to be implemented on October 1, 2004. Market Participants can also modify the operational ramp rates for combined cycle facilities to reflect changes in operating configurations during the operating day using the SLIC web client. What the ISO cannot provide by October 1, 2004 are the means for Market Participants to bid in separate sets of operational values for multiple configurations of the combined cycle facility (*i.e.*, based on whether the unit is operating with only one combustion turbines and no steam turbines (1+0 configuration) or two turbines and a steam turbines (2+1 configuration). In addition to not being able to provide operational data for multiple configurations across the same time horizon, the ISO does not yet have any means to economically transition from one configuration to another. The ISO expects to be able to model each separate configuration in the market software that is being developed as part of the Market Redesign and Technology Upgrade work (formerly referred to as MD02) slated be implemented in early 2007, though the ISO has not yet developed the market model that would allow economic

transitions between configurations. The ISO has surveyed other independent system operators around the country and discovered that no other independent system operator has developed a fully robust and workable combined cycle facility model that models transitions between configurations in its market software. Furthermore, the development of such a model is likely a year or two away. The ISO acknowledges that new generation overwhelmingly tends to be combined cycle facilities and that it is important to be able to fully model such facilities. The practical reality, however, seems to be that a robust and workable combined cycle market model is still a year or two off at best for any independent system operator, and, for the ISO, may not be in place until after 2007.

The Commission also directed the ISO to provide a further explanation of why the two-hour time horizon proposed in Section 2.5.23.2.1.2 of the ISO Tariff was necessary, and how many and what percentage of the total Constrained Output Generation units would fall under this two-hour time limitation. Amendment No. 55 Order at P 56. The ISO proposed the two-hour time horizon because this is the time horizon for the real-time Imbalance Energy Market that will now be optimized through the RTMA proposed in Amendment No. 54 as part of the Phase 1B modifications.

Though the ISO refers to it as a two-hour time horizon, it is, in effect, a 90-minute time horizon due to the deadline for submitting Supplemental Energy bids and the time it takes for RTMA to act on the next hour's bids. The deadline for submitting Supplemental Energy bids for hour H is 60 minutes before the start of hour H, or the start of hour H-1. RTMA reads the next hour's bids in the first few minutes of hour H-1. By fifteen minutes past the start of hour H-1, RTMA has incorporated the next hour's bids into its optimization and is ready to issue dispatch instructions to start up and shut down resources that would take effect thirty minutes after the start of hour H-1. Practically, the two-hour time horizon is 90-minutes – thirty minutes after the start of the current hour to the end of the next hour. Said another way, RTMA's dispatch instructions affect a 90-minute window that begins thirty minutes after the start of the current hour until the end of the next hour.

Transactions beyond this two-hour time horizon are part of the ISO's Hour-Ahead Scheduling process; the deadline for making Hour-Ahead Schedule changes is and has always been two hours before the operating hour. The ISO has examined the current data in its Master File and determined that the number of Generating Units that would be classified as Constrained Output Generation

(i.e., that have declared their maximum operating level to be the same as their minimum operating level) within this two-hour time horizon is three (3), comprising 32 MW of Generation. The number of Generating Units that would be classified as Constrained Output Generation outside of this two-hour time horizon is 1, comprising 14 MW of Generation. Many other combustion turbine Generating Units do not fit the definition of Constrained Output Generation because they have not set their maximum operating levels equal to their minimum operating levels in the ISO Master File. If those Generating Units wanted to be classified as Constrained Output Generation, they could adjust their Master File values so that their minimum operating levels and maximum operating levels were the same.

#### Resource Failure to Follow Dispatch Instruction and Energy Outside of Tolerance Band During Waiver Denial Period

The Commission rejected the ISO's proposal to eliminate bid cost recovery payments for non-must-offer resources operating outside the Tolerance Band amount of the Dispatch Operating Point. Amendment No. 58 Order at P 67. The Commission provided a similar directive in its August 5, 2004 order issued in the Amendment No. 54 proceeding. As the ISO explained in the compliance filing it submitted in the Amendment No. 54 proceeding on September 7, 2004, it has revised Section 11.2.4.1.1.1 of its Tariff, and Sections 2.6 and 2.6.1 of Appendix D of the Settlement and Billing Protocol ("SABP") to comply with this directive.

#### Bid Cost Recovery for Dynamically Scheduled System Resources

The Commission accepted the changes the ISO proposed in the Amendment No. 58 Answer to Section 11.2.4.1.1.1 of the ISO Tariff and to Sections 2.6 and 2.6.1 of Appendix D of the Settlement and Billing Protocol ("SABP") concerning bid cost recovery for dynamically scheduled System Resources. Amendment No. 58 Order at P 69. The ISO has modified its Tariff to reflect the Commission's acceptance of the changes.

#### Effective Date

The Commission agreed with the ISO concerning the effective date for Amendment No. 58 and directed the ISO to provide written notice to the market and to the Commission at least 10 days in advance of the implementation of the

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ISO's Phase 1B modifications. Amendment No. 58 Order at P 78. The ISO will provide the required notice as directed.

Materials Included in the Present Compliance Filing

Attachment A to the present filing contains clean ISO Tariff sheets reflecting the modifications to the tariff sections described above. Attachment B to the present filing contains those modifications in black-line format.<sup>5</sup> Attachment C to this filing contains a form notice of this filing, suitable for publication in the Federal Register, along with a computer diskette containing the Notice.

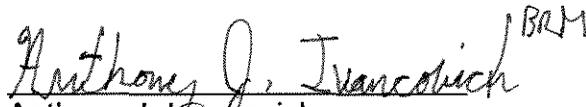
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<sup>5</sup> The red-lined changes contained in Attachment B include changes that were provided in the Amendment No. 54 compliance filings submitted on March 11, 2004 and September 7, 2004. The changes from the Amendment No. 54 compliance filings are shown in red-line and shaded text in Attachment B. In contrast, the modifications proposed in the present Amendment No. 58 compliance filing are red-lined but are not shaded. The substance of the texts of the sections in which changes from both the Amendment No. 54 and Amendment No. 58 proceedings appear is identical in both the present compliance filing and in the Amendment No. 54 compliance filing submitted on September 7, 2004.

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Two additional copies of this compliance filing are enclosed to be date-stamped and returned to our messenger. The ISO is serving copies of this filing on all parties on the official service list for the captioned docket. In addition, the ISO is posting this filing on the ISO Home Page. If there are questions concerning the filing, please contact the undersigned.

Respectfully submitted,

 <sup>BRM</sup>

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**ATTACHMENT A**

**11.2.4.1 Net Settlements for Uninstructed Imbalance Energy.**

Uninstructed Imbalance Energy attributable to each Demand Take-Out Point, Generating Unit, System Unit or System Resource for which a Scheduling Coordinator has a Final Hour-Ahead Schedule or Metered Quantity, for each Settlement Interval, shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Uninstructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each Settlement Interval in accordance with Section 2.5.23.2.1. Positive or negative Uninstructed Imbalance Energy as described in SABP Appendix D, Section 2.1.1 shall be paid or charged the Resource-Specific Settlement Interval Ex Post Price or the Zonal Settlement Interval Ex Post Price, as the case may be.

**11.2.4.1.1 Settlement for Instructed Imbalance Energy**

Instructed Imbalance Energy attributable to each Scheduling Coordinator in each Settlement Interval shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Instructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each Settlement Interval in accordance with Section 2.5.23.

**11.2.4.1.1.1 Bid Cost Recovery for Generating Units, System Units, Dynamically Scheduled System Resources, and Curtailable Demand.**

The ISO shall determine, for each Trading Day, for each Generating Unit, System Unit, dynamically scheduled System Resource, and Curtailable Demand, Dispatched in the Real Time Market pursuant to Section 2.5.22, whether there exists a surplus or deficit in that resource's recovery of its Energy Bid costs, that are less than or equal to the Maximum Bid Level, through Instructed Imbalance Energy credits, as set forth in Section 11.2.4.1.1. This determination of market revenue surplus or deficit shall be calculated as the difference between: 1) the Instructed Imbalance Energy payment as based on the

relevant Resource-Specific Settlement Interval Ex Post Price and 2) the resource's Energy Bid cost for each Settlement Interval. Bid cost recovery payment will be based on Settlement Intervals in which the resource: 1) did not recover its Energy Bid costs, and 2) generated or consumed an amount of Energy resulting from any Dispatch Instructions pursuant to Section 2.5.22. These Settlement Intervals will be netted against all Settlement Intervals in which the Instructed Imbalance Energy payments to the resource exceeded its Energy Bid costs. The resulting total bid cost recovery payment is then divided equally amongst the same Settlement Intervals to yield a per-Settlement Interval bid cost recovery payment. Payments for unrecovered bid costs for portions of Energy associated with bids above the Maximum Bid Level will not be netted with other surpluses or deficits and are subject to recall if the such bids above have not been adequately justified pursuant to Section 28.1.2. Energy Bid cost recovery associated with Residual Energy as provided for in Section 2.5.22.6.4 shall be based on the Energy Bids for the previous or next operating hour, whichever the case may be, upon which the Dispatch Instruction was based.

- b) The Uninstructed Deviation Penalty will apply to pre-Dispatched bids from non-dynamically scheduled System Resources identified, when such a pre-Dispatch Instruction is issued more than 40 minutes prior to the relevant Operating Hour, subject to the following conditions: i) The Uninstructed Deviation Penalty will only apply to the pre-Dispatched amount of the bid that is declined or not delivered, ii) the Uninstructed Deviation Penalty will not apply to a portion of a pre-Dispatched bid that is subsequently not delivered at the direction of a Control Area, including the ISO, due to a curtailment of transmission capability or to prevent curtailment of native firm load occurring subsequent to issuing the pre-Dispatch Instruction, iii) the Uninstructed Deviation Penalty will not apply to uninstructed energy resulting from declining subsequent intra-hour Dispatch Instructions. Dynamically scheduled System Resources, to the extent they deviate from their Final Hour-Ahead Schedule plus any real-time Dispatch Instructions, will be subject to the Uninstructed Deviation Penalty;
- c) The Uninstructed Deviation Penalty will not apply to Load or Curtailable Demand;
- d) [Not Used]
- e) The Uninstructed Deviation Penalty will not apply to Regulatory Must-Run Generation or Participating Intermittent Resources that meet the scheduling obligations established in the Eligible Intermittent Resources Protocol. No other applicable charges will be affected by this exemption. The Uninstructed Deviation Penalty also will not apply to Qualifying Facilities (QFs), including those that are dynamically scheduled, that have not executed a Participating Generator Agreement (PGA), pending resolution of QF-PGA issues at FERC;
- f) For the Scheduling Coordinator of an MSS that has elected to follow the MSS Load and associated Transmission Losses pursuant to Section 23.12, the deviation penalties in Sections 23.12.2.1 and 23.12.2.2 will apply. For the Scheduling Coordinator of an MSS

- l) The Uninstructed Deviation Penalty for positive Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 100% of the corresponding Zonal Settlement Interval Ex Post Price. The net effect of the Uninstructed Deviation Penalty and the Settlement for positive Uninstructed Imbalance Energy beyond the Tolerance Band will be that the ISO will not pay for such Energy;
- m) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 50% of the corresponding Zonal Settlement Interval Ex Post Price;
- n) The Uninstructed Deviation Penalty will not apply to deviations from Energy delivered as part of a scheduled test so long as the test has been scheduled by the Scheduling Coordinator with the ISO or the ISO has initiated the test for the purposes of validating unit performance;
- o) The Uninstructed Deviation Penalty shall not apply to any excess Energy delivered from or any shortfall of Energy not delivered from an out-of-market (OOM) transaction involving a Generating Unit or a System Unit unless the ISO and the supplier have agreed upon the time of, duration of, and the amount of Energy to be delivered in the OOM transaction and the ISO reflects the OOM transaction in its real-time Expected Energy calculations. The Uninstructed Deviation Penalty shall apply to Energy outside the Tolerance Band from firm OOM transactions with dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered or over-delivered, and to any Energy from non-dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered if that over- or under-delivery was due to action taken

by or not taken by the System Resource and not the result of action taken by a Control Area operator due to a curtailment of firm transmission capability or to prevent curtailment of native firm load occurring subsequent to the OOM transaction;

- p) Generating Units and dynamically scheduled System Resources with Uninstructed Imbalance Energy will be exempted from the Uninstructed Deviation Penalty if the Generating Unit or dynamically scheduled System Resource was physically incapable of delivering the expected Energy, provided that the Generating Unit or dynamically scheduled System Resource had notified the ISO within 30 minutes of the onset of an event that prevents the resource from performing its obligations. A Generating Unit or dynamically scheduled System Resource must notify ISO operations staff of its reasons for failing to deliver the expected Energy in accordance with Section 2.3.3.9.5 and must provide information to the ISO that verifies the reason the resource failed to comply with the Dispatch instruction within 48 hours of the operating hour in which the instruction is issued;
- q) Adjustments to any Generating Unit, Curtailable Demand and System Resource Final Hour-Ahead Schedules made in accordance with the terms of Existing Contracts shall not be subject to Uninstructed Deviation Penalties.
- r) Any changes made to Schedules prior to the ISO issuing Final Hour-Ahead Schedules shall not be subject to Uninstructed Deviation Penalties.
- s) Uninstructed Deviation Penalties shall not be charged to any deviation from a Dispatch Instruction that does not comply with the requirements set forth in the Dispatch Protocol.

**D 2.6 Calculation of Unrecovered Cost Payment for Generating Units, System Units, Dynamically Scheduled System Resources, and Curtailable Demand.**

As set forth in 11.2.4.1.1.1, Generating Units, System Units, dynamically scheduled System Resources, and Curtailable Demand resources will be eligible to recover their bid costs (less than or equal to the Maximum Bid Level) for extra-marginal Energy dispatched above Pmin, if such costs are not recovered from the net of expected revenues earned through participation in the ISO's Real Time Market during the Trade Day (24-hour period).

The Unrecovered Cost Payment for each resource *i* shall be determined for the Trade Day *d* then evenly divided over *n*-Settlement Intervals as follows:

$$COST\_RECOVERY_{i,d} = \min\left(0, \sum_i^h \sum_i^o \left( MR\_DEFICIT_{i,h,o} + MR\_SURPLUS_{i,h,o} \right)\right)$$

where,

$MR\_DEFICIT_{i,h,o}$  = Market Revenue deficit for resource *i* in hour *h* for Settlement interval *o* based on the difference between the expected revenues earned in the Settlement Interval and and/or its bid cost;  $MR\_SURPLUS_{i,h,o}$  = Market Revenue surplus for resource *i* in hour *h* for Settlement interval *o* based on the difference between the expected revenues earned in the Settlement Interval and/or its bid cost.

Resource *i* shall receive a share of its total cost recovery in each Settlement Interval *o* that is included in the  $COST\_RECOVERY_{i,d}$  calculation.

$$COST\_RECOVERY_{i,h,o} = COST\_RECOVERY_{i,d} / n$$

where,

*n* is the number of Settlement Intervals *o* that are included in the  $COST\_RECOVERY_{i,d}$  calculation for resource *i* in Trade Day *d*.

**Calculation of Market Revenue Surplus or Deficit**

The market revenue surplus or deficit for each resource *i* will be computed for each Settlement Interval *o* based on the difference between the revenues earned in the Settlement Interval at the relevant 10-minute Ex Post price and the resource's bid cost (less than or equal to the Maximum Bid Level) as follows:

$$MR\_DIFF_{i,h,o} = \left( \sum_{l=1}^k \sum_{l=1}^m IIE\_ECON_{i,h,o,k,m} + \sum_{l=1}^k \sum_{l=1}^m RIE_{i,h,o,k,m} \right) * STLMT\_PRICE_{i,h,o} - BID\_COST_{i,h,o} - BID\_COST\_RIE_{i,h,o}$$

for all incremental energy bid segments  $m$  with  $IIE\_PRICE_{i,h,o,k,m}$  and  $RIE\_PRICE_{i,h,o,k,m}$  less than or equal to the Maximum Bid Level and all decremental energy bid segments  $m$  with  $IIE\_PRICE_{i,h,o,k,m}$  and  $RIE\_PRICE_{i,h,o,k,m}$  greater than or equal to the Bid Floor.

$$MR\_DEFICIT_{i,h,o} = \min(0, MR\_DIFF_{i,h,o})$$

$$MR\_SURPLUS_{i,h,o} = \max(0, MR\_DIFF_{i,h,o})$$

where,

$$BID\_COST_{i,h,o} = \left( \sum_{l=1}^k \sum_{l=1}^m IIE\_ECON_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m} \right)$$

$$BID\_COST\_RIE_{i,h,o} = \sum_{l=1}^k \sum_{l=1}^m RIE_{i,h,o,k,m} * RIE\_PRICE_{i,h,o,k,m}$$

#### D 2.6.1 Tolerance Band and Performance Check

The ISO shall determine the Tolerance Band for each Settlement Interval  $o$  for PGA resources and dynamically scheduled System Resources based on the data from the Master File as follows:

$$TOLERANCE\_BAND_{i,h,o} = \pm \max(FIX\_LIM, TOL\_PERCENT * P_{max_i}) / 6$$

where,

$FIX\_LIM$  is a fixed MW limit and is initially equal to 5 MW.

$TOL\_PERCENT$  is a fixed percentage and is initially equal to 3%.  $P_{max_i}$  is the maximum operating capacity in MW of resource  $i$  specified in the Master File.

The ISO shall determine the Tolerance Band for each Settlement Interval  $o$  for PLA resources as follows:

$$TOLERANCE\_BAND_{i,h,o} = \pm \max(FIX\_LIM, TOL\_PERCENT * HAFin_{i,h}) / 6$$

where  $HAFin_{i,h}$  is the Final Hour Ahead Energy Schedule.

Resources must operate within their relevant Tolerance Band in order to receive any above-Ex Post Price payments. The ISO shall determine the performance status of the resource for each Settlement Interval  $o$ .

A resource shall have met its performance requirement if its  $UIE_{i,h,o}$  is within its relevant Tolerance Band. A resource meeting its performance requirement in Settlement Interval  $o$  will have a  $PERF\_STAT_{i,h,o} = 1$ . A resource that has not met its performance requirement in Settlement Interval  $o$  will have a  $PERF\_STAT_{i,h,o} = 0$ .

Must-offer resources that produce a quantity of Energy above Minimum Load due to an ISO Dispatch Instruction during a Waiver Denial Period are not subject to the Tolerance Band requirement for purposes of receiving Minimum Load Cost Compensation, as defined in section 5.11.6.1.1. Accordingly, the  $PERF\_STAT_{i,h,o}$  for eligible must-offer resources, as defined in section 5.11.6.1.1, shall be set to 1, irrespective of deviations outside of the Tolerance Band, for the purpose of determining eligibility for Minimum Load Cost Compensation during a Waiver Denial Period. The Tolerance Band shall be used to apply UDP during a Waiver Denial Period.

Non-dynamically scheduled System Resources do not have a Tolerance Band. Non-Participating Load Agreement (PLA) load resources are not subject to the performance requirement.

#### D 2.6.2 Unrecovered Costs Neutrality Allocation

For each Settlement Interval  $o$ , the total Unrecovered Costs for Trade Day  $d$  shall be allocated pro-rata to each Scheduling Coordinator  $g$  based on its Metered Demand, calculated as follows:

$$URC\_ALLOC_{g,h,o} = M_{g,h,o} * Per\ Unit\ Price$$

where,

$M_{g,h,o}$  = the Metered Demand in the ISO control area for Scheduling Coordinator  $g$  in Settlement Interval  $o$  for hour  $h$ ;

$$Per\ Unit\ Price = \frac{-1 * \sum_1^i COST\_RECOVERY_{i,h,o}}{\sum_1^g M_{g,h,o}}$$

#### D 2.6.3 Calculation of Unrecovered Cost Payment for System Resources

As set forward in Section 11.2.4.1.1.2, System Resources that are dispatched and deliver hourly-predispatched Instructed Imbalance Energy will be paid the higher of the simple average of the twelve Dispatch Interval Ex Post prices for the hour or their Energy bid costs for the quantity of Energy delivered in each hour. The determination of the hourly uplift payment shall be determined as follows: (1) Market deficits or surpluses are calculated as the difference between the resource-specific price and the resource's (hourly) bid cost; (2) An hourly uplift payment will be determined for any amount less than zero;

**ATTACHMENT B**

**11.2.4.1.1.1 Bid Cost Recovery for Generating Units, System Units, Dynamically Scheduled System Resources, and Curtailable Load Demand.**

The ISO shall determine, for each Trading Day, for each Generating Unit, System Unit, dynamically scheduled System Resource, and Curtailable Demand, Dispatched in the Real-Time Market pursuant to Section 2.5.22, whether there exists a surplus or deficit in that resource's recovery of its Energy Bid costs, that are less than or equal to the Maximum Bid Level, through Instructed Imbalance Energy credits, as set forth in Section 11.2.4.1.1. This determination of market revenue surplus or deficit shall be calculated as the difference between: 1) the Instructed Imbalance Energy payment as based on the relevant Resource-Specific Settlement Interval Ex Post Price and 2) the resource's Energy Bid cost for each Settlement Interval. Bid cost recovery payment will be based on Settlement Intervals in which the resource: 1) did not recover its Energy Bid costs, and 2) generated or consumed an amount of Energy within its Tolerance Band of an amount of Energy equal to its Final Hour-Ahead Schedule plus resulting from any Dispatch Instructions pursuant to Section 2.5.22. During a Waiver Denial Period, the Tolerance Band requirement will not be applied as a condition for bid cost recovery or payment of Minimum Load Costs to Must-Offer Generators that produce a quantity of Energy above minimum load due to an ISO Dispatch Instruction. These Settlement Intervals will be netted against all Settlement Intervals in which the Instructed Imbalance Energy payments to the resource exceeded its Energy Bid costs. The resulting total bid cost recovery payment is then divided equally amongst the same Settlement Intervals to yield a per-Settlement Interval bid cost recovery payment. For non-must offer resources, this per-Settlement Interval bid cost recovery payment shall then be paid to each Settlement Interval in which the resource generated or consumed an amount of Energy equal to its schedule, any Dispatch Instructions and its applicable Tolerance Band. For must-offer resources, this per-Settlement Interval bid cost recovery payment shall be made in each interval the unit was instructed by the ISO to operate above its minimum load, or returning to its minimum load from a prior ISO instruction. Payments for un-recovered bid costs for portions of Energy associated with bids above the Maximum Bid Level will not be netted with other surpluses or deficits and are subject to recall if the such bids above have not been adequately justified pursuant to Section 28.1.2. Energy Bid cost recovery associated with Residual Energy as provided for in

Section 2.5.22.6.4 shall be based on the Energy Bids for the previous or next operating hour, whichever the case may be, upon which the Dispatch Instruction was based.

\* \* \*

#### 11.2.4.1.2

\* \* \*

- e) The Uninstructed Deviation Penalty will not apply to Regulatory Must-Run Generation or Participating Intermittent Resources that meet the scheduling obligations established in the Eligible Intermittent Resources Protocol. No other applicable charges will be affected by this exemption. The Uninstructed Deviation Penalty also will not apply to Qualifying Facilities ~~(QFs)~~, including those that are dynamically scheduled, that have not executed a Participating Generator Agreement (PGA), pending resolution of QF-PGA issues at ~~FERC~~ the Commission;

\* \* \*

- o) The Uninstructed Deviation Penalty shall ~~not~~ apply to any excess Energy delivered from or any shortfall of Energy not delivered from an ~~Out-of-Market~~ (OOM) transaction involving a Generating Unit or a System Unit ~~unless~~ the ISO and the supplier have agreed upon the time of, duration of, and the amount of Energy to be delivered in the OOM transaction and the ISO reflects the OOM transaction in its real-time Expected Energy calculations. The Uninstructed Deviation Penalty shall apply to Energy outside the Tolerance Band from firm OOM transactions with dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered or over-delivered, and to any Energy from non-dynamically scheduled System Resources to the extent the agreed-to Energy is not delivered if that over- or under-delivery was due to action taken by or not taken by the System Resource and not the result of action taken by a ~~Control~~ ~~Area~~ operator due to a curtailment of firm transmission capability or to prevent curtailment of native firm load occurring subsequent to the OOM transaction;

p) Generating Units and dynamically scheduled System Resources with Uninstructed Imbalance Energy will be exempted from the Uninstructed Deviation Penalty if the Generating Unit or dynamically scheduled System Resource was physically incapable of delivering the expected Energy, provided that the Generating Unit or dynamically scheduled System Resource had notified the ISO within 30 minutes of the onset of an event that prevents the resource from performing its obligations. A Generating Unit or dynamically scheduled System Resource must notify ISO operations staff of its reasons for failing to deliver the expected Energy in accordance with Section 2.3.3.9. ~~52~~ and must provide information to the ISO that verifies the reason the resource failed to comply with the Dispatch instruction within 48 hours of the operating hour in which the instruction is issued;

\* \* \*

D 2.6

**Calculation of Unrecovered Cost Payment for  
Generators/Generating Units, System Units, Dynamically  
Scheduled System Resources, and Curtailable Demand.**

As set forth in 11.2.4.1.1.1, Generators/Generating Units, System Units, dynamically scheduled System Resources, and Curtailable Demand resources will be eligible to recover their bid costs (less than or equal to the Maximum Bid Level) for extra-marginal Energy dispatched above Pmin, if such costs are not recovered from the net of expected revenues earned through participation in the ISO's Real Time Market during the Trade Day (24-hour period). The expected market revenue deficits will only be included in the calculation for Settlement Intervals the resource operates within its relevant Tolerance Band. Additionally, resources will not recover the amount of these bid recovery costs allocated to each Settlement Interval in those Settlement Intervals in which the resource is operating outside of its relevant Tolerance Band.

The Unrecovered Cost Payment for each resource i shall be determined for the Trade Day d then evenly divided over n-Settlement Intervals as follows:

$$COST\_RECOVERY_{i,d} =$$

$$\min\left(0, \sum_h \sum_o \left( PERE\_STAT_{i,h,o} * MR\_DEFICIT_{i,h,o} + MR\_SURPLUS_{i,h,o} \right)\right)$$

$$\min\left(0, \sum_h \sum_o \left( MR\_DEFICIT_{i,h,o} + MR\_SURPLUS_{i,h,o} \right)\right)$$

where,

$MR\_DEFICIT_{i,h,o}$  = Market Revenue deficit for resource i in hour h for Settlement interval o based on the difference between the expected revenues earned in the Settlement Interval and and/or its bid cost;

$MR\_SURPLUS_{i,h,o}$  = Market Revenue surplus for resource i in hour h for Settlement interval o based on the difference between the expected revenues earned in the Settlement Interval and/or its bid cost.

Resource i shall receive a share of its total cost recovery in each Settlement Interval o that is included in the  $COST\_RECOVERY_{i,d}$  calculation above if it operates within its relevant Tolerance Band during the relevant Settlement Interval o.

$$COST\_RECOVERY_{i,h,o} = PERE\_STAT_{i,h,o} * COST\_RECOVERY_{i,d} / n$$

where,

n is the number of Settlement Intervals o that are included in the  $COST\_RECOVERY_{i,d}$  calculation for resource i in Trade Day d.

**Calculation of Market Revenue Surplus or Deficit**

The market revenue surplus or deficit for each resource  $i$  will be computed for each Settlement Interval  $o$  based on the difference between the revenues earned in the Settlement Interval at the relevant 10-minute Ex Post price and the resource's bid cost (less than or equal to the Maximum Bid Level) as follows:

$$MR\_DIFF_{i,h,o} = \left( \sum_l^k \sum_l^m IIE\_ECON_{i,h,o,k,m} + \sum_l^k \sum_l^m RIE_{i,h,o,k,m} \right) * STLMT\_PRICE_{i,h,o} - BID\_COST_{i,h,o} - BID\_COST\_RIE_{i,h,o}$$

for all incremental energy bid segments  $m$  with  $IIE\_PRICE_{i,h,o,k,m}$  and  $RIE\_PRICE_{i,h,o,k,m}$  less than or equal to the Maximum Bid Level and all decremental energy bid segments  $m$  with  $IIE\_PRICE_{i,h,o,k,m}$  and  $RIE\_PRICE_{i,h,o,k,m}$  greater than or equal to the Bid Floor.

$$MR\_DEFICIT_{i,h,o} = \min(0, MR\_DIFF_{i,h,o})$$

$$MR\_SURPLUS_{i,h,o} = \max(0, MR\_DIFF_{i,h,o})$$

where,

$$BID\_COST_{i,h,o} = \left( \sum_l^k \sum_l^m IIE\_ECON_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m} \right)$$

$$BID\_COST\_RIE_{i,h,o} = \sum_l^k \sum_l^m RIE_{i,h,o,k,m} * RIE\_PRICE_{i,h,o,k,m}$$

#### D 2.6.1 Tolerance Band and Performance Check

The ISO shall determine the Tolerance Band for each Settlement Interval  $o$  for PGA resources and dynamically scheduled System Resources based on the data from the Master File as follows:

$$TOLERANCE\_BAND_{i,h,o} = \pm \max(FIX\_LIM, TOL\_PERCENT * P_{\max_i}) / 6$$

where,

$FIX\_LIM$  is a fixed MW limit and is initially equal to 5 MW.  
 $TOL\_PERCENT$  is a fixed percentage and is initially equal to 3%.  
 $P_{\max_i}$  is the maximum operating capacity in MW of resource  $i$  specified in the Master File.

The ISO shall determine the Tolerance Band for each Settlement Interval  $o$  for PLA resources as follows:

$$TOLERANCE\_BAND_{i,h,o} = \pm \max(FIX\_LIM, TOL\_PERCENT * HAfin_{i,h}) / 6$$

where  $HAfin_{i,h}$  is the Final Hour Ahead Energy Schedule.

Resources must operate within their relevant Tolerance Band in order to receive any above-Ex Post ~~e~~Price payments. The ISO shall determine the performance status of the resource for each Settlement Interval  $o$ . A resource shall have met its performance requirement if its  $UIE_{i,h,o}$  is within its relevant Tolerance Band. A resource meeting its performance requirement in Settlement Interval  $o$  will have a  $PERF\_STAT_{i,h,o} = 1$ . A resource that has not met its performance requirement in Settlement Interval  $o$  will have a  $PERF\_STAT_{i,h,o} = 0$ .

Must-offer resources that produce a quantity of Energy above Minimum Load due to an ISO Dispatch Instruction during a Waiver Denial Period are not subject to the Tolerance Band requirement for purposes of receiving ~~either~~ Minimum Load Cost Compensation, as defined in section 5.11.6.1.1, ~~or Bid Cost Recovery, as set forth in section 11.2.4.1.1.1.~~ Accordingly, the  $PERF\_STAT_{i,h,o}$  for eligible must-offer resources, as defined in section 5.11.6.1.1, shall be set to 1, irrespective of deviations outside of the Tolerance Band, for the purpose of determining eligibility for ~~Bid Cost Recovery and~~ Minimum Load Cost Compensation during a Waiver Denial Period. The Tolerance Band shall be used to apply UDP during a Waiver Denial Period.

Non-dynamically scheduled System Resources do not have a Tolerance Band. Non-~~P~~Participating Load Agreement (PLA) load resources are not subject to the performance requirement.

**ATTACHMENT C**

