California Independent
System Operator Corporation

January 27, 2009

VIA OVERNIGHT DELIVERY

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20246

Re: California Independent System Operator Corporation
Compliance Filing
Docket No. ER09-169-000

Dear Secretary Bose:

The California Independent System Operator Corporation ("CAISO") [1] hereby submits an original and five copies of the instant filing in compliance with the Commission's December 30, 2008 order in the above-referenced proceeding.[2] Two additional copies of this filing are enclosed to be date-stamped and returned to our office via the self-addressed, postage prepaid envelope contained herein.

I. Discussion

On October 29, 2008, the CAISO submitted tariff revisions to both its proposed Market Redesign and Technology Upgrade (MRTU) tariff and its currently effective tariff to adopt, among other things, more generalized references to reliability criteria for Ancillary Services, in anticipation of future changes to procurement requirements. In response to protests and comments, the CAISO agreed to make changes to these tariff proposals on further compliance. On December 30, 2008, the Commission conditionally accepted the proposed tariff amendments subject to the modifications that the CAISO had agreed to make in a further compliance filing. Specifically, the Commission directed the CAISO to modify its proposed tariff language to reflect the following:

[1] Capitalized terms not otherwise defined herein have the meanings set forth in the Master Definitions Supplement, Appendix A to the currently effective ISO Tariff, and in the Master Definitions Supplement, Appendix A to the MRTU Tariff.

[2] *Order on California Independent System Operator Corporation's Tariff Amendments*, Docket ER09-169, issued December 30, 2008, 125 FERC ¶ 61,384.

(1) Replace the CAISO's reference to "Applicable Reliability Criteria" in relation to the procurement of Ancillary Services with the phrase "NERC and WECC reliability standards, including any requirements of the NRC."

(2) Include language that provides that the CAISO shall consider reasonableness and cost-effectiveness in the development of Ancillary Service standards.

II. Materials Provided In This Compliance Filing

The following documents, in addition to this transmittal letter, support this filing:

Attachment A	Clean sheets of the currently effective ISO Tariff showing revisions described in this filing
Attachment B	Sheets showing, in black-line format, the changes to the currently effective ISO Tariff described in this filing
Attachment C	Clean sheets of the MRTU Tariff showing revisions described in this filing
Attachment D	Sheets showing, in black-line format, changes to the MRTU Tariff described in this filing

III. Conclusion

The CAISO respectfully requests that the Commission accept this filing as complying with the directives of the Commission's December 30, 2008 Order. Please do not hesitate to contact the undersigned if you have any questions.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the official service list for the captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom this 27th day of January, 2009.

Susan L. Montana

Attachment A – Clean Sheets

WECC Reliability Coordinator Status Compliance Filing

Currently Effective CAISO Tariff

January 28, 2009

4.5.4.3 Dynamic Scheduling.

Scheduling Coordinators may dynamically schedule imports of Energy, Supplemental Energy, and Ancillary Services (other than Regulation) for which associated Energy is delivered dynamically from System Resources located outside of the ISO Control Area, provided that (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as posted in standards on the ISO Home Page, are satisfied, (c) the Scheduling Coordinator for the dynamically scheduled System Resource executes an agreement with the ISO for the operation of dynamic scheduling functionality, and (d) all affected host and intermediary Control Areas each execute with the ISO an Interconnected Control Area Operating Agreement ("ICAOA") or special operating agreement related to the operation of dynamic functionality. See the forms of agreement in Attachment A to Appendix X.

4.5.4.4 Termination of Scheduling Coordinator Agreement and Suspension of Certification.

(a) A Scheduling Coordinator's Scheduling Coordinator Agreement may be terminated by the CAISO on written notice to the Scheduling Coordinator:

(i) if the Scheduling Coordinator no longer meets the requirements for eligibility set out in Section 4.5 and fails to remedy the default within a period of five (5) Business Days after the CAISO has given written notice of the default;

7.5.3 In addition to the action taken under 7.5.2, the ISO will, if it considers it necessary to maintain the reliable operation of the ISO Control Area, offer Energy for sale on behalf of Scheduling Coordinators to adjacent Control Area operators at the estimated BEEP Interval Ex Post Price or, if the ISO considers it necessary, at a price established by the ISO on behalf of Scheduling Coordinators, to be paid to adjacent Control Area operators.

7.5.4 To the extent that the steps described in Sections 7.5.1 through 7.5.3 fail to mitigate Overgeneration, the ISO will instruct Scheduling Coordinators to reduce either Generation, or imports, or both. The amount of the reduction for each Scheduling Coordinator will be calculated pro rata based on the product of the total required reduction in Generation and imports (or increase in exports) and the ratio of its Demand to the total Demand in the ISO Control Area.

7.5.5 To the extent that the above steps fail to fully mitigate the Overgeneration, the ISO will issue mandatory Dispatch instructions for specific reductions in Generating Unit output and external imports and all relevant Scheduling Coordinators shall be obligated to comply with such Dispatch instructions.

7.5.6 Any costs incurred by the ISO in implementing Section 7.5.3 shall be reimbursed to the ISO by Scheduling Coordinators based upon the extent to which they supplied Energy, in metered amounts, greater than the Generation and imports scheduled in their Final Schedules and consumed Energy, in metered amounts, less than the Demand scheduled in their Final Schedules, as a proportion of the total amount of such excess or shortfall among all Scheduling Coordinators.

8. ANCILLARY SERVICES.

8.1 Scope.

The ISO shall be responsible for ensuring that there are sufficient Ancillary Services available to maintain the reliability of the ISO Controlled Grid consistent with NERC and WECC reliability standards, including any requirements of the NRC. The ISO's Ancillary Services requirements may be self-provided by Scheduling Coordinators. Those Ancillary Services which the ISO requires to be available but which are not being self-provided will be competitively procured by the ISO from Scheduling Coordinators in the Day-Ahead Market, Hour-Ahead Market and in real time or

8.2 Ancillary Services Standards.

All Ancillary Services shall meet the ISO's Ancillary Services standards.

8.2.1 Determination of Ancillary Service Standards.

The ISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the ISO Controlled Grid. Ancillary Services standards shall meet NERC and WECC reliability standards, including any requirements of the NRC. In setting Ancillary Service standards, the ISO shall consider reasonableness, cost-effectiveness, and adherence to NERC and WECC reliability standards, including any requirements of the NRC. The standards developed by the ISO shall be used as a basis for determining the quantity and type of each Ancillary Service which the ISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the ISO.

8.2.2 Time-frame For Revising Ancillary Service Standards.

The ISO Grid Operations Committee and the ISO Technical Advisory Committee shall periodically undertake a review of the ISO Controlled Grid operation to determine any revision to the Ancillary Services standards to be used in the ISO Control Area. At a minimum the ISO Grid Operations Committee and the ISO Technical Advisory Committee shall conduct such reviews to accommodate

revisions to NERC and WECC reliability standards, including any requirements of the NRC. The ISO may adjust the Ancillary Services standards temporarily to take into account, among other things variations in system conditions, real-time Dispatch constraints, contingencies, and voltage and dynamic stability assessments. Where practicable, the ISO will provide notice, via the ISO Home Page, of any temporary adjustments to Ancillary Service standards by 6:00 p.m. two days ahead of the Trading Day to which the adjustment will apply. Periodic reviews by the ISO Grid Operations Committee or the ISO Technical Advisory Committee may include, but are not limited to: (a) analysis of the deviation between actual and forecast Demand; (b) analysis of patterns of unplanned Generating Unit Outages; (c) analysis of compliance with NERC and WECC reliability standards, including any requirements of the NRC; (d) analysis of operation during system disturbances; (e) analysis of patterns of shortfalls between Final Day-Ahead Schedules and actual Generation and Demand; and (f) analysis of patterns of unplanned transmission Outages.

8.2.3 Quantities of Ancillary Services Required.

For each of the Ancillary Services, the ISO shall determine the quantity and location of the Ancillary Service which is required and which must be under the direct Dispatch control of the ISO on an hourly basis each day. The ISO shall determine the quantities it requires as follows:

8.2.3.1 Regulation Service.

The ISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the ISO Control Area to meet NERC and WECC reliability standards, including any requirements of the NRC by continuously balancing Generation to meet deviations between actual and scheduled Demand and to maintain interchange schedules. The quantity of Regulation capacity needed for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined as a percentage of the aggregate scheduled Demand for that Settlement Period.

(a) Regulation Percentage Determination. The exact percentage required for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined by the ISO based upon its need to meet NERC and WECC reliability standards, including any requirements of the NRC.

(b) Publication of Estimated Regulation Percentage for Day-Ahead Market. In accordance with the requirements of Appendix Y, the ISO will publish on WEnet its estimate of the percentage it will use for determining the quantity of Regulation it requires for each Settlement Period of the Day-Ahead Market for that Trading Day.

(c) Publication of Estimated Regulation Percentage for Hour-Ahead Market. The ISO will publish on WEnet its estimate of the percentage it will use to determine the quantity of Regulation it requires for each Hour-Ahead Market.

(d) Additional Regulation Requirement. Additional Regulation capacity may be procured by the ISO for the real-time operating period if needed to meet NERC and WECC reliability standards, including any requirements of the NRC.

8.2.3.2 Spinning And Non-Spinning Reserves.

The ISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with NERC and WECC reliability standards, including any requirements of the NRC or by reference to such more stringent criteria as the ISO may determine from time to time.

8.2.3.3 Replacement Reserve.

The ISO needs sufficient Replacement Reserve to be available to allow restoration of dispatched Operating Reserve to its Set Point within sixty minutes. The ISO shall make its determination of the required quantity of Replacement Reserve based on:

(a) historical analysis of the deviation between actual and Day-Ahead forecast Demand,

(b) historical patterns of unplanned Generating Unit Outages,

(c) historical patterns of shortfalls between Final Day-Ahead Schedules and actual Generation and Demand,

(d) historical patterns of unexpected transmission Outages, and

(e) such other factors affecting the ability of the ISO to maintain System Reliability as the ISO may from time to time determine.

The ISO shall have discretion to determine the quantity of Replacement Reserve it requires in each Zone.

8.2.3.4 Voltage Support.

The ISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards, including any requirements of the NRC using a power flow study based on the quantity and location of scheduled Demand. The ISO shall issue daily voltage schedules (Dispatch instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for ISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the ISO Operations Date,

8.3.4 The ISO shall procure on a daily and hourly basis, each day, Regulation, Spinning, Non-Spinning and Replacement Reserves. The ISO shall procure Replacement Reserve on a longer-term basis pursuant to Section 42.1.3 if necessary to meet NERC and WECC reliability standards, including any requirements of the NRC. The ISO Governing Board must approve all long-term Replacement Reserve contracts. The ISO shall contract for Voltage Support annually (or for such other period as the ISO may determine is economically advantageous) and on a daily or hourly basis as required to maintain System Reliability. The ISO shall contract annually (or for such other period as the ISO may determine is economically advantageous) for Black Start Generation.

8.4 Technical Requirements for Providing Ancillary Services.

All Generating Units, System Units, Loads and System Resources providing Ancillary Services shall comply with the technical requirements set out in Sections 8.4.1 to 8.4.6.1 below relating to their operating capabilities, communication capabilities and metering infrastructure. No Scheduling Coordinator shall be permitted to submit a bid to the ISO for the provision of an Ancillary Service from a Generating Unit, System Unit, Load or System Resource, or to submit a Schedule for self-provision of an Ancillary Service from that Generating Unit, System Unit, Load or System Resource, unless the Scheduling Coordinator is in possession of a current certificate issued by the ISO confirming that the Generating Unit, System Unit, Load or System Resource complies with the ISO's technical requirements for providing the Ancillary Service concerned. Scheduling Coordinators can apply for Ancillary Services certificates in accordance with the ISO's Protocols for considering and processing such applications. The ISO shall have the right to inspect Generating Units, Loads or the individual resources comprising System Units and other equipment for the purposes of the issue of a certificate and periodically thereafter to satisfy itself that its technical requirements continue to be met. If at any time the ISO's technical requirements are not being met, the ISO may withdraw the certificate for the Generating Unit, System Unit, Load or System Resource concerned.

8.4.7.3 Bidding and Self-Provision of Ancillary Services.

The ISO will procure Ancillary Services in accordance with this ISO Tariff, and the applicable ISO Protocols.

8.4.7.3.1 Content of Ancillary Services Schedules and Bids.

Scheduling Coordinators may bid or self-provide Ancillary Services or specify Inter-Scheduling Coordinator Ancillary Service Trades from resources located within the ISO Control Area. Ancillary Services in the Day-Ahead Market and the Hour-Ahead Market are comprised of the following: Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve. Each Generating Unit (including Physical Scheduling Plants), System Unit, Curtailable Demand or System Resource for which a Scheduling Coordinator wishes to submit Ancillary Services Schedules and bids must meet the requirements set forth in this ISO Tariff. The same resource capacity may be offered into more than one ISO Ancillary Service auction at the same time (the sequential evaluation of such multiple offers between Ancillary Services markets to eliminate double counting of capacity is described in the Section 8.5.5). In each category of Ancillary Service, the reference to "Revised" types of Schedules indicates a submittal which is part of a Revised Day-Ahead Schedule. Each of the following data sections can be submitted up to seven (7) days in advance. Ramp rates submitted as detailed below will be only used by the ISO for procuring capacity associated with the specific Ancillary Services. The ISO will issue real-time Dispatch Instructions for the Energy associated with the awarded capacity based upon the applicable operational ramp rate submitted with the single Energy Bid curve in accordance with Section 30.4.6. There is no provision for external exports with regard to Ancillary Services bids. The functionality necessary to accept such bids does not exist in the ISO scheduling software.

8.4.7.3.2 Scheduling Coordinators may bid or self-provide external imports of Spinning Reserve, Non-Spinning Reserve or Replacement Reserve from System Resources located outside the ISO Control Area including dynamically scheduled System Resources, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC; and provided that such Scheduling Coordinators have certified to the ISO their ability to deliver the service to the point of interchange with the ISO Control Area (including with respect to their

ability to make changes, or cause such changes to be made, to interchange schedules during any interval of a Settlement Period at the discretion of the ISO).

8.4.7.3.3 Scheduling Coordinators may bid or self-provide external imports of Regulation from System Resources located outside the ISO Control Area, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC by dynamic scheduling; provided that the operator of the Control Area in which the System Resources are located has entered into an agreement with the ISO for interconnected Control Area operations; and provided that such Scheduling Coordinator and the operator of the Control Area in which the resources are located have been certified by the ISO as to their ability to dynamically adjust interchange schedules based on control signals issued by the ISO anytime during a Settlement Period at the discretion of the ISO. Such certification shall include a demonstration of their ability to support the dynamic interchange of Regulation service based on ISO control signals received on dedicated communications links (either directly or through EMS computers) for ISO computer control and telemetry to provide this function in accordance with ISO standards and procedures posted on the ISO Home Page.

8.4.7.3.4 Scheduling Coordinators may utilize transmission service under Existing Contracts to self-provide Regulation (consistent with this ISO Tariff), from resources located outside the ISO Control Area, where technically feasible, consistent with NERC and WECC reliability standards, including any requirements of the NRC.

8.4.7.3.5 Scheduling Coordinators' bidding or self-provision of Ancillary Services according to this Section 8.4.7.3 shall be consistent with the ISO Protocols.

8.4.7.3.6 Due to the design of the ISO's scheduling system, any specific resource can bid to supply a specific Ancillary Service or can self-provide such Ancillary Service but cannot do both in the same Settlement Period.

34.3.0.3 Ancillary Services Dispatch.

The ISO will base its standards for the Dispatch of Ancillary Services upon NERC and WECC reliability standards, including any requirements of the NRC and ISO Controlled Grid reliability requirements. The ISO may Dispatch Generating Units, Loads, System Units and System Resources contracted to provide Ancillary Services (either procured through the ISO's competitive market, or self-provided by Scheduling Coordinators) to supply Imbalance Energy. During normal operating conditions, the ISO shall Dispatch the following resources to supply Imbalance Energy: (i) those Generating Units, Loads, System Units and System Resources having offered Supplemental Energy bids, (ii) those Generating Units, Loads, System Units and System Resources contracted to provide Replacement Reserve and (iii) those Generating Units, Loads, System Units and System Resources that have contracted to provide Spinning and Non-Spinning Reserve, except for those resources that have indicated that the capacity reserved would be available to supply Imbalance Energy only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency. In the event of an unplanned Outage, a Contingency or a threatened or actual System Emergency, the ISO may also Dispatch all other Generating Units, Loads, System Units and System Resources contracted to provide Spinning Reserve or Non-Spinning Reserve to supply Imbalance Energy. If a Generating Unit, Load, System Unit or System Resource, which is supplying Operating Reserve, is Dispatched to provide Imbalance Energy, the ISO shall replace the Operating Reserve from the same or another resource within the time frame specified by NERC and WECC reliability standards, including any requirements of the NRC.

34.3.0.3.1 Dispatch of Competitively Procured and Self-Provided Ancillary Services.

Generating Units and Loads selected in the ISO competitive auction or self-provided shall be Dispatched based on their Energy Bids as described in Section 34.3.0.1.2, subject to the limitation on the Dispatch of Spinning Reserve and Non-Spinning Reserve set forth in Section 34.3.0.3.

option.

42.1.2 If the forecast shows that the applicable NERC and WECC reliability standards can be met during peak Demand periods, then the ISO shall take no further action.

42.1.3 If the forecast shows that the applicable NERC and WECC reliability standards cannot be met during peak Demand periods, then the ISO shall facilitate the development of market mechanisms to bring the ISO Controlled Grid during peak periods into compliance with the Applicable Reliability Criteria (or such more stringent criteria as the ISO may impose pursuant to Section 7.2.2.2). The ISO shall solicit bids for Replacement Reserve in the form of Ancillary Services, short-term Generation supply contracts of up to one (1) year with Generators, and Load curtailment contracts giving the ISO the right to reduce the Demands of those parties that win the contracts when there is insufficient Generation capacity to satisfy those Demands in addition to all other Demands. The curtailment contracts shall provide that the ISO's curtailment rights can only be exercised after all available Generation capacity has been fully utilized unless the exercise of such rights would allow the ISO to satisfy the Applicable Reliability Criteria at lower cost, and the curtailment rights shall not be exercised to stabilize or otherwise influence prices for power in the Energy markets.

Network Upgrades	The additions, modifications, and upgrades to the ISO controlled Grid required at or beyond the Point of Interconnection to accommodate the interconnection of the Generating Facility to the ISO Controlled Grid. Network Upgrades shall consist of Delivery Network Upgrades and Reliability Network Upgrades. Network Upgrades do not include Distribution Upgrades.
New High Voltage Facility	A High Voltage Transmission Facility of a Participating TO that is placed in service after the beginning of the transition period described in Section 4 of Schedule 3 of Appendix F, or a capital addition made and placed in service after the beginning of the transition period described in Section 4.2 of Schedule 3 of Appendix F to an Existing High Voltage Facility.
New Participating TO	A Participating TO that is not an Original Participating TO.
Nomogram	A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC.
Non-Generation Solutions	Solutions proposed by a PTO or an RA Entity that satisfy local area reliability needs of the ISO which serve as an alternative to generation capacity, including equipment upgrades, operating procedures such as switching, manual Load shedding or automatic Load shedding, and other operational strategies or tools.
Non-Load-Serving Participating TO	A Participating TO that (1) is not a UDC, MSS Operator or Scheduling Coordinator serving End-Use Customers and (2) does not have Gross Load in accordance with Section 9 of Schedule 3 of Appendix F.
Non-Participating Generator	A Generator that is not a Participating Generator.
Non-Participating TO	A TO that is not a party to the TCA or for the purposes of Sections 16.1 and 16.2 of the ISO Tariff the holder of transmission service rights under an Existing Contract that is not a Participating TO.

Non-Spinning Reserve	The portion of off-line generating capacity that is capable of being synchronized and Ramping to a specified load in ten minutes (or load that is capable of being interrupted in ten minutes) and that is capable of running (or being interrupted) for at least two hours.
NRC	The Nuclear Regulatory Commission or its successor.
NRC (Standards)	The reliability standards published by the NRC from time to time.
Off-Peak Deliverability Assessment	The technical study performed under LGIP Section 6.3.2.2 set forth in Appendix GG.
On-Peak Deliverability Assessment	The technical study performed under LGIP Section 6.3.2.1 set forth in Appendix GG.
Operating Procedures	Procedures governing the operation of the ISO Controlled Grid as the ISO may from time to time develop, and/or procedures that Participating TOs currently employ which the ISO adopts for use.
On-Site Self-Supply	Energy from a Generating Unit that self-supplies all or a portion of its contemporaneous Station Power Load that is netted pursuant to Section 10.1.3 or is deemed to have self-supplied all or a portion of its associated non-contemporaneous Station Power load without use of the ISO Controlled Grid during the Netting Period pursuant to SPP 3.1.
Operating Reserve	The combination of Spinning and Non-Spinning Reserve required to meet NERC and WECC reliability standards, including any requirements of the NRC for reliable

Regulation	The service provided either by Generating Units certified by the ISO as equipped and capable of responding to the ISO's direct digital control signals, or by System Resources that have been certified by the ISO as capable of delivering such service to the ISO Control Area, in an upward and downward direction to match, on a real-time basis, Demand and resources, consistent with NERC and WECC reliability standards, including any requirements of the NRC. Regulation is used to control the power output of electric generators within a prescribed area in response to a change in system frequency, tieline loading, or the relation of these to each other so as to maintain the target system frequency and/or the established interchange with other areas within the predetermined limits. Regulation includes both the increase of output by a Generating Unit or System Resource ("Regulation Up") and the decrease in output by a Generating Unit or System Resource ("Regulation Down"). Regulation Up and Regulation Down are distinct capacity products, with separately stated requirements and Market Clearing Prices in each Settlement Period.
Regulation Energy Payment Adjustment	The additional value of regulating Energy.
Regulatory Must-Run Generation	Hydro Spill Generation and Generation which is required to run by applicable Federal or California laws, regulations, or other governing jurisdictional authority. Such requirements include but are not limited to hydrological flow requirements, environmental requirements, such as minimum fish releases, fish pulse releases and water quality requirements, irrigation and water supply requirements of solid waste Generation, or other Generation contracts specified or designated by the jurisdictional regulatory authority as it existed on December 20, 1995, or as revised by Federal or California law or Local Regulatory Authority.
Regulatory Must-Take Generation	Those Generation resources identified by CPUC, or a Local Regulatory Authority, the operation of which is not subject to competition. These resources will be scheduled by the relevant

DSP 4.4 Dedicated dual redundant communications links between the Host Control Area EMS and every Intermediary Control Area EMS are required.

DSP 4.5 The Control Area hosting a dynamically scheduled System Resource must have a mechanism implemented to override the associated dynamic signal.

DSP 4.6 The dynamic signal must be properly incorporated into all involved Control Areas' ACE equations.

DSP 4.7 The System Resource must have communications links with the Host Control Area consistent with these standards.

DSP 5 LIMITS ON DYNAMIC IMPORTS

DSP 5.1 The ISO reserves the right to establish limits applicable to the amount of any Ancillary Services and/or Supplemental Energy imported into the ISO Control Area, whether delivered dynamically or statically. Such limits may be established based on any one, or a combination, of the following considerations: a percentage of, or a specific import limit applicable to, total ISO Control Area requirements; a percentage at, or a specific import limit applicable to, a particular Scheduling Point or a branch group; a percentage of, or a specific import limit applicable to, total requirements in a specific Congestion Zone; or operating factors which may include, but are not limited to, operating nomograms, Remedial Action Schemes, protection schemes, scheduling and curtailment procedures, or any potential single points of failure associated with the actual delivery process.

DSP 5.2 The ISO may, at its discretion, either limit or forego procuring Ancillary Services at particular Control Area interties to ensure that Operating Reserves are adequately dispersed throughout the ISO Control Area as required by NERC and WECC reliability standards, including any requirements of the NRC.

DSP 5.3 A dynamically scheduled System Resource and its schedules must be permanently associated with a particular ISO intertie (the ISO may, from time to time and at its discretion, allow for a change in such pre-established association of the dynamically scheduled System Resource with a particular ISO intertie).

DSP 6 OPERATING AND SCHEDULING REQUIREMENTS

DSP 6.1 For any operating hour for which Energy, Supplemental Energy, and/or Ancillary Services (and associated Energy) is scheduled dynamically to the ISO from the System Resource, a firm (or non-interruptible for that hour) matching transmission service must be reserved across the entire dynamic schedule transmission path external to the ISO Control Area.

DSP 6.2 All dynamic schedules associated with newly implemented dynamically scheduled System Resources must be electronically tagged (e-tagged).

DSP 6.3 Formal inter-Control Area dynamic schedules may be issued only by the dynamically scheduled System Resource's Host Control Area and must be routed through the EMSs of all Intermediary Control Areas (such schedules would be considered "wheel-through" schedules by Intermediary Control Areas).

DSP 6.4 The ISO will treat dynamically scheduled Energy as a resource contingent firm import. The ISO will procure (or allow for self-provision of) Operating Reserves for loads served by dynamically scheduled System Resources as required by NERC and WECC reliability standards, including any requirements of the NRC.

Attachment B - Blacklines

WECC Reliability Coordinator Status Compliance Filing

Currently Effective CAISO Tariff

January 28, 2009

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4.5.4.3 Dynamic Scheduling.

Scheduling Coordinators may dynamically schedule imports of Energy, Supplemental Energy, and Ancillary Services (other than Regulation) for which associated Energy is delivered dynamically from System Resources located outside of the ISO Control Area, provided that (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as posted in standards on the ISO Home Page, are satisfied, (c) the Scheduling Coordinator for the dynamically scheduled System Resource executes an agreement with the ISO for the operation of dynamic scheduling functionality, and (d) all affected host and intermediary Control Areas each execute with the ISO an Interconnected Control Area Operating Agreement ("ICAOA") or special operating agreement related to the operation of dynamic functionality. See the forms of agreement in Attachment A to Appendix X.

* * *

8.1 Scope.

The ISO shall be responsible for ensuring that there are sufficient Ancillary Services available to maintain the reliability of the ISO Controlled Grid consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The ISO's Ancillary Services requirements may be self-provided by Scheduling Coordinators. Those Ancillary Services which the ISO requires to be available but which are not being self-provided will be competitively procured by the ISO from Scheduling Coordinators in the Day-Ahead Market, Hour-Ahead Market and in real time or by longer-term contracts. The ISO will manage both ISO procured and self-provided Ancillary Services as part of the real-time Dispatch. The ISO will calculate payments for Ancillary Services to Scheduling Coordinators and charge the cost to Scheduling Coordinators.

For purposes of this ISO Tariff, Ancillary Services are: (i) Regulation, (ii) Spinning Reserve, (iii) Non-Spinning Reserve, (iv) Replacement Reserve, (v) Voltage Support, and (vi) Black Start capability. Bids for Non-Spinning Reserve and Replacement Reserve may be submitted by the Demand-side as well

as by owners of Generation. Bids for Regulation, Spinning Reserve, Non-Spinning Reserve, and Voltage Support may be submitted by a Scheduling Coordinator for other non-generation resources that are capable of providing the specific service and that meet applicable Ancillary Service standards and technical requirements, as set forth in Sections 8.1 through 8.4, and are certified by the ISO to provide Ancillary Services. The provision of Regulation, Spinning Reserve, Non-Spinning Reserve, and Voltage Support by other non-generation resources is subject to the same requirements applicable to other providers of these Ancillary Services, as set forth in Sections 8.5 through 8.14. Identification of specific services in this ISO Tariff shall not preclude development of additional interconnected operation services over time. The ISO and Market Participants will seek to develop additional categories of these unbundled services over time as the operation of the ISO Controlled Grid matures.

* * *

8.2.1 Determination of Ancillary Service Standards.

The ISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the ISO Controlled Grid. Ancillary Services standards shall meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. In setting Ancillary Service standards, the ISO shall consider reasonableness, cost-effectiveness, and adherence to NERC and WECC reliability standards, including any requirements of the NRC. The standards developed by the ISO shall be used as a basis for determining the quantity and type of each Ancillary Service which the ISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the ISO.

8.2.2 Time-frame For Revising Ancillary Service Standards.

The ISO Grid Operations Committee and the ISO Technical Advisory Committee shall periodically undertake a review of the ISO Controlled Grid operation to determine any revision to the Ancillary Services standards to be used in the ISO Control Area. At a minimum the ISO Grid Operations Committee and the ISO Technical Advisory Committee shall conduct such reviews to accommodate revisions to NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The ISO may adjust the Ancillary Services standards temporarily to take into account, among other things variations in system conditions, real-time Dispatch constraints, contingencies, and

voltage and dynamic stability assessments. Where practicable, the ISO will provide notice, via the ISO Home Page, of any temporary adjustments to Ancillary Service standards by 6:00 p.m. two days ahead of the Trading Day to which the adjustment will apply. Periodic reviews by the ISO Grid Operations Committee or the ISO Technical Advisory Committee may include, but are not limited to: (a) analysis of the deviation between actual and forecast Demand; (b) analysis of patterns of unplanned Generating Unit Outages; (c) analysis of compliance with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~; (d) analysis of operation during system disturbances; (e) analysis of patterns of shortfalls between Final Day-Ahead Schedules and actual Generation and Demand; and (f) analysis of patterns of unplanned transmission Outages.

* * *

8.2.3.1 Regulation Service.

The ISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the ISO Control Area to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ by continuously balancing Generation to meet deviations between actual and scheduled Demand and to maintain interchange schedules. The quantity of Regulation capacity needed for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined as a percentage of the aggregate scheduled Demand for that Settlement Period.

(a) Regulation Percentage Determination. The exact percentage required for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined by the ISO based upon its need to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

(b) Publication of Estimated Regulation Percentage for Day-Ahead Market. In accordance with the requirements of Appendix Y, the ISO will publish on WEnet its estimate of the percentage it will use for determining the quantity of Regulation it requires for each Settlement Period of the Day-Ahead Market for that Trading Day.

(c) Publication of Estimated Regulation Percentage for Hour-Ahead Market. The ISO will publish on WEnet its estimate of the percentage it will use to determine the quantity of Regulation it requires for each Hour-Ahead Market.

(d) Additional Regulation Requirement. Additional Regulation capacity may be procured by the ISO for the real-time operating period if needed to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

8.2.3.2 Spinning And Non-Spinning Reserves.

The ISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ or by reference to such more stringent criteria as the ISO may determine from time to time.

* * *

8.2.3.4 Voltage Support.

The ISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ using a power flow study based on the quantity and location of scheduled Demand. The ISO shall issue daily voltage schedules (Dispatch instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for ISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the ISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC.

All Participating Generators shall maintain the ISO specified voltage schedule at the transmission interconnection points to the extent possible while operating within the power factor range specified in

their interconnection agreements or, for Regulatory Must-Take Generation, Regulatory Must-Run Generation and Reliability Must-Run Generation consistent with existing obligations. For Generating Units, that do not operate under one of these agreements, the minimum power factor range will be within a band of 0.90 lag (producing VARs) and 0.95 lead (absorbing VARs) power factors. Participating Generators with Generating Units existing at the ISO Operations Date that are unable to meet this operating power factor requirement may apply to the ISO for an exemption. Prior to granting such an exemption, the ISO shall require the Participating TO or UDC to whose system the relevant Generating Units are interconnected to notify it of the existing contractual requirements for Voltage Support established prior to the ISO Operations Date for such Generating Units. Such requirements may be contained in CPUC Electric Rule 21 or the Interconnection Agreement with the Participating TO or UDC. The ISO shall not grant any exemption under this Section from such existing contractual requirements. The ISO shall be entitled to instruct Participating Generators to operate their Generating Units at specified points within their power factor ranges. Participating Generators shall receive no compensation for operating within these specified ranges.

If the ISO requires additional Voltage Support, it shall procure this either through Reliability Must-Run Contracts or, if no other more economic sources are available by instructing a Generating Unit to move its MVar output outside its mandatory range. Only if the Generating Unit must reduce its MW output in order to comply with such an instruction will it be compensated in accordance with Section 8.5.9.

All Loads directly connected to the ISO Controlled Grid shall maintain reactive flow at grid interface points within a specified power factor band of 0.97 lag to 0.99 lead. Loads shall not be compensated for the service of maintaining the power factor at required levels within the bandwidth. A

UDC interconnecting with the ISO Controlled Grid at any point other than a Scheduling Point shall be subject to the same power factor requirement.

The power factor for both the Generating Units and Loads shall be measured at the interconnection point with the ISO Controlled Grid. The ISO will develop and will be authorized to levy penalties against Participating Generators, UDCs or Loads whose Voltage Support does not comply with the ISO's requirements. The ISO will establish voltage control standards with UDCs and the operators of

other Control Areas and will enter into operational agreements providing for the coordination of actions in the event of a voltage problem occurring.

Wheeling Through and Wheeling Out transactions may also be subject to a reactive charge as developed by the ISO. If the ISO shall determine that a reactive charge should be payable at a future date, it shall, subject to FERC acceptance and approval, publish annually the Voltage Support obligations and applicable charges for Wheeling Through and Wheeling Out transactions at Scheduling Points. The obligations shall be predetermined by the ISO based on the estimated amount of the Wheeling Through and Wheeling Out transactions each year.

* * *

8.3.4 The ISO shall procure on a daily and hourly basis, each day, Regulation, Spinning, Non-Spinning and Replacement Reserves. The ISO shall procure Replacement Reserve on a longer-term basis pursuant to Section 42.1.3 if necessary to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The ISO Governing Board must approve all long-term Replacement Reserve contracts. The ISO shall contract for Voltage Support annually (or for such other period as the ISO may determine is economically advantageous) and on a daily or hourly basis as required to maintain System Reliability. The ISO shall contract annually (or for such other period as the ISO may determine is economically advantageous) for Black Start Generation.

* * *

8.4.7.3.2 Scheduling Coordinators may bid or self-provide external imports of Spinning Reserve, Non-Spinning Reserve or Replacement Reserve from System Resources located outside the ISO Control Area including dynamically scheduled System Resources, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC ~~Applicable Reliability Criteria~~; and provided that such Scheduling Coordinators have certified to the ISO their ability to deliver the service to the point of interchange with the ISO Control Area (including with respect to their ability to make changes, or cause such changes to be made, to interchange schedules during any interval of a Settlement Period at the discretion of the ISO).

8.4.7.3.3 Scheduling Coordinators may bid or self-provide external imports of Regulation from System Resources located outside the ISO Control Area, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ by dynamic scheduling; provided that the operator of the Control Area in which the System Resources are located has entered into an agreement with the ISO for interconnected Control Area operations; and provided that such Scheduling Coordinator and the operator of the Control Area in which the resources are located have been certified by the ISO as to their ability to dynamically adjust interchange schedules based on control signals issued by the ISO anytime during a Settlement Period at the discretion of the ISO. Such certification shall include a demonstration of their ability to support the dynamic interchange of Regulation service based on ISO control signals received on dedicated communications links (either directly or through EMS computers) for ISO computer control and telemetry to provide this function in accordance with ISO standards and procedures posted on the ISO Home Page.

8.4.7.3.4 Scheduling Coordinators may utilize transmission service under Existing Contracts to self-provide Regulation (consistent with this ISO Tariff), from resources located outside the ISO Control Area, where technically feasible, consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

34.3.0.3 Ancillary Services Dispatch.

The ISO will base its standards for the Dispatch of Ancillary Services upon NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ and ISO Controlled Grid reliability requirements. The ISO may Dispatch Generating Units, Loads, System Units and System Resources contracted to provide Ancillary Services (either procured through the ISO's competitive market, or self-provided by Scheduling Coordinators) to supply Imbalance Energy. During normal operating conditions, the ISO shall Dispatch the following resources to supply Imbalance Energy: (i) those Generating Units, Loads, System Units and System Resources having offered Supplemental Energy bids, (ii) those Generating Units, Loads, System Units and System Resources contracted to provide Replacement Reserve and (iii) those Generating Units, Loads, System Units and System

Resources that have contracted to provide Spinning and Non-Spinning Reserve, except for those resources that have indicated that the capacity reserved would be available to supply Imbalance Energy only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency. In the event of an unplanned Outage, a Contingency or a threatened or actual System Emergency, the ISO may also Dispatch all other Generating Units, Loads, System Units and System Resources contracted to provide Spinning Reserve or Non-Spinning Reserve to supply Imbalance Energy. If a Generating Unit, Load, System Unit or System Resource, which is supplying Operating Reserve, is Dispatched to provide Imbalance Energy, the ISO shall replace the Operating Reserve from the same or another resource within the time frame specified by NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

42.1.2 If the forecast shows that the ~~A~~applicable NERC and WECC ~~R~~reliability standards~~Criteria~~ can be met during peak Demand periods, then the ISO shall take no further action.

42.1.3 If the forecast shows that the ~~A~~applicable NERC and WECC ~~R~~reliability standards ~~Criteria~~ cannot be met during peak Demand periods, then the ISO shall facilitate the development of market mechanisms to bring the ISO Controlled Grid during peak periods into compliance with the Applicable Reliability Criteria (or such more stringent criteria as the ISO may impose pursuant to Section 7.2.2.2). The ISO shall solicit bids for Replacement Reserve in the form of Ancillary Services, short-term Generation supply contracts of up to one (1) year with Generators, and Load curtailment contracts giving the ISO the right to reduce the Demands of those parties that win the contracts when there is insufficient Generation capacity to satisfy those Demands in addition to all other Demands. The curtailment contracts shall provide that the ISO's curtailment rights can only be exercised after all available Generation capacity has been fully utilized unless the exercise of such rights would allow the ISO to satisfy the Applicable Reliability Criteria at lower cost, and the curtailment rights shall not be exercised to stabilize or otherwise influence prices for power in the Energy markets.

* * *

Master Definitions Supplement

* * *

Nomogram

A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

Operating Reserve

The combination of Spinning and Non-Spinning Reserve required to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ for reliable operation of the ISO Control Area.

* * *

Regulation

The service provided either by Generating Units certified by the ISO as equipped and capable of responding to the ISO's direct digital control signals, or by System Resources that have been certified by the ISO as capable of delivering such service to the ISO Control Area, in an upward and downward direction to match, on a real-time basis, Demand and resources, consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. Regulation is used to control the power output of electric generators within a prescribed area in response to a change in system frequency, tieline loading, or the relation of these to each other so as to maintain the target system frequency and/or the established interchange with other areas within the predetermined limits. Regulation includes both the increase of output by a Generating Unit or System Resource ("Regulation Up") and the decrease in output by a Generating Unit or System Resource ("Regulation Down"). Regulation Up and Regulation Down are distinct capacity products, with separately stated requirements and Market Clearing Prices in each Settlement

Period.

* * *

ISO TARIFF APPENDIX X

Dynamic Scheduling Protocol (DSP)

DSP 5.2 The ISO may, at its discretion, either limit or forego procuring Ancillary Services at particular Control Area interties to ensure that Operating Reserves are adequately dispersed throughout the ISO Control Area as required by NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

DSP 6.4 The ISO will treat dynamically scheduled Energy as a resource contingent firm import. The ISO will procure (or allow for self-provision of) Operating Reserves for loads served by dynamically scheduled System Resources as required by NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

Attachment C – Clean Sheets

WECC Reliability Coordinator Status Compliance Filing

4th Replacement CAISO Tariff (MRTU)

January 28, 2009

4.5.3.13 Compliance with Environmental Constraints, Operating Permits and Applicable Law.

Submitting Bids so that any service provided in accordance with such Bids does not violate environmental constraints, operating permits or applicable law. All submitted Bids must reflect resource limitations and other constraints as such are required to be reported to the CAISO Control Center.

4.5.4 Operations of a Scheduling Coordinator.

4.5.4.1 Maintain Twenty-four (24) Hour Scheduling Centers.

Each Scheduling Coordinator shall operate and maintain a twenty-four (24) hour, seven (7) days per week, scheduling center. Each Scheduling Coordinator shall designate a senior member of staff as its scheduling center manager who shall be responsible for operational communications with the CAISO and who shall have sufficient authority to commit and bind the Scheduling Coordinator.

4.5.4.2 [NOT USED]

4.5.4.3 Dynamic Scheduling.

Scheduling Coordinators may submit Bids for imports of Energy and Ancillary Services for which associated Energy is delivered from Dynamic System Resources located outside of the CAISO Balancing Authority Area, provided that: (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as set forth in the Dynamic Scheduling Protocol in Appendix X or posted in standards on the CAISO Website, are satisfied, (c) the Scheduling Coordinator for the Dynamic System Resource executes a Dynamic Scheduling Agreement for Scheduling Coordinators as provided in Appendix B.5 with the CAISO for the operation of dynamic scheduling functionality, and (d) all affected Host Balancing Authorities and Intermediary Balancing Authorities each execute with the CAISO an Interconnected Balancing Authority Area Operating Agreement, a Dynamic Scheduling Host Balancing Authority Operating Agreement as provided in Appendix B.9, or a special operating agreement related to the operation of dynamic functionality.

8. ANCILLARY SERVICES.

8.1 Scope.

The CAISO shall be responsible for ensuring that there are sufficient Ancillary Services available to maintain the reliability of the CAISO Controlled Grid consistent with NERC and WECC reliability standards, including any requirements of the NRC. The CAISO's Ancillary Services requirements may be self-provided by Scheduling Coordinators as further provided in the Business Practice Manuals. Those Ancillary Services which the CAISO requires to be available but which are not being self-provided will be competitively procured by the CAISO from Scheduling Coordinators in the Day-Ahead Market and the RTM consistent with Section 8.3. The provision of Ancillary Services from the Interties with interconnected Balancing Authority Areas is limited to Ancillary Services bid into the competitive procurement processes in the IFM and RTM. The CAISO will not accept Submissions to Self-Provide Ancillary Services that are imports to the CAISO Balancing Authority Area over the Interties with interconnected Balancing Authority Areas, except from Dynamic System Resources certified to provide Ancillary Services or if provided pursuant to ETCs, TORs or Converted Rights. The CAISO will calculate payments for Ancillary Services supplied by Scheduling Coordinators and charge the cost of Ancillary Services to Scheduling Coordinators based on their Ancillary Service Obligations.

8.2 Ancillary Services Standards.

All Ancillary Services shall meet the CAISO's Ancillary Services standards.

8.2.1 Determination of Ancillary Service Standards.

The CAISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the CAISO Controlled Grid. Ancillary Services standards shall meet NERC and WECC reliability standards, including any requirements of the NRC. In setting Ancillary Service standards, the CAISO shall consider reasonableness, cost-effectiveness, and adherence to NERC and WECC reliability standards, including any requirements of the NRC. The standards developed by the CAISO shall be used as a basis for determining the quantity and type of each Ancillary Service which the CAISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the CAISO.

8.2.2 Time-frame For Revising Ancillary Service Standards.

The CAISO shall periodically undertake a review of the CAISO Controlled Grid operation to determine any revision to the Ancillary Services standards to be used in the CAISO Balancing Authority Area. At a minimum the CAISO shall conduct such reviews to accommodate revisions to NERC and WECC reliability standards, including any requirements of the NRC. The CAISO may adjust the Ancillary Services standards temporarily to take into account, among other things variations in system conditions, Real-Time Dispatch constraints, contingencies, and voltage and dynamic stability assessments. Where practicable, the CAISO will provide notice, via the CAISO Website, of any temporary adjustments to Ancillary Service standards by 6:00 p.m. two (2) days ahead of the Operating Day to which the adjustment will apply. Periodic reviews by the CAISO may

include, but are not limited to: (a) analysis of the deviation between actual and forecast Demand; (b) analysis of patterns of unplanned Generating Unit Outages; (c) analysis of compliance with NERC and WECC reliability standards, including any requirements of the NRC; (d) analysis of operation during system disturbances; (e) analysis of patterns of shortfalls between Day-Ahead Schedules and actual Generation and Demand; and (f) analysis of patterns of unplanned transmission Outages.

8.2.3 Quantities of Ancillary Services Required and Use of Ancillary Service Regions.

For each of the Ancillary Services, the CAISO shall determine the quantity and location of the Ancillary Service which is required using Ancillary Service Regions as described in Section 8.3.3. For each of the Ancillary Services, the CAISO shall determine the required locational dispersion in accordance with CAISO Controlled Grid reliability requirements. The Ancillary Services provided must be under the direct Dispatch control of the CAISO on a Real-Time Dispatch Interval basis. The CAISO shall determine the quantities it requires as provided for in Sections 8.2.3.1 to 8.2.3.3.

8.2.3.1 Regulation Service.

The CAISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the CAISO Balancing Authority Area to meet NERC and WECC reliability standards, including any requirements of the NRC by continuously balancing Generation to meet deviations between actual and scheduled Demand and to maintain Interchange Schedules. The quantity of Regulation Down and Regulation Up capacity needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall be determined by the CAISO as a percentage of the applicable CAISO Forecast of CAISO Demand for the Day-Ahead and Real-Time Markets. The CAISO's determination is based upon its need to meet the NERC and WECC reliability standards, including any requirements of the NRC.

The CAISO will publish on OASIS the estimated quantity, or the percentage used to determine the estimated quantity, of Regulation Reserves required for each hour of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time for the Trading Day.

8.2.3.2 Spinning and Non-Spinning Reserves.

The CAISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with NERC and WECC reliability standards, including any requirements of the NRC. The CAISO from time to time may determine to use more stringent criteria.

8.2.3.3 Voltage Support.

The CAISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards, including any requirements of the NRC using a power flow study based on the quantity and location of scheduled Demand. The CAISO shall issue daily voltage schedules (Dispatch Instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the CAISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC.

All Participating Generators shall maintain the CAISO specified voltage schedule at the transmission interconnection points to the extent possible while operating within the power factor range specified in

Balancing Authority Areas). As defined by a Business Practice Manual, the eight identified Ancillary Service Sub-Regions are (1) the South of Path 15 Sub-Region, (2) the Expanded South of Path 15 Sub-Region, (3) the South of Path 26 Sub-Region, (4) the Expanded South of Path 26 Sub-Region, (5) the North of Path 15 Sub-Region, (6) the Expanded North of Path 15 Sub-Region, (7) the North of Path 26 Sub-Region, and (8) the Expanded North of Path 26 Sub-Region. The eight Ancillary Service Sub-Regions are embedded within either the System Region or the Expanded System Region. The CAISO may use Ancillary Service Sub-Regions within the System Region or the Expanded System Region to ensure appropriate distribution of the Ancillary Services procured for the CAISO Balancing Authority Area. The definition of the Expanded System Region, the System Region, and the eight Sub-Regions shall apply collectively to the following Ancillary Services: Regulation Up, Regulation Down, Spinning Reserves and Non-Spinning Reserves.

8.3.3.1 Use of Ancillary Service Regions and Ancillary Service Regional Limits.

Within the Expanded System Region, the System Region, and the Sub-Regions, the CAISO may establish limits on the amount of Ancillary Services that can be provided from each region or can be provided within each region. When used, these Ancillary Service Regional Limits identify either a maximum or a minimum (or both a maximum and a minimum) amount of Ancillary Services to be obtained within the region. The minimum Ancillary Service limit in the Expanded System Region shall be the quantities of each Ancillary Service required to meet NERC and WECC reliability standards, including any requirements of the NRC for the CAISO Balancing Authority Area. The CAISO may establish a restriction on the amount of Ancillary Services to be procured from outside the CAISO Balancing Authority Area by establishing a minimum limit for the System Region.

8.3.7.1 Requirement for Imports of Spinning or Non-Spinning Reserves.

Scheduling Coordinators may submit Bids for imports of Spinning Reserve, or Non-Spinning Reserve from System Resources located outside the CAISO Balancing Authority Area including Dynamic System Resources, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC; and provided that such Scheduling Coordinators have certified to the CAISO their ability to deliver the service to the point of interchange with the CAISO Balancing Authority Area (including with respect to their ability to make changes, or cause such changes to be made, to Interchange Schedules during any interval of a Settlement Period at the discretion of the CAISO).

8.3.7.2 Requirement for Imports of Regulation.

Scheduling Coordinators may bid imports of Regulation from System Resources located outside the CAISO Balancing Authority Area, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC by dynamic scheduling; provided that the operator of the Balancing Authority Area in which the System Resources are located has entered into an agreement with the CAISO for interconnected Balancing Authority Area operations; and provided that such Scheduling Coordinator and the operator of the Balancing Authority Area in which the resources are located have been certified by the CAISO as to their ability to dynamically adjust Interchange Schedules based on control signals issued by the CAISO anytime during a Settlement Period at the discretion of the CAISO. Such certification shall include a demonstration of their ability to support the dynamic Interchange of Regulation service based on CAISO control signals received on dedicated communications links (either directly or through EMS computers) for CAISO computer control and telemetry to provide this function in accordance with CAISO standards and procedures posted on the CAISO Website.

the three five-minute RTD intervals of its target fifteen-minute interval. In the RTUC, all resources certified and capable of providing Operating Reserves that have submitted Real-Time Energy Bids shall also submit applicable Spinning or Non-Spinning Reserves Bids, respectively, depending on whether the resource is online or offline. The CAISO will utilize the RTUC to procure Operating Reserves to restore its Operating Reserve requirements in cases when: (1) Operating Reserves awarded in DAM have been dispatched to provide Energy, (2) resource(s) awarded to provide Operating Reserves in the DAM are no longer capable of providing such awarded Operating Reserves, or (3) the Operator determines that additional Operating Reserves are necessary to maintain Operating Reserves within NERC and WECC reliability standards, including any requirements of the NRC. The CAISO will utilize the RTUC to procure additional Regulation capacity in Real-Time in cases when: (1) resource(s) awarded to provide Regulation in the DAM are no longer capable of providing such awarded Regulation, or (2) the Operator determines that additional Regulation is necessary to maintain sufficient control consistent with NERC and WECC reliability standards, including any requirements of the NRC and Good Utility Practice. The RTUC will produce fifteen-minute ASMPs for the four binding fifteen-minute intervals for the applicable Trading Hour. These fifteen-minute ASMPs are then used for the Settlement of the fifteen minute AS Awards. The RTUC run will also produce fifteen-minute Shadow Prices for each of the Interties for the four fifteen-minute intervals for the applicable Trading Hour. These fifteen-minute Shadow Prices are then used to charge for Intertie Real-Time AS Award providers for Congestion on the Interties. RTUC AS Awards are settled in accordance with 11.10.1.3.

a Contingency or an imminent or actual System Emergency. The CAISO may designate any reserve not previously identified as Contingency Only by Scheduling Coordinator as Contingency Only reserves, as necessary to maintain NERC and WECC reliability standards, including any requirements of the NRC. In the event of an unplanned Outage, a Contingency or a threatened or actual System Emergency, the CAISO may dispatch Contingency Only reserves. If Contingency Only reserves are dispatched through the RTCD, which as described in Section 34.3.2, only Dispatches in the event of a Contingency. Such Dispatch and pricing will be based on the original Energy Bids. If Contingency Only reserves are dispatched in response to a System Emergency that has occurred because the CAISO has run out of Economic Bids when no Contingency event has occurred, the RTED will Dispatch such Contingency Only reserves using maximum Bid prices as provided in Section 39.6.1 as the Energy Bids for such reserves and will set prices accordingly. If a Participating Generator, Participating Load, System Unit or System Resource that is supplying Operating Reserve is dispatched to provide Energy, the CAISO shall replace the Operating Reserve as necessary to maintain NERC and WECC reliability standards, including any requirements of the NRC. If the CAISO uses Operating Reserve to meet Real-Time Energy requirements, and if the CAISO needs Operating Reserves to satisfy NERC and WECC reliability standards, including any requirements of the NRC, the CAISO shall restore the Operating Reserves to the extent necessary to meet NERC and WECC reliability standards, including any requirements of the NRC through either the procurement of additional Operating Reserve in the RTM or the Dispatch of other Energy Bids in SCED to allow the resources that were providing Energy from the Operating Reserve to return to their Dispatch Operating Point. The Energy Bid Curve is not used by the AGC system when Dispatching Energy from Regulation. For Regulation Up capacity, the upper portion of the resource capacity from its Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve. For a resource providing Regulation Up or Operating Reserves the remaining Energy Bid Curve shall be

allocated to any RTM AS Awards in the following order from higher to lower capacity where applicable: (a) Spinning Reserve; and (b) Non-Spinning Reserve. For resources providing Regulation Up, the applicable upper Regulation Limit shall be used as the basis of allocation if it is lower than the upper portion of the Energy Bid Curve. The remaining portion of the Energy Bid Curve, if there is any, shall constitute a Bid for RTM Energy. For Regulation Down capacity, the lower portion of the resource capacity from its applicable Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve.

New Participating TO	A Participating TO that is not an Original Participating TO.
New Responsible Utility	A Responsible Utility that executes a TCA after April 1, 1998.
Node	A point in the Full Network Model representing a physical location within the CAISO Balancing Authority Area or the CAISO Controlled Grid, which includes the Load and Generating Unit busses in the CAISO Balancing Authority Area and at the Intertie busses between the CAISO Balancing Authority Area and interconnected Balancing Authority Areas.
Nomogram	A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC.
Non-CPUC Load Serving Entity	Any entity serving retail Demand in the CAISO Balancing Authority Area not within the jurisdiction of the CPUC, including (i) a local publicly owned electric utility under section 9604 of the California Public Utilities Code and (ii) any federal entities, including but not limited to federal power marketing authorities, that serve retail Load.
Non-Dispatchable Use-Limited Resource	A Use-Limited Resource that cannot be increased or curtailed at the direction of the CAISO in the Real-Time Dispatch of the CAISO Balancing Authority Area to Supply or consume Energy, such as certain Qualifying Facilities.
Non-Dynamic Resource-Specific System Resource	A Non-Dynamic System Resource that is a specific generation resource outside the CAISO Balancing Authority Area.
Non-Dynamic System Resource	A System Resource that is not capable of submitting a Dynamic Schedule, or for which a Dynamic Schedule has not be submitted, which may be a Non-Dynamic Resource-Specific System Resource.
Non-Load-Serving Participating TO	A Participating TO that (1) is not a UDC, MSS Operator or Scheduling Coordinator serving End-Use Customers and (2) does not have Gross Load in accordance with Section 9 of Schedule 3 of Appendix F.

OBAALSE	Out-of-Balancing Authority Area Load Serving Entity
Off	A unit is Off when it is offline or in the process of starting up or shutting down.
Off-Peak Deliverability Assessment	The technical study performed under LGIP Section 6.3.2.2 set forth in Appendix Y.
Offsetting CRR	One of the pair of new equal and opposite CRRs created and allocated by the CAISO to reflect Load Migration between two LSEs pursuant to the provisions in Section 36.8.5, which is allocated to the Load losing LSE and is opposite in direction to the corresponding CRR previously allocated to that LSE and is denominated in a MW quantity that reflects the net amount of Load Migration between the two LSEs.
On	A unit is On when it is online, synchronized with the grid, and available for Dispatch.
On-Peak Deliverability Assessment	The technical study performed under LGIP Section 6.3.2.1 set forth in Appendix Y.
On-Site Self-Supply	Energy from a Generating Unit that self-supplies all or a portion of its contemporaneous Station Power Load that is netted pursuant to Section 10.1.3 or is deemed to have self-supplied all or a portion of its associated non-contemporaneous Station Power Load without use of the CAISO Controlled Grid during the Netting Period pursuant to Section 3.1 of the Station Power Protocol in Appendix I.
Open Access Same-Time Information System (OASIS)	The electronic posting system for transmission access data that the CAISO maintains on the CAISO Website that allows all Market Participants to view the data simultaneously.
Operating Day	The day when the Real-Time Market runs and Energy is supplied to Load.
Operating Hour	The hour during the day when the Real-Time Market runs and Energy is supplied to Load.
Operating Procedures	Procedures governing the operation of the CAISO Controlled Grid as the CAISO may from time to time develop, and/or procedures that Participating TOs currently employ which the CAISO adopts for use.
Operating Reserve	The combination of Spinning and Non-Spinning Reserve required to meet NERC and WECC reliability standards, including any requirements of the NRC for reliable operation of the CAISO Balancing Authority Area.

Registered Data	Those items of technical data and operating characteristics relating to Generation, transmission or distribution facilities which are identified to the owners of such facilities as being information, supplied in accordance with the CAISO Tariff, to assist the CAISO to maintain reliability of the CAISO Controlled Grid and to carry out its functions.
Regulating Range	The operating level range within which a generating resource may provide Regulation.
Regulation	The service provided either by Generating Units certified by the CAISO as equipped and capable of responding to the CAISO's direct digital control (AGC) signals, or by System Resources that have been certified by the CAISO as capable of delivering such service to the CAISO Balancing Authority Area, in an upward and downward direction to match, on a Real-Time basis, Demand and resources, consistent with established NERC and WECC reliability standards, including any requirements of the NRC. Regulation is used to control the Power output of electric generators within a prescribed area in response to a change in system frequency, tie line loading, or the relation of these to each other so as to maintain the target system frequency and/or the established Interchange with other Balancing Authority Areas within the predetermined Regulation Limits. Regulation includes both the increase of output by a Generating Unit or System Resource (Regulation Up) and the decrease in output by a Generating Unit or System Resource (Regulation Down). Regulation Up and Regulation Down are distinct capacity products, with separately stated requirements and ASMPs in each Settlement Period.

4.2 Dedicated dual redundant communications links between the CAISO's EMS and the Host Balancing Authority Area EMS are required.

4.3 The primary circuit will be T1-class, or equivalent, utilizing the inter-control center communications protocol ("ICCP"). The backup circuit will be diversely routed between the Host Balancing Authority Area EMS and the CAISO Balancing Authority Area EMS on separate physical paths and devices.

4.4 Dedicated dual redundant communications links between the Host Balancing Authority Area EMS and every Intermediary Balancing Authority Area EMS are required.

4.5 The Balancing Authority Area hosting a Dynamic System Resource must have a mechanism implemented to override the associated dynamic signal.

4.6 The dynamic signal must be properly incorporated into all involved Balancing Authority Areas' ACE equations.

4.7 The System Resource must have communications links with the Host Balancing Authority Area consistent with this Appendix X.

5 LIMITS ON DYNAMIC IMPORTS

5.1 The CAISO reserves the right to establish limits applicable to the amount of any Ancillary Services and/or Energy imported into the CAISO Balancing Authority Area, whether delivered dynamically or statically. Such limits may be established based on any one, or a combination, of the following considerations: a percentage of, or a specific import limit applicable to, total CAISO Balancing Authority Area requirements; a percentage at, or a specific import limit applicable to, a particular Scheduling Point or a Transmission Interface; a percentage of, or a specific import limit applicable to, total requirements in a specific Ancillary Service Region; or operating factors which may include, but are not limited to, operating Nomograms, Remedial Action Schemes, protection schemes, scheduling and curtailment procedures, or any potential single points of failure associated with the actual delivery process.

5.2 The CAISO may, at its discretion, either limit or forego procuring Ancillary Services at particular Balancing Authority Area Scheduling Points to ensure that Operating Reserves are adequately dispersed throughout the CAISO Balancing Authority Area as required by NERC and WECC reliability standards, including any requirements of the NRC.

5.3 A Dynamic System Resource and its Dynamic Schedules must be permanently associated with a particular CAISO Scheduling Point (the CAISO may, from time to time and at its discretion, allow for a change in such pre-established association of the Dynamic System Resource with a particular CAISO Scheduling Point).

6 OPERATING AND SCHEDULING REQUIREMENTS

6.1 For any Operating Hour for which Energy and/or Ancillary Services (and associated Energy) is scheduled dynamically to the CAISO from the System Resource, a firm (or non-interruptible for that hour) matching transmission service must be reserved across the entire Dynamic Schedule transmission path external to the CAISO Balancing Authority Area.

6.2 All Dynamic Schedules associated with newly implemented Dynamic System Resources must be electronically tagged (by use of an E-Tag).

6.3 Formal inter-Balancing Authority Area Dynamic Schedules may be issued only by the Dynamic System Resource's Host Balancing Authority Area and must be routed through the EMSs of all Intermediary Balancing Authority Areas (such schedules would be considered "wheel-through" schedules by Intermediary Balancing Authority Areas).

6.4 The CAISO will treat dynamically scheduled Energy as a resource contingent firm import. The CAISO will procure (or allow for self-provision of) Operating Reserves for Loads served by Dynamic System Resources as required by NERC and WECC reliability standards, including any requirements of the NRC.

6.5 All Energy Interchange Schedules associated with dynamically scheduled imports of Spinning Reserve and Non-Spinning Reserve will be afforded similar treatment (i.e., resource contingent firm).

6.6 The dynamic signal must be integrated over time by the Host Balancing Authority Area for every Operating Hour.

6.7 Notwithstanding any Dispatches of the System Resource in accordance with the CAISO Tariff, the CAISO shall have the right to issue operating orders to the System Resource either directly or through the Host Balancing Authority Area for emergency or contingency reasons, or to ensure the CAISO's compliance with operating requirements based on WECC or NERC requirements and policies (e.g., WECC's Unscheduled Flow Reduction Procedure). However, such operating orders may be issued only within the range of the CAISO-accepted Energy and Ancillary Services, Bids for a given Operating Hour (or the applicable "sub-hour" interval).

6.8 If there is no Dynamic Schedule in the CAISO's Day-Ahead Market, or HASP/RTM the dynamic signal must be at "zero" ("0") except when in response to CAISO's Dispatch Instructions associated with accepted Ancillary Services Bids.

6.9 The Scheduling Coordinator of the Dynamic System Resource must have the ability to override the associated Dynamic Schedule in order to respond to the operating orders of the CAISO or the Host Balancing Authority.

6.10 Unless the Dynamic System Resource (1) is implemented as a directly-telemetered Load following functionality, (2) is base-loaded Regulatory Must-Take Generation, or (3) responds to a CAISO intra-hour Dispatch Instruction, the Dynamic Schedule representing such resource must follow WECC-approved practice of 20-minute ramps centered at the top of the hour. The CAISO does not provide any special Settlements treatment nor offer any CAISO Tariff exemptions for dynamic Load following functionalities.

Attachment D - Blacklines

WECC Reliability Coordinator Status Compliance Filing

4th Replacement CAISO Tariff (MRTU)

January 28, 2009

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4.5.4.3 Dynamic Scheduling.

Scheduling Coordinators may submit Bids for imports of Energy and Ancillary Services for which associated Energy is delivered from Dynamic System Resources located outside of the CAISO Balancing Authority Area, provided that: (a) such dynamic scheduling is technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~, (b) all operating, technical, and business requirements for dynamic scheduling functionality, as set forth in the Dynamic Scheduling Protocol in Appendix X or posted in standards on the CAISO Website, are satisfied, (c) the Scheduling Coordinator for the Dynamic System Resource executes a Dynamic Scheduling Agreement for Scheduling Coordinators as provided in Appendix B.5 with the CAISO for the operation of dynamic scheduling functionality, and (d) all affected Host Balancing Authorities and Intermediary Balancing Authorities each execute with the CAISO an Interconnected Balancing Authority Area Operating Agreement, a Dynamic Scheduling Host Balancing Authority Operating Agreement as provided in Appendix B.9, or a special operating agreement related to the operation of dynamic functionality.

* * *

8.1 Scope.

The CAISO shall be responsible for ensuring that there are sufficient Ancillary Services available to maintain the reliability of the CAISO Controlled Grid consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The CAISO's Ancillary Services requirements may be self-provided by Scheduling Coordinators as further provided in the Business Practice Manuals. Those Ancillary Services which the CAISO requires to be available but which are not being self-provided will be competitively procured by the CAISO from Scheduling Coordinators in the Day-Ahead Market and the RTM consistent with Section 8.3. The provision of Ancillary Services from the Interties with interconnected Balancing Authority Areas is limited to Ancillary Services bid into the competitive procurement processes in the IFM and RTM. The CAISO will not accept Submissions to Self-Provide Ancillary Services that are imports to the CAISO Balancing Authority Area over the Interties with interconnected

Balancing Authority Areas, except from Dynamic System Resources certified to provide Ancillary Services or if provided pursuant to ETCs, TORs or Converted Rights. The CAISO will calculate payments for Ancillary Services supplied by Scheduling Coordinators and charge the cost of Ancillary Services to Scheduling Coordinators based on their Ancillary Service Obligations.

For purposes of this CAISO Tariff, Ancillary Services are: (i) Regulation Up and Regulation Down, (ii) Spinning Reserve, (iii) Non-Spinning Reserve, (iv) Voltage Support, and (v) Black Start capability.

These services will be procured as stated in Section 8.3.5. Bids for Non-Spinning Reserve may be submitted by Scheduling Coordinators for Curtailable Demand as well as for Generation. Bids for Regulation, Spinning Reserve, Non-Spinning Reserve, and Voltage Support may be submitted by a Scheduling Coordinator for other non-generation resources that are capable of providing the specific service and that meet applicable Ancillary Service standards and technical requirements, as set forth in Sections 8.1 through 8.4, and are certified by the CAISO to provide Ancillary Services. The provision of Regulation, Spinning Reserve, Non-Spinning Reserve, and Voltage Support by other non-generation resources is subject to the same requirements applicable to other providers of these Ancillary Services, as set forth in Sections 8.5 through 8.11. Identification of specific services in this CAISO Tariff shall not preclude development of additional interconnected operation services over time. The CAISO and Market Participants will seek to develop additional categories of these unbundled services over time as the operation of the CAISO Controlled Grid matures or as required by regulatory authorities.

* * *

8.2.1 Determination of Ancillary Service Standards.

The CAISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the CAISO Controlled Grid. Ancillary Services standards shall meet NERC and WECC reliability standards, including any requirements of the NRC ~~Applicable Reliability Criteria~~. In setting Ancillary Service standards, the CAISO shall consider reasonableness, cost-effectiveness, and adherence to NERC and WECC reliability standards, including any requirements of the NRC. The standards developed by the CAISO shall be used as a basis for

determining the quantity and type of each Ancillary Service which the CAISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the CAISO.

8.2.2 Time-frame For Revising Ancillary Service Standards.

The CAISO shall periodically undertake a review of the CAISO Controlled Grid operation to determine any revision to the Ancillary Services standards to be used in the CAISO Balancing Authority Area. At a minimum the CAISO shall conduct such reviews to accommodate revisions to NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The CAISO may adjust the Ancillary Services standards temporarily to take into account, among other things variations in system conditions, Real-Time Dispatch constraints, contingencies, and voltage and dynamic stability assessments. Where practicable, the CAISO will provide notice, via the CAISO Website, of any temporary adjustments to Ancillary Service standards by 6:00 p.m. two (2) days ahead of the Operating Day to which the adjustment will apply. Periodic reviews by the CAISO may include, but are not limited to: (a) analysis of the deviation between actual and forecast Demand; (b) analysis of patterns of unplanned Generating Unit Outages; (c) analysis of compliance with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~; (d) analysis of operation during system disturbances; (e) analysis of patterns of shortfalls between Day-Ahead Schedules and actual Generation and Demand; and (f) analysis of patterns of unplanned transmission Outages.

* * *

8.2.3.1 Regulation Service.

The CAISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the CAISO Balancing Authority Area to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ by continuously balancing Generation to meet deviations between actual and scheduled Demand and to maintain Interchange Schedules. The quantity of Regulation Down and Regulation Up capacity needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall be determined by the CAISO as a percentage of the

applicable CAISO Forecast of CAISO Demand for the Day-Ahead and Real-Time Markets. The CAISO's determination is based upon its need to meet the NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

The CAISO will publish on OASIS the estimated quantity, or the percentage used to determine the estimated quantity, of Regulation Reserves required for each hour of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time for the Trading Day.

8.2.3.2 Spinning and Non-Spinning Reserves.

The CAISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The CAISO from time to time may determine to use more stringent criteria.

8.2.3.3 Voltage Support.

The CAISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ using a power flow study based on the quantity and location of scheduled Demand. The CAISO shall issue daily voltage schedules (Dispatch Instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the CAISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC.

All Participating Generators shall maintain the CAISO specified voltage schedule at the transmission interconnection points to the extent possible while operating within the power factor range specified in their interconnection agreements or, for Regulatory Must-Take Generation, Regulatory Must-Run Generation and Reliability Must-Run Generation, consistent with existing obligations. For Generating Units that do not operate under one of these agreements, the

minimum power factor range will be within a band of 0.90 lag (producing VARs) and 0.95 lead (absorbing VARs) power factors. Participating Generators with Generating Units existing at the CAISO Operations Date that are unable to meet this operating power factor requirement may apply to the CAISO for an exemption. Prior to granting such an exemption, the CAISO shall require the Participating TO or UDC to whose system the relevant Generating Units are interconnected to notify it of the existing contractual requirements for Voltage Support established prior to the CAISO Operations Date for such Generating Units. Such requirements may be contained in CPUC Electric Rule 21 or the Interconnection Agreement with the Participating TO or UDC. The CAISO shall not grant any exemption under this Section from such existing contractual requirements. The CAISO shall be entitled to instruct Participating Generators to operate their Generating Units at specified points within their power factor ranges. Participating Generators shall receive no compensation for operating within these specified ranges.

If the CAISO requires additional Voltage Support, it shall procure this either through Reliability Must-Run Contracts or, if no other more economic sources are available**,** by instructing a Generating Unit to move its MVar output outside its mandatory range. Only if the Generating Unit must reduce its MW output in order to comply with such an instruction will it be eligible to recover its opportunity cost in accordance with Section 11.10.1.4.

All Loads directly connected to the CAISO Controlled Grid shall maintain reactive flow at grid interface points within a specified power factor band of 0.97 lag to 0.99 lead. Loads shall not be compensated for the service of maintaining the power factor at required levels within the bandwidth. A UDC interconnecting with the CAISO Controlled Grid at any point other than a Scheduling Point shall be subject to the same power factor requirement.

The power factor for both the Generating Units and Loads shall be measured at the interconnection point with the CAISO Controlled Grid. The CAISO will develop and will be authorized to levy penalties against Participating Generators, UDCs or Loads whose Voltage Support does not comply with the CAISO's requirements. The CAISO will establish voltage control standards with UDCs and the operators of other Balancing Authority Areas and will enter

into operational agreements providing for the coordination of actions in the event of a voltage problem occurring.

* * *

8.3.3.1 Use of Ancillary Service Regions and Ancillary Service Regional Limits.

Within the Expanded System Region, the System Region, and the Sub-Regions, the CAISO may establish limits on the amount of Ancillary Services that can be provided from each region or can be provided within each region. When used, these Ancillary Service Regional Limits identify either a maximum or a minimum (or both a maximum and a minimum) amount of Ancillary Services to be obtained within the region. The minimum Ancillary Service limit in the Expanded System Region shall be the quantities of each Ancillary Service required to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ for the CAISO Balancing Authority Area. The CAISO may establish a restriction on the amount of Ancillary Services to be procured from outside the CAISO Balancing Authority Area by establishing a minimum limit for the System Region.

* * *

8.3.7.1 Requirement for Imports of Spinning or Non-Spinning Reserves.

Scheduling Coordinators may submit Bids for imports of Spinning Reserve, or Non-Spinning Reserve from System Resources located outside the CAISO Balancing Authority Area including Dynamic System Resources, where technically feasible and consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~; and provided that such Scheduling Coordinators have certified to the CAISO their ability to deliver the service to the point of interchange with the CAISO Balancing Authority Area (including with respect to their ability to make changes, or cause such changes to be made, to Interchange Schedules during any interval of a Settlement Period at the discretion of the CAISO).

8.3.7.2 Requirement for Imports of Regulation.

Scheduling Coordinators may bid imports of Regulation from System Resources located outside the CAISO Balancing Authority Area, where technically feasible and consistent with NERC and

WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ by dynamic scheduling; provided that the operator of the Balancing Authority Area in which the System Resources are located has entered into an agreement with the CAISO for interconnected Balancing Authority Area operations; and provided that such Scheduling Coordinator and the operator of the Balancing Authority Area in which the resources are located have been certified by the CAISO as to their ability to dynamically adjust Interchange Schedules based on control signals issued by the CAISO anytime during a Settlement Period at the discretion of the CAISO. Such certification shall include a demonstration of their ability to support the dynamic Interchange of Regulation service based on CAISO control signals received on dedicated communications links (either directly or through EMS computers) for CAISO computer control and telemetry to provide this function in accordance with CAISO standards and procedures posted on the CAISO Website.

* * *

34.2.2 Real-Time Ancillary Services Procurement.

If the CAISO determines that additional Ancillary Services are required, other than those procured in the DAM and the RTUC will procure Ancillary Services on a fifteen-minute basis as necessary to meet reliability requirements and will determine Real-Time Ancillary Service interval ASMPs for such AS for the next Commitment Period. All Operating Reserves procured in the RTM are considered Contingency Only Operating Reserves. Any Ancillary Service awarded in RTUC will be taken as fixed for

the three five-minute RTD intervals of its target fifteen-minute interval. In the RTUC, all resources certified and capable of providing Operating Reserves that have submitted Real-Time Energy Bids shall also submit applicable Spinning or Non-Spinning Reserves Bids, respectively, depending on whether the resource is online or offline. The CAISO will utilize the RTUC to procure Operating Reserves to restore its Operating Reserve requirements in cases when: (1) Operating Reserves awarded in DAM have been dispatched to provide Energy, (2) resource(s) awarded to provide Operating Reserves in the DAM are no longer capable of providing such awarded Operating Reserves, or (3) the Operator determines that additional Operating Reserves

are necessary to maintain Operating Reserves within NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. The CAISO will utilize the RTUC to procure additional Regulation capacity in Real-Time in cases when: (1) resource(s) awarded to provide Regulation in the DAM are no longer capable of providing such awarded Regulation, or (2) the Operator determines that additional Regulation is necessary to maintain sufficient control consistent with NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ and Good Utility Practice. The RTUC will produce fifteen-minute ASMPs for the four binding fifteen-minute intervals for the applicable Trading Hour. These fifteen-minute ASMPs are then used for the Settlement of the fifteen minute AS Awards. The RTUC run will also produce fifteen-minute Shadow Prices for each of the Interties for the four fifteen-minute intervals for the applicable Trading Hour. These fifteen-minute Shadow Prices are then used to charge for Intertie Real-Time AS Award providers for Congestion on the Interties. RTUC AS Awards are settled in accordance with 11.10.1.3.

* * *

34.8 Dispatch of Energy From Ancillary Services.

The CAISO may issue Dispatch Instructions to Participating Generators, Participating Loads, System Units and System Resources contracted to provide Ancillary Services (either procured through the CAISO Markets, Self-Provided by Scheduling Coordinators, or dispatched in accordance with the RMR Contract) for the Supply of Energy. During normal operating conditions, the CAISO shall Dispatch those Participating Generators, Participating Loads, System Units and System Resources that have contracted to provide Spinning and Non-Spinning Reserve, except for those reserves designated as Contingency Only, in conjunction with the normal Dispatch of Energy. Contingency Only reserves are Operating reserve capacity that have been designated, either by the Scheduling Coordinator or the CAISO, as available to supply Energy in the Real-Time only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency. The CAISO may designate any reserve not previously identified as Contingency Only by Scheduling Coordinator as Contingency Only reserves, as necessary to maintain NERC and WECC reliability standards, including any

requirements of the NRC~~Applicable Reliability Criteria~~. In the event of an unplanned Outage, a Contingency or a threatened or actual System Emergency, the CAISO may dispatch Contingency Only reserves. If Contingency Only reserves are dispatched through the RTCD, which as described in Section 34.3.2, only Dispatches in the event of a Contingency. Such Dispatch and pricing will be based on the original Energy Bids. If Contingency Only reserves are dispatched in response to a System Emergency that has occurred because the CAISO has run out of Economic Bids when no Contingency event has occurred, the RTED will Dispatch such Contingency Only reserves using maximum Bid prices as provided in Section 39.6.1 as the Energy Bids for such reserves and will set prices accordingly. If a Participating Generator, Participating Load, System Unit or System Resource that is supplying Operating Reserve is dispatched to provide Energy, the CAISO shall replace the Operating Reserve as necessary to maintain NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. If the CAISO uses Operating Reserve to meet Real-Time Energy requirements, and if the CAISO needs Operating Reserves to satisfy NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~, the CAISO shall restore the Operating Reserves to the extent necessary to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ through either the procurement of additional Operating Reserve in the RTM or the Dispatch of other Energy Bids in SCED to allow the resources that were providing Energy from the Operating Reserve to return to their Dispatch Operating Point. The Energy Bid Curve is not used by the AGC system when Dispatching Energy from Regulation. For Regulation Up capacity, the upper portion of the resource capacity from its Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve. For a resource providing Regulation Up or Operating Reserves the remaining Energy Bid Curve shall be allocated to any RTM AS Awards in the following order from higher to lower capacity where applicable: (a) Spinning Reserve; and (b) Non-Spinning Reserve. For resources providing Regulation Up, the applicable upper Regulation Limit shall be used as the basis of allocation if it is lower than the upper portion of the Energy Bid Curve. The remaining portion of the Energy Bid Curve, if there is any, shall constitute a Bid for RTM Energy. For Regulation Down capacity, the

lower portion of the resource capacity from its applicable Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve.

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CAISO Tariff Appendix A

Master Definitions Supplement

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Nomogram	A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *

Operating Reserve	The combination of Spinning and Non-Spinning Reserve required to meet NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~ for reliable operation of the CAISO Balancing Authority Area.

* * *

Regulation	The service provided either by Generating Units certified by the CAISO as equipped and capable of responding to the CAISO's direct digital control (AGC) signals, or by System Resources that have been certified by the CAISO as capable of delivering such service to the CAISO Balancing Authority Area, in an upward and downward direction to match, on a Real-Time basis, Demand and resources, consistent with established NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~. Regulation is used to control the Power output of electric generators within a prescribed area in response to a change in system frequency, tie line loading, or the relation of these to each other so as to maintain the target system frequency and/or the established Interchange with other Balancing Authority Areas within the predetermined Regulation Limits. Regulation includes both the increase of output by a Generating Unit or System Resource (Regulation Up) and the decrease in output by a

Generating Unit or System Resource (Regulation Down). Regulation Up and Regulation Down are distinct capacity products, with separately stated requirements and ASMPs in each Settlement Period.

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CAISO TARIFF APPENDIX X

Dynamic Scheduling Protocol (DSP)

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5.2 The CAISO may, at its discretion, either limit or forego procuring Ancillary Services at particular Balancing Authority Area Scheduling Points to ensure that Operating Reserves are adequately dispersed throughout the CAISO Balancing Authority Area as required by NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

*** * ***

6.4 The CAISO will treat dynamically scheduled Energy as a resource contingent firm import. The CAISO will procure (or allow for self-provision of) Operating Reserves for Loads served by Dynamic System Resources as required by NERC and WECC reliability standards, including any requirements of the NRC~~Applicable Reliability Criteria~~.

* * *