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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. ER03-1046-___**

Dear Secretary Salas:

The California Independent System Operator Corporation ("ISO")¹ respectfully submits six copies of this filing in compliance with the Commission's August 5, 2004 "Order on Rehearing and Compliance on Proposed Tariff Amendment No. 54," issued in the captioned docket, 108 FERC ¶ 61,142 ("Amendment No. 54 Order"). The Commission directed the ISO to comply with the Amendment No. 54 Order as described below. (The underlined headings shown below correspond to the headings used in the Amendment No. 54 Order.)

Section 3 of the Uninstructed Deviation Penalty Aggregation Protocol

The Commission directed the ISO to modify Section 3 of the Uninstructed Deviation Penalty Aggregation Protocol ("UDPA Protocol") to provide that the evaluation of a basic aggregation request will not take more than one week and that the evaluation of a custom Uninstructed Deviation Penalty ("UDP") aggregation will not take more than 30 days. Amendment No. 54 Order at P 27. The ISO has modified Section 3 of the UDPA Protocol to comply with these directives.

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

Section 3.1.2 of the UDPA Protocol

The Commission directed the ISO to use the term "local transmission" consistently as it relates to aggregation. Amendment No. 54 Order at P 31. The modifications to Section 3.1.2 of the UDPA Protocol described below eliminate the use of that term. The Commission also stated that the ISO had not adequately supported its proposed requirement that effectiveness factors be within +/-10 percent of each other, and directed the ISO to "resubmit its aggregation criteria with a clear specification of the factors used to qualify or disqualify the effectiveness factors of the units for which aggregation is requested" and to fully support the reasonableness of such criteria. *Id.* The ISO has modified Section 3.1.2, item (4), to clearly specify the factors used to determine if Generating Units may be aggregated based on their effectiveness factors.

The ISO's proposal is reasonable. The purpose of a UDP Aggregation of Generating Units is to allow a particular unit (call it Unit B) to change its output to make up for the deviation of another unit (call it Unit A) that would otherwise be penalized. If Unit A is operating at a level such that a network element is operating within its rating, and then deviates from that operating level, it is reasonable to require that when Unit B changes its operating level to make up for Unit A's deviation, the network element is still operating within its rating. That is why the similar effectiveness of Unit A and Unit B relative to flows across a network element is key to allowing them to be in the same UDP aggregation. Without this condition, Generating Units that are deviating without instruction from the ISO to make up for other Generating Units' deviations could create overloads on the ISO Controlled Grid.

Consider the following example involving Unit A and Unit B as well as a third Generating Unit (Unit C):

Table 1: UDP Aggregation Example 1		
	Effectiveness, Line 1	Effectiveness, Line 2
Unit A	-21.0%	30.2%
Unit B	-20.3%	29.2%
Unit C	-18.4%	-61.0%

All three units exhibit a similar (negative) impact on Line 1, with effectiveness factors in the range of -18.4% to -21.0% (all within +/-10% from a midpoint value of -19.7%). If Unit C deviated by 20 MW, and Unit A adjusted its output without instruction from the ISO to cover that deviation from Unit C, the flow across Line 1 would not change appreciably [$(20 \text{ MW} \times (0.21 - 0.184)) = 0.5 \text{ MW}$ decrease in flow]. For Line 2, however, Unit C exhibits a radically different effectiveness factor than Units A and B. Thus, the same 20 MW substitution of Unit A for Unit C would increase the flow on Line 2 by roughly 18 MW [$20 \text{ MW} \times (.302 - (-.61)) = 18.2 \text{ MW}$ increase]. Assuming Line 2 was operating near its rating at the time of substitution, Line 2 would be overloaded when Unit A adjusts its output to make up for the deviation from Unit C. The ISO would then need to re-dispatch these Generating Units or dispatch other Generating Units to relieve the overload on Line 2. Because Units A and B have a relatively similar effect on local constraints, they could reasonably participate in the same UDP Aggregation; however, Unit C could not reasonably participate in that UDP Aggregation.

In a second example, a Scheduling Coordinator proposes the UDP Aggregation containing Units A, B, and C, which also connect at slightly different grid locations in a local transmission system.

	Effectiveness, Line 1
Unit A	15%
Unit B	30%
Unit C	35%

All three units exhibit a similar (positive) effectiveness factor relative to Line 1; however, none of the units would be within 10% of the group's midpoint effectiveness of 25%. A more feasible UDP Aggregation would involve only Units B and C: both these units' effectiveness would be within 10% of their midpoint value of 32.5%. If Unit C deviated by 100MW, and Unit B changed its output 100 MW to make up for Unit C's deviation, Line 1 would see a small difference in flow [$100 \text{ MW} \times (.35 - .30) = 5 \text{ MW}$ increase in flow]. However, if Unit A had been allowed as part of the UDP Aggregation, and adjusted its output to make up for the same 100 MW deviation from Unit C, the flow on Line 1 would change by roughly 20 MW [$100 \text{ MW} \times (.35 - .15) = 20 \text{ MW}$ increase]. In both scenarios, if Line 1 was operating near its rating, additional re-dispatch of these or other units would be required, first to relieve the overloads and then to restore

load-generation balance. However, the second scenario would require redispatching four times as much generation to support the UDP substitution.

Again, the premise of UDP Aggregations is that Unit A will deviate on its own and without instruction from the ISO to cover a deviation from Unit B to prevent Unit B from incurring UDP. From a supply and demand balancing standpoint, this is a reasonable concept. It becomes an unreasonable concept, however, when Unit A's deviation creates a problem that did not exist before Unit B changed its output and Unit A also changed its output to cover Unit B's deviation. While Generating Units may be fungible from a control area supply/demand perspective, they are not fungible from a grid congestion perspective. The ISO proposes the "10% from midpoint value" criteria to ensure that aggregated units have the same relative effect on grid congestion, and that such aggregations do not create additional reliability concerns. The 10% threshold was not derived from exhaustive power flow and scenario analysis; rather, it is based on engineering judgment of reasonable and reliable system operation. The ISO urges the Commission to accept the ISO's clarified proposal.

Sections 4.1 and 4.2 of the UDPA Protocol

The Commission stated that it agreed with the ISO that the provision in Section 4.1 regarding temporary schedule restrictions is unnecessary and directed the ISO to delete the provision. *Id.* The ISO has deleted this provision to comply with the Commission's directive.

The Commission found that "a basic aggregation should be suspended only when the generator-unit connections at the bus bar become separated or the physical configuration of the plant changes significantly." Amendment No. 54 Order at P 35. The ISO has modified Section 4.2 of the UDPA Protocol to comply with this directive. The Commission also required the ISO to reflect in the UDPA Protocol the following commitments and other statements made by the ISO in the answer it submitted in the captioned docket on December 29, 2003:

- The ISO will suspend an aggregation when the aggregation, due to the outage of a Generating Unit, transmission line, or other grid component or other modification (such as a sale of a unit) fails to meet the criteria set out in Sections 3.1.1 and 3.1.2 of the UDPA Protocol.
- The ISO will notify the Scheduling Coordinator as far in advance of such a

suspension as reasonably possible.

- If the ISO is required to permanently suspend an approved aggregation due to, for example, the reconfiguration of the transmission grid, the ISO expects to provide notice well in advance of the suspension after the ISO becomes aware of the reconfiguration proposal.
- If the outage that causes the need to suspend the aggregation occurs in real time, the notice of a suspension may not be made until real time.
- The ISO cannot allow an affected Scheduling Coordinator the opportunity to respond because the ISO cannot engage in ongoing negotiations or discussions with Market Participants about operational issues, but rather, Market Participants may request dispute resolution under the provisions of the ISO Tariff. Advance or real-time disputes over aggregation should not be permitted to interfere with ISO grid operations because aggregations are a financial convenience which limits Scheduling Coordinators' exposure to UDP, not an operational requirement.

Amendment No. 54 Order at PP 37-38. The ISO has reflected the commitments and other statements described above in Section 4.2 of the UDPA Protocol

Exemptions

The Commission directed the ISO to "clarify that its intent through the proposed revisions to ISO Tariff Section 11.2.4.1.2(o) [of the ISO Tariff] is to clarify that an out-of-market transaction must be fully specified before UDP can apply." Amendment No. 54 Order at PP 48, 50. The Commission also directed the ISO to modify the section to provide that UDP only applies when the out-of-market transaction has been accurately reflected in the ISO's automated real-time instructions and its expected energy calculation. *Id.* The ISO has modified this section as directed.

Dispatch and Settlement of Transmission Losses

System Resources, which appear to the ISO as static hourly inter-Control Area interchange Schedules, cannot use the flag in the RTMA to indicate they are self-providing transmission losses. System Resources can self-provide transmission losses, however, by including their transmission loss obligations in

their Final Hour-Ahead Schedules. Dynamically scheduled System Resources, which appear to the ISO's systems as Generating Units within the ISO Control Area, may use the flag in RTMA to indicate they are self-providing their *transmission loss obligations* by generating an additional amount of Energy equal to their transmission loss obligations in real-time. The Commission directed the ISO to revise Section 7.4.1 of the ISO Tariff to include a reference to System Resources that will self-provide losses as part of their Final Hour-Ahead Schedule. Amendment No. 54 Order at P 56. The ISO has modified the section to comply with this directive and to distinguish between dynamically scheduled and non-dynamically scheduled System Resources.

Revocation of Minimum Load Cost Compensation

The Commission stated that it 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. 54 Order at P 71. The ISO 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.

Recovery of Minimum Load Costs by Must-Offer Generators

The Commission rejected the ISO's proposed modifications to eliminate double-paying Minimum Load Costs, *i.e.*, what the Commission described as "the provision to net ex-post revenues against minimum load costs." Amendment No. 54 Order at P 78. The ISO has added new Sections 5.11.6.1.1.1 and 5.11.6.1.1.2 to the ISO Tariff to clarify what payments will be made to a Generating Unit that is eligible to recover its Minimum Load Costs.

The Commission also directed the ISO to remove the phrase "subject to performance within its Tolerance Band" from the end of Section 5.11.6.1.1 of the ISO Tariff. Amendment No. 54 Order at P 82. The ISO proposed to remove that phrase from the section in an earlier compliance filing. *See ISO Compliance Filing, Docket Nos. EL00-95-091 and EL00-98-078 (Dec. 15, 2003) at Attachment D.* Commission action on that compliance filing is pending. Therefore, there is no need for the ISO to propose the same change in the present compliance filing.

In addition, the Commission rejected the ISO's proposal, in Section 2.9 of

Appendix D of the Settlement and Billing Protocol, to define a generator's minimum load cost compensation ("MLCC") as "the market revenue deficit below its Minimum Load Costs," and directed the ISO to submit a revised definition of MLCC in the section that defines a generator's MLCC as all of a generator's Minimum Load Costs. Amendment No. 54 Order at P 85. The ISO has modified the section to comply with this directive.

Materials Included in the Present Compliance Filing

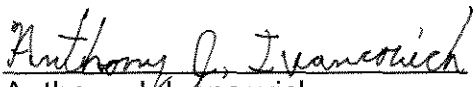
Attachment A to the present filing contains clean ISO Tariff sheets reflecting the modifications to the tariff sections described above. Attachment B to the present filing contains those modifications in black-line format.² Attachment C to this filing contains a form notice of this filing, suitable for publication in the Federal Register, along with a computer diskette containing the Notice.

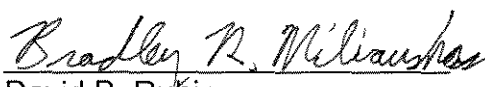
² The red-lined changes contained in Attachment B include changes that were provided in Amendment No. 58 as filed on March 2, 2004 and in the Amendment No. 58 compliance filing submitted on September 7, 2004. The changes contained in the present filing (i.e., those that are not from the Amendment No. 58 filings) are shown in red-lined and shaded text in Attachment B. *In contrast, the changes from the Amendment No. 58 filings are shown in red-line 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. 58 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,

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ATTACHMENT A

Imbalance Energy for each Settlement Interval within the relevant hour and be settled at the Resource-Specific Settlement Interval Ex Post Price; (3) To the extent the Instructed Imbalance Energy payments are not sufficient to cover the generator's Minimum Load Cost for the hour as defined in Section 5.11.6.1.2 of this Tariff, the generator will also receive an uplift payment for its Minimum Load Cost compensation for the relevant eligible Settlement Intervals of hours during the Waiver Denial Period that the Generating Unit runs at minimum load in compliance with the must-offer obligation; and (4) To the extent the Generator is dispatched for real time Imbalance Energy above its minimum load for any Dispatch Interval within an hour during the Waiver Denial Period, the Generator will be eligible for Bid Cost Recovery, as set forth in Section 11.2.4.1.1.1.

5.11.6.1.1.1 Payments for Imbalance Energy Above the Minimum Operating Level for Generating Units Eligible to Be Paid Minimum Load Costs

When, on a Settlement Interval basis, a Must-Offer Generator's Generating Unit produces a quantity of Energy above the Generating Unit's *minimum operating level* due to an ISO Dispatch Instruction, the Must-Offer Generator shall recover its Minimum Load Costs and its bid costs, based on the ISO's instruction, as set forth in Section 11.2.4.1.1.1, for any such Settlement Intervals during hours within a Waiver Denial Period, irrespective of deviations outside of its Tolerance Band.

5.11.6.1.1.2 Payments for Imbalance Energy for the Minimum Operating Level for Generating Units Eligible to Be Paid Minimum Load Costs

A Generating Unit operating at or near its operating level during a Waiver Denial Period either (1) without a forward Schedule for its minimum operating level Energy or (2) with a Schedule to a special-purpose Demand ID for the sole purpose of Scheduling the minimum operating level Energy shall be paid, in addition to being paid its Minimum Load Costs subject to eligibility as set forth in Section 5.11.6.1.1, an amount equal to the Resource Specific Settlement Interval Ex Post Price times the amount of Energy actually delivered.

5.11.6.1.2 Minimum Load Costs

The Minimum Load Costs shall be calculated as the sum, for all eligible hours in the Waiver Denial Period and Settlement Periods in which the unit generated in response to an ISO Dispatch Instruction,

of: 1) the product of the unit's average heat rate (as determined by the ISO from the data provided in accordance with Section 2.5.23.3.3) at the unit's relevant minimum operating level or Dispatchable minimum operating level as set forth in the ISO Master File or as amended through notification to the ISO via SLIC and the proxy figure for natural gas costs posted in the ISO Home Page in effect at the time and the unit's relevant minimum operating level or Dispatchable minimum operating level as set forth in the ISO Master File or as amended through notification to the ISO via SLIC; and 2) the product of the unit's relevant minimum operating level or Dispatchable minimum operating level as set forth in the ISO Master File or as amended through notification to the ISO via SLIC; and \$6.00/MWh.

5.11.6.1.3 Invoicing Minimum Load Costs

The ISO shall determine each Scheduling Coordinator's Minimum Load Costs and make payments for these costs as part of the ISO's market settlement process. *Scheduling Coordinators may*

Redispatch cost will be recovered for each Settlement Period through the Grid Operations Charge, which shall be paid to the ISO by all Scheduling Coordinators in proportion to their metered Demands within the Zone with Intra-Zonal Congestion, and scheduled exports from the Zone with Intra-Zonal Congestion to a neighboring Control Area, provided that, with respect to Demands within an MSS in the Zone and scheduled exports from the MSS to a neighboring Control Area, a Scheduling Coordinator shall be required to pay Grid Operations Charges only with respect to Intra-Zonal Congestion, if any, that occurs on an interconnection between the MSS and the ISO Controlled Grid, and with respect to Intra-Zonal Congestion that occurs within the MSS, to the extent the Congestion is not relieved by the MSS Operator.

7.4 Transmission Losses.

7.4.1 Obligation to Provide for Transmission Losses.

Each Scheduling Coordinator shall ensure that it schedules sufficient Generation to meet both its Demand and Transmission Losses responsibilities as determined in accordance with this Section 7.4. Scheduling Coordinators for Generators, System Units and System Resources are responsible for their respective proportion of Transmission Losses as determined in accordance with Section 7.4.2. For each Final Hour-Ahead Schedule, each Scheduling Coordinator representing Generators, dynamically scheduled System Resources or System Units shall elect *through the flag described in SBP Section 2.1.1* to either: 1) generate sufficient additional energy to meet its respective Transmission Losses or 2) be financially responsible for its respective *transmission loss obligation based on the Imbalance Energy procured on its behalf by the ISO.* Scheduling Coordinators for non-dynamically scheduled System Resources may self-provide transmission losses by scheduling an *additional balanced quantity of Energy, both Supply and Demand*, equal to their expected transmission loss obligation above their committed delivery quantities in their Hour-Ahead Schedules. In the ISO Imbalance Energy market, all Scheduling

Coordinators for Generators, System Units, and System Resources must be financially responsible for all respective Transmission Losses associated with their respective Imbalance Energy Dispatch Instructions in real time, based on the Imbalance Energy procured on their behalf by the ISO. A Scheduling Coordinator for an MSS Operator that has elected

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.

- i) 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;

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:

$$COST_RECOVERY_{i,d} = \min\left(0, \sum_{h=1}^H \sum_{o=1}^O (MR_DEFICIT_{i,h,o} + MR_SURPLUS_{i,h,o})\right)$$

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:

$$MR_DIFF_{i,h,o} = \left(\sum_l^k \sum_l^m IIE_ECON_{i,h,o,k,m} + \sum_l^k \sum_l^m RIE_{i,h,o,k,m} \right) * STLMT_PRICE_{i,h,o} - BID_COST_{i,h,o} - BID_COST_RIE_{i,h,o}$$

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 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:

$$URC_ALLOC_{g,h,o} = M_{g,h,o} \cdot \text{Per Unit Price}$$

where,

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

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

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;

$$TL_{i,h,o} = \sum_j^k \sum_l^v REAL_TIME_FLOW_{i,h,o,k,y} * (1 - GMMa_h)$$

The transmission loss charge will be calculated based on the following formulation:

$$TLC_{i,h,o} = - \sum_1^k IIE_LOSS_{i,h,o,k} * STLMT_PRICE_{i,h,o} + TL_{i,h,o} * STLMT_PRICE_{i,h,o}$$

D 2.8 Uninstructed Deviation Penalty Charges

For negative Uninstructed Deviation Penalty billable quantities where $UDP_BQ_{h,o} < 0$ and $ZONAL_EX_POST_PRICE_{j,h,o} > 0$,

$$UDP_NEG_Amt_i AMT_{i,h,o} = -1 * UDP_BQ_{i,h,o} * ZONAL_EX_POST_PRICE_{j,h,o} * .5$$

For positive UDP billable quantities where $UDP_BQ_{i,h,o} > 0$ and $ZONAL_EX_POST_PRICE_{j,h,o} > 0$, then $UDP_POS_AMT_{i,h,o} = UDP_BQ_{i,o,h} * ZONAL_EX_POST_PRICE_{j,h,o}$

where,

$UDP_BQ_{i,o,h}$ is the Uninstructed Deviation Penalty (UDP) billable quantity in MWh for a resource, or aggregated resource, denoted by i for Settlement Interval o of hour h .

$UDP_POS_AMT_{i,o,h}$ or $UDP_NEG_AMT_{i,o,h}$ are the penalty amounts in Dollars for either an aggregated or individual resource i for Settlement Interval o of hour h .

The ISO will not calculate UDP settlement amounts for Settlement Intervals when the corresponding Zonal Settlement Interval Ex Post Price is *negative or zero*.

For an MSS that has elected to follow its own Load, the Scheduling Coordinator for the MSS Operator will be assessed the Uninstructed Deviation Penalty charges based on the Deviation Band and Deviation Price in Section 23.12.2 of the ISO Tariff.

D 2.9 Minimum Load Cost Compensation

The ISO shall calculate a Must-Offer Generator's Minimum Load Cost Compensation (MLCC), pursuant to section 5.11.6.1.1 of the ISO Tariff, as the Minimum Load Cost for each resource i during Settlement Interval o of hour h , as defined in section 5.11.6.1.2 of the ISO Tariff.

D 3	Meaning of terms in the formulae
D 3.1	[Not Used]

hydroelectric units operating on a common watershed (but having multiple different interconnection points), or geothermal units fed from a common geothermal steam supply.

UAP 2 SUBMITTAL OF A REQUEST FOR UDP AGGREGATION

Requests for UDP Aggregation are submitted to the ISO and must include the following documentation:

- (1) A completed UDP Aggregation Request form, which is available for downloading on the ISO website;
- (2) A simplified electrical one-line diagram, which illustrates each resource, the connection of the resources to each other and to the ISO Control Area Grid;
- (3) For Custom UDP Aggregations, a detailed description that explains physical operating interrelationships between the units, or, if there are no interrelationships, how the units are compatible and why an aggregation of these units for the purpose of calculating Uninstructed Deviation Penalties is reasonable.

UAP 3 ISO REVIEW OF A UDP AGGREGATION REQUEST

Upon receipt of a completed request form and accompanying attachments, the ISO shall review the request according to the criteria outlined herein. For Basic UDP Aggregations, the ISO shall review and approve or reject it within one week of receipt. The ISO shall review and approve or reject a request for a Custom UDP Aggregation within thirty (30) days of receipt.

UAP 3.1 Criteria for Reviewing a Request

UAP 3.1.1 Scheduling Coordinator and Interconnection Point

Uninstructed Deviations may be aggregated for resources that are:

- (1) Represented by the same Scheduling Coordinator and
- (2) Connected to the same ISO Controlled Grid bus and voltage level.

The ISO will consider, on a case-by-case basis, requests to aggregate Uninstructed Deviations among resources represented by the same Scheduling Coordinator but not sharing a common ISO Controlled Grid bus and voltage level. In particular, the ISO will consider whether the request concerns resources

related by a common flow of fuel which cannot be interrupted without a substantial loss of efficiency of the combined output of all components; whether the Energy production from one resource necessarily causes Energy production from other resource(s); and whether the operational arrangement of resources determines the overall physical efficiency of the combined output of all of the resources.

UAP 3.1.2 Additional Criteria

Additional eligibility criteria for a UDP Aggregation are as follows:

- (1) Only Generating Units shall be eligible for UDP Aggregation. As a general rule, pump-generating Units (or a Physical Scheduling Plant [PSP] containing a pump-generating Unit) cannot be part of a UDP Aggregation. However, it is possible that generating Units could form a UDP Aggregation comprised entirely of pump-generating Units whose operation is uniform, that is, Units all operating in either Generation mode or all in pump mode, but never mixed.
- (2) UDP Aggregations cannot include any of the following:
 - (a) Load;
 - (b) Condition 2 Reliability Must Run (RMR) Units;
 - (c) Participating Intermittent Resources;
 - (d) Generating Units less than 5 MW; or
 - (e) Generating Units that span active or inactive Congestion Zones.
- (3) The resources must have ISO direct telemetry and must be fully compliant with the ISO's direct telemetry standards.
- (4) The Generating Units must have the same relative effect on all network elements for which the Generating Units have at least a five (5) percent effectiveness factor, that is, for those network elements for which a 1 MW change in the output of the Generating Unit changes the flow across that element by at least 0.05 MW. For the purposes of this item (4), the "same relative effect" means that the effectiveness factors of any Generating Unit relative to a network element cannot differ by more than 10% from the midpoint effectiveness factor of all the units. The midpoint effectiveness is the arithmetic mean of the two most different effectiveness factors to be aggregated.
- (5) Custom UDP Aggregations involving units not directly connecting to the ISO Controlled Grid must recognize the transfer limits and status of the intermediate local facilities.

UAP 3.1.3 Approval of a Request

If a UDP Aggregation request is approved, the ISO shall create a new unique Resource ID, which reflects the identity or location of the units and stipulates the UDP Aggregation, but which cannot be used for scheduling purposes. The ISO shall inform the Scheduling Coordinator of the approval and ask the Scheduling Coordinator to confirm the desired start date of the UDP Aggregation. When that

confirmation has been received, the new aggregation will be entered into the ISO systems. Unless otherwise agreed to by the Scheduling Coordinator and the ISO, the UDP Aggregation will become effective on the first day of the month following approval. The Units in an approved UDP Aggregation are obligated to follow their individual schedules and instructions at all times.

UAP 3.1.4 Rejection of a Request

If the ISO determines that the proposed UDP Aggregation is likely to impact grid reliability or the reliability of transmission systems or equipment of intermediate entities between the relevant resources and the ISO grid, the request will be rejected. If the ISO rejects a request, the ISO shall inform the Scheduling Coordinator, and forward to it the reason for the rejection. The ISO may suggest *alternative solutions if it has adequate time and data*. The Scheduling Coordinator may choose to resubmit based on the ISO's recommendations, or to close the request.

UAP 4 MODIFICATIONS TO AN EXISTING UDP AGGREGATION

UAP.4.1 Status of UDP Aggregation

An approved UDP Aggregation shall be considered active until otherwise requested by the Scheduling Coordinator.

UAP 4.2 Suspension by the ISO

The ISO may suspend previously approved UDP Aggregations if, due to changes to the grid, to the aggregated Generating Units, or to the facilities connecting aggregated Generating Units to the grid, the UDP Aggregation no longer meets the criteria set forth in Sections 3.1.1 and 3.1.2 of this ISO Protocol. If the ISO must suspend the UDP Aggregation due to a forced outage or other unanticipated event, the ISO shall provide notice that the UDP Aggregation has been suspended as soon as practical after the affecting event, but in no case *longer than 72 hours after that event*. If the ISO must suspend the UDP Aggregation due to future changes, the ISO shall notify the affected Scheduling Coordinator (1) that the UDP Aggregation will be suspended and (2) when the UDP Aggregation will be suspended as soon as practical after the ISO determines the UDP Aggregation must be suspended.

The ISO shall write a report that explains the reason for the suspension and that specifies the effective date and time. The ISO will forward the report to the Scheduling Coordinator and take steps to have the aggregation removed from the ISO systems.

In the event that a resource in a UDP Aggregation changes from one Scheduling Coordinator to another, the UDP Aggregation will be suspended. In order to reinstate the aggregation, the new Scheduling Coordinator must submit a new request reflecting the change.

UAP 4.3 Request for Modification by a Scheduling Coordinator

A Scheduling Coordinator may request a modification to an existing aggregation up to once per calendar month. A request for modification will follow the same procedures as a new request.

ATTACHMENT B

5.11.6.1.1.1 Payments for Imbalance Energy Above the Minimum Operating Level for Generating Units Eligible to Be Paid Minimum Load Costs

When, on a Settlement Interval basis, a Must-Offer Generator's Generating Unit produces a quantity of Energy above the Generating Unit's minimum operating level due to an ISO Dispatch Instruction, the Must-Offer Generator shall recover its Minimum Load Costs and its bid costs, based on the ISO's instruction, as set forth in Section 11.2.4.1.1.1, for any such Settlement Intervals during hours within a Waiver Denial Period, irrespective of deviations outside of its Tolerance Band.

5.11.6.1.1.2 Payments for Imbalance Energy for the Minimum Operating Level for Generating Units Eligible to Be Paid Minimum Load Costs

A Generating Unit operating at or near its operating level during a Waiver Denial Period either (1) without a forward Schedule for its minimum operating level Energy or (2) with a Schedule to a special-purpose Demand ID for the sole purpose of Scheduling the minimum operating level Energy shall be paid, in addition to being paid its Minimum Load Costs subject to eligibility as set forth in Section 5.11.6.1.1, an amount equal to the Resource Specific Settlement Interval Ex Post Price times the amount of Energy actually delivered.

* * *

7.4 Transmission Losses.

7.4.1 Obligation to Provide for Transmission Losses.

Each Scheduling Coordinator shall ensure that it schedules sufficient Generation to meet both its Demand and Transmission Losses responsibilities as determined in accordance with this Section 7.4. Scheduling Coordinators for Generators, System Units and System Resources are responsible for their respective proportion of Transmission Losses as determined in accordance with Section 7.4.2. For each Final Hour-Ahead Schedule, each Scheduling Coordinator

representing Generators, dynamically scheduled System Resources or System Units shall elect through the flag described in SBP Section 2.1.1 to either: 1) generate sufficient additional energy to meet its respective Transmission Losses or 2) be financially responsible for its respective transmission loss obligation based on the Imbalance Energy procured on its behalf by the ISO.

Scheduling Coordinators for non-dynamically scheduled System Resources may self-provide transmission losses by scheduling an additional balanced quantity of Energy, both Supply and Demand, equal to their expected transmission loss obligation above their committed delivery quantities in their Hour-Ahead Schedules. In the ISO Imbalance Energy market, all Scheduling Coordinators for Generators, System Units, and System Resources must be financially responsible for all respective Transmission Losses associated with their respective Imbalance Energy Dispatch Instructions in real time, based on the Imbalance Energy procured on their behalf by the ISO. A Scheduling Coordinator for an MSS Operator that has elected to follow Load will be responsible for its transmission loss obligation pursuant to Sections 23.12.1 and 23.16.4.

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 did not: 1) did not recover its Energy Bid costs, and 2) generated or consumed an amount of Energy equal to its schedule, resulting from any Dispatch Instructions pursuant to Section 2.5.22 and its applicable Tolerance Band. ~~The Tolerance Band requirement will not apply 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.

* * *

11.2.4.2.1.2

* * *

- (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 System Resource fails to deliver the agreed-to Energy is not delivered or over-delivers the agreed-to Energy 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 ~~issuing the pre-Dispatch Instruction;~~

* * *

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, 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:

$$COST_RECOVERY_{i,d} =$$

$$\min\left(0, \sum_i \sum_o \left(PERF_STAT_{i,h,o} * MR_DEFICIT_{i,h,o} + MR_SURPLUS_{i,h,o} \right)\right)$$

$$\min\left(0, \sum_i \sum_o \left(MR_DEFICIT_{i,h,o} + MR_SURPLUS_{i,h,o} \right)\right)$$

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.

$$COST_RECOVERY_{i,h,o} = PERF_STAT_{i,h,o} * COST_RECOVERY_{i,d} / n$$

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 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. 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 2.9

Minimum Load Cost Compensation

The ISO shall calculate a Must-Offer Generator's Minimum Load Cost Compensation (MLCC), pursuant to section 5.11.6.1.1 of the ISO Tariff, as the market revenue deficit below its Minimum Load Cost as follows:

$$MLCC_{i,h,o} = PERF_STAT_{i,h,o} * [\min(0, MR_ML_{i,h,o} - MLC_{i,h,o})]$$

where:

The market revenue from Minimum Load Energy is indicated as

$$MR_ML_{i,h,o} = \sum_i^k HE_ML_{i,h,o,k} * STLMT_PRICE_{i,h,o}$$

$MLC_{i,h,o}$ is the Minimum Load Cost for each resource i during Settlement Interval o of hour h , as defined in section 5.11.6.1.2 of the ISO Tariff.

The ISO will calculate the Tolerance Band $PERF_STAT_{i,h,o}$ for each resource i as defined in Section 2.6.1 of this Appendix D of SABP.

UAP 3

ISO REVIEW OF A UDP AGGREGATION REQUEST

Upon receipt of a completed request form and accompanying attachments, the ISO shall review the request according to the criteria outlined herein. For Basic UDP Aggregations, the ISO shall ~~undertake its best efforts to~~ review and approve or reject it within ~~one~~three weeks of receipt. ~~The ISO shall review and approve or reject~~Review of a request for a Custom UDP Aggregation within thirty (30) days of receipt may take longer in some cases, depending on the complexity of the proposed aggregation. If the ISO anticipates that it will take more than three weeks to process a request, the ISO shall inform the entity requesting the UDP Aggregation of the estimated processing time for the request.

* * *

UAP 3.1.2

Additional Criteria

Additional eligibility criteria for a UDP Aggregation are as follows:

- (1) Only Generating Units shall be eligible for UDP Aggregation. As a general rule, pump-generating Units (or a Physical Scheduling Plant [PSP] containing a pump-generating Unit) cannot be part of a UDP Aggregation. However, it is possible that generating Units could form a UDP Aggregation comprised entirely of pump-generating Units whose operation is uniform, that is, Units all operating in either Generation mode or all in pump mode, but never mixed.
- (2) UDP Aggregations cannot include any of the following:
 - (a) Load;
 - (b) Condition 2 Reliability Must Run (RMR) Units;
 - (c) Participating Intermittent Resources;
 - (d) Generating Units less than 5 MW; or
 - (e) Generating Units that span active or inactive Congestion Zones.
- (3) The resources must have ISO direct telemetry and must be fully compliant with the ISO's direct telemetry standards.
- (4) The Generating Units must ~~have the same relative effect on all network elements for which the Generating Units have at least a five (5) percent effectiveness factor, that is, for those network elements for which a 1 MW change in the output of the Generating Unit changes the flow across that element by at least 0.05 MW. For the purposes of this item (4), the "same relative effect" means that the effectiveness factors of any Generating Unit relative to a network element cannot differ by more than 10% from the midpoint effectiveness factor of all the units. The midpoint effectiveness is the arithmetic mean of the two most different~~

effectiveness factors to be aggregated exhibit the same effectiveness factors (factors within +/- 10%) for managing inter- and -intra-zonal Constraints, under "normal/all elements in service" conditions, as well as during most local transmission outages.

- (5) Custom UDP Aggregations involving units not directly connecting to the ISO Controlled Grid must recognize the transfer limits and status of the intermediate local facilities.

* * *

UAP 4 MODIFICATIONS TO AN EXISTING UDP AGGREGATION

UAP.4.1 Temporary Restriction by the ISO Status of UDP Aggregation

An approved UDP Aggregation shall be considered active until otherwise requested by the Scheduling Coordinator. However, the ISO may temporarily restrict the schedules of aggregated Units based upon changes in system conditions, operating constraints, and other relevant factors as needed to ensure ISO Controlled Grid reliability.

UAP 4.2 Permanent Suspension by the ISO

The ISO may permanently suspend previously approved UDP Aggregations if due to changes to the grid, to the aggregated Generating Units, or to the facilities connecting aggregated Generating Units to the grid, the UDP Aggregation no longer meets the criteria set forth in Sections 3.1.1 and 3.1.2 of this ISO Protocol. If the ISO must suspend the UDP Aggregation due to a forced outage or other unanticipated event, the ISO shall provide notice that the UDP Aggregation has been suspended as soon as practical after the affecting event, but in no case longer than 72 hours after that event. If the ISO must suspend the UDP Aggregation due to future changes, the ISO shall notify the affected Scheduling Coordinator (1) that the UDP Aggregation will be suspended and (2) when the UDP Aggregation will be suspended as soon as practical after the ISO determines the UDP Aggregation must be suspended based upon permanent or long-term changes in the ISO grid or other relevant factors that alter the effect of the UDP Aggregation upon the ISO Controlled Grid and/or transmission systems or equipment of intermediate entities.

The ISO shall write a report that explains the reason for the suspension and that specifies the effective date and time. The ISO will forward the report to the Scheduling Coordinator and take steps to have the aggregation removed from the ISO systems.

In the event that a resource in a UDP Aggregation changes from one Scheduling Coordinator to another, the UDP Aggregation will be suspended. In order to reinstate the aggregation, the new Scheduling Coordinator must submit a new request reflecting the change.

ATTACHMENT C

