

ARTICLE I – GENERAL PROVISIONS

1. DEFINITIONS AND INTERPRETATION.

1.1 The general provisions of this Article I shall apply to this ~~ISO~~ CAISO Tariff.

1.2 Definitions.

Capitalized terms used in this ~~ISO~~ CAISO Tariff shall have the meanings set out in the Master Definitions Supplement set out in Appendix A to this ~~ISO~~ CAISO Tariff unless otherwise stated or the context otherwise requires. If two or more capitalized terms are used together in a manner not uniquely defined in Appendix A to this CAISO Tariff, the meanings of each defined term apply.

1.3 Rules of Interpretation.

1.3.1 In this ~~ISO~~ CAISO Tariff “includes” or “including” shall mean “including without limitation”.

1.3.2 In this ~~ISO~~ CAISO Tariff, unless the context otherwise requires:

- (a) the singular shall include the plural and vice versa;
- (b) references to a Section or Appendix shall mean a section or appendix of this ~~ISO~~ CAISO Tariff;
- (c) references to any law shall be deemed references to such law as it may be amended, replaced or restated from time to time;
- (d) any reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case, whether or not having separate legal personality;
- (e) any reference to a day, month, week or year is to a calendar day, month, week or year.
- (f) Unless the context otherwise requires, if the provisions of a Protocol and ~~this~~ Section 1 through 4 of this ~~ISO~~ CAISO Tariff conflict, the provisions in Sections 1 through 4 of this ~~ISO~~ CAISO Tariff will prevail to the extent of the inconsistency.

- (g) A reference ~~in to~~ this ~~ISO CAISO~~ Tariff or to a given agreement, ~~ISO Protocol~~ or instrument shall be a reference to this CAISO Tariff or to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made.
- (h) Unless the context otherwise requires, if the provisions of ~~a Protocol or this ISO CAISO~~ Tariff and those of an existing contract conflict, with respect to Outage coordination, the existing contract will prevail to the extent of the inconsistency.
- (i) Time references are references to prevailing Pacific ~~time~~time.
- (j) The Operating Procedures or Business Practice Manuals referenced in this ~~ISO CAISO~~ Tariff, as may be amended from time to time, shall be posted on the ~~ISO CAISO Home Page~~Website and such references in this ~~ISO CAISO~~ Tariff shall be to the Operating Procedures or Business Practice Manuals then posted on the ~~ISO CAISO Home Page~~Website.
- (k) If the provisions of an Operating Procedure or a Business Practice Manual and this CAISO Tariff conflict, the CAISO Tariff will prevail to the extent of the inconsistency.
- (l) Any reference to a day or Trading Day, week, month or year is a reference to a calendar day, week, month or year except that a reference to a Business Day shall mean a day on which the banks in California are open for business.
- (m) ~~Titles.~~ The captions and headings in this ~~ISO CAISO~~ Tariff are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the rates, terms, and conditions of this ~~ISO CAISO~~ Tariff.

2. ACCESS TO THE ~~ISO~~ CAISO CONTROLLED GRID.

2.1 Open Access.

The ~~ISO~~ CAISO shall, subject to Sections 2.2 and 3, provide to all Eligible Customers open and non-discriminatory access to the ~~ISO~~ CAISO Controlled Grid regardless of the locations of their connections to the ~~ISO~~ CAISO Controlled Grid in accordance with the terms of this ~~ISO~~ CAISO Tariff including, in particular, the procedures for scheduling and Congestion Management. Energy and Ancillary Services may be transmitted ~~on behalf of~~ for an Eligible Customer into, out of or through the ~~ISO~~ CAISO Controlled Grid only if scheduled by a Scheduling Coordinator. A Scheduling Coordinator must ensure that each Eligible Customer which it represents has all appropriate licenses or authorizations from the Local Regulatory Authority, FERC or any other regulatory body.

2.2 Eligibility of Customers for Direct Access or Wholesale Sales.

The eligibility of an End-Use Customer for Direct Access will be determined in accordance with the Direct Access eligibility and phase-in procedures (if any) adopted by the Local Regulatory Authority. Any dispute as to whether an End-Use Customer meets the eligibility criteria must be resolved by the Local Regulatory Authority prior to the ~~ISO~~ CAISO providing Direct Access to that End-Use Customer.

A Wholesale Customer shall not be entitled to participate in Wholesale Sales through a Scheduling Coordinator if it is not entitled to wholesale transmission service pursuant to the provisions of FPA Section 212(h).

3 FACILITIES FINANCED BY LOCAL FURNISHING BONDS OR OTHER TAX-EXEMPT BONDS.

3.1 ————— This Section 3 applies only to transmission facilities which are under the Operational Control of the ~~ISO-CAISO~~ and are owned by a Local Furnishing Participating TO or other Tax Exempt Participating TO. Nothing in this ~~ISO-CAISO~~ Tariff or the TCA shall compel (and the ~~ISO-CAISO~~ is not authorized to request) any Local Furnishing Participating TO or other Tax Exempt Participating TO to violate: (1) restrictions applicable to facilities which are part of a system that was financed in whole or part with Local Furnishing Bonds or other Tax Exempt Debt or (2) the contractual restrictions and covenants regarding the use of any transmission facilities specified in Appendix B to the TCA.

3.2 ————— Each Local Furnishing Participating TO and other Tax Exempt Participating TO shall cooperate with and provide all necessary assistance to the ~~ISO-CAISO~~ in developing a ~~an ISO-CAISO~~ Protocol to meet the objectives of the first paragraph of this Section 3 3.1 and shall keep the ~~ISO-CAISO~~ fully informed of any changes necessary to that ~~ISO-CAISO~~ Protocol from time to time.

3.3 ————— The ~~ISO-CAISO~~ shall implement the ~~ISO-CAISO~~ Protocol referred to in this Section 3-4 provided that the Local Furnishing TOs and other Tax Exempt Participating TOs shall bear sole responsibility for the development of that ~~ISO-CAISO~~ Protocol including the interpretation of all relevant legislation and the tax and other financial consequences of its implementation.

4 ROLES AND RESPONSIBILITIES.

4.1 [NOT USED]

4.2 Market Participant Responsibilities.

4.2.1 Comply with Dispatch Instructions and Operating Orders Issued.

With respect to this Section 4.2, all Market Participants, including Scheduling Coordinators, Utility Distribution Companies, Participating Transmission Owners, Participating Generators, Participating Loads, Control Area Operators (to the extent the agreement between the Control Area Operator and the ~~ISO~~ CAISO so provides), and Metered Subsystem Operators within the ~~ISO~~ CAISO Control Area and all System Resources shall comply fully and promptly with the ~~ISO's~~ Dispatch Instructions and operating orders, unless such operation would impair public health or safety. A Market Participant is not required to comply with an ~~ISO~~ CAISO operating order if it is physically impossible for the Market Participant to perform in compliance with that operating order. Shedding Load for a System Emergency does not constitute impairment to public health or safety. The Market Participant shall immediately notify the ~~ISO~~ CAISO of its inability to perform in compliance with the operating order. ~~The ISO will honor the terms of Existing Contracts, provided that in a System Emergency and circumstances in which the ISO considers that a System Emergency is imminent or threatened, holders of Existing Rights must follow ISO operating orders even if those operating orders directly conflict with the terms of Existing Contracts. For this purpose ISO operating orders to shed Load shall not be considered as an impairment to public health or safety. This section does not prohibit a Scheduling Coordinator from modifying its Schedule or re-purchasing Energy in the Hour Ahead Market.~~

4.2.2 Implementation of Instructions.

All Market Participants shall respond to ~~ISO~~ CAISO instructions with no more delay than specified in the response times set out in the ~~ISO~~ CAISO Tariff, Operating Procedures and Business Practice Manuals and Protocols.

4.3 Relationship Between ~~ISO~~ CAISO and Participating ~~Tes~~ TOs.

4.3.1 Nature of Relationship.

Each Participating TO shall enter into a Transmission Control Agreement with the [ISOCAISO](#). In addition to converting Existing Rights in accordance with Section 16.1.4.2-1A-1, and except as provided in Section 4.3.1.3, New Participating TOs will be required to turn over Operational Control of all facilities and Entitlements that: (1) satisfy the FERC's functional criteria for determining transmission facilities that should be placed under ~~ISO~~ [CAISO](#) Operational Control; (2) satisfy the criteria adopted by the ~~ISO~~ [CAISO](#) Governing Board identifying transmission facilities for which the ~~ISO~~ [CAISO](#) should assume Operational Control; and (3) are the subject of mutual agreement between the ~~ISO~~ [CAISO](#) and the Participating TOs. The ~~ISO~~ [CAISO](#) shall notify Market Participants when an application has been received from a potential Participating TO and shall notify Market Participants that a New Participating TO has executed the Transmission Control Agreement and the date on which the ~~ISO~~ [CAISO](#) will have Operational Control of the transmission facilities.

4.3.1.1 In any year, a Participating TO applicant must declare its intent in writing to the ~~ISO~~ [CAISO](#) to become a New Participating TO by January 1 or July 1, and provide the ~~ISO~~ [CAISO](#) with an application within 15 days of such notice of intent. Applicable agreements will be negotiated and filed with the Federal Energy Regulatory Commission as soon as possible for the New Participating TO, such that the ~~Agreements~~ [agreements](#) can be effective the following July 1 or January 1.

4.3.1.2 With respect to its submission of Schedules to the ~~ISO~~ [CAISO](#), a New Participating TO shall become a Scheduling Coordinator or obtain the services of a Scheduling Coordinator that has been certified in accordance with Section 4.5.1-4, which Scheduling Coordinator shall not be the entity's Responsible Participating TO in accordance with the Responsible Participating Transmission Owner Agreement, unless mutually agreed, and shall operate in accordance with the ~~ISO~~ [CAISO](#) Tariff and applicable agreements.

The New Participating TO shall assume responsibility for paying all Scheduling Coordinators' charges regardless of whether the New Participating TO elects to become a Scheduling Coordinator or obtains the services of a Scheduling Coordinator.

For the period between the effective date of this provision and ending December 31, 2010, the Transition Date pursuant to Section 4.2 of Appendix F, Schedule 3, New Participating TOs that have joined the CAISO and turned over Operational Control of their facilities and Entitlements shall receive the IFM Congestion Credit in accordance with Section 11.2.1.5.

4.3.1.3 Western Path 15 shall be required to turn over to ~~ISO~~ CAISO Operational Control only its rights and interests in the Path 15 Upgrade and shall not be required to turn over to ~~ISO~~ CAISO Operational Control Central Valley Project transmission facilities, Pacific AC Intertie transmission facilities, California-Oregon Transmission Project facilities, or any other new transmission facilities or Entitlements not related to the Path 15 Upgrade. For purposes of the ~~ISO~~ CAISO Tariff, Western Path 15 shall be treated with respect to revenue recovery as a Project Sponsor in accordance with Section 24.7.

4.3.1.4 The capacity provided to the ~~ISO~~ CAISO under the Transmission Exchange Agreement originally accepted by FERC in Docket No. ER04-688 is deemed to be ~~ISO~~ CAISO Controlled Grid facilities and is subject to all terms and conditions of the ~~ISO~~ CAISO Tariff.

4.3.1.5 Each Participating TO must provide its Local Reliability Criteria to the ~~ISO~~ CAISO, as required by the TCA.

4.3.1.6 ~~16.2.2~~ **Converted Rights.**

16.2.2.1 A recipient of transmission service under an Existing Contract that chooses to become a Participating TO and convert its rights to ~~ISO~~ CAISO transmission service, and the Participating TO which provides the transmission service under the Existing Contract shall change the terms and conditions of the contract to provide that:

16.2.2.1.1(a) The recipient of the transmission service received under an Existing Contract that has converted its rights to ~~ISO~~ CAISO transmission service shall turn over Operational Control of its transmission entitlement to the ~~ISO~~ CAISO for management by the ~~ISO~~ CAISO in accordance with the ~~ISO's~~ CAISO Tariff, applicable operating procedures, and Business Practice Manuals~~scheduling, Congestion Management, curtailment and other ISO Protocols;~~

16.2.2.1.2(b) The recipient of the transmission service under an Existing Contract that has converted its rights to ~~ISO-CAISO~~ transmission service shall obtain all future transmission services within, into (starting at the ~~CAISO~~ Controlled Grid), out of, or through the ~~CAISO~~ Controlled Grid using the ~~ISO's~~ ~~CAISO's~~ scheduling and operational procedures, ~~and protocols and~~ the ~~ISO-CAISO~~ Tariff, and any applicable TO Tariff, provided that this provision shall not affect the rights, if any, of the contract parties to extend Existing Contracts.

16.2.2.1.3 ~~[Not Used]~~

16.2.2.1.4(c) For the capacity represented by its rights, the recipient of firm transmission service under an Existing Contract that has converted its rights to ~~ISO-CAISO~~ transmission service shall be entitled to ~~receive the Usage Charge revenues for the capacity (and/or alternatives to such revenues, such as physical transmission rights or transmission congestion contracts, should they exist) and~~ receive all Wheeling revenue credits throughout the term that the capacity is available under the Existing Contract. ~~The recipient of less than firm service shall receive these revenues in proportion to the degree of firmness and the terms and conditions of their service.~~

16.2.2.1.5(d) The recipient of the transmission service received under an Existing Contract that has converted its rights to ~~ISO-CAISO~~ transmission service shall continue to have the obligation to pay the provider of the service for its transmission service at the rates provided in the Existing Contract, as they may change from time to time under the terms of the Existing Contract, or as mutually agreed between the contract parties, through the term of the contract, subject to the terms and conditions of the contract, including the rights of the parties to the contract to seek unilateral or other changes pursuant to Section 205 or Section 206 of the Federal Power Act and the FERC's Rules and Regulations or as otherwise provided by law.

16.2.2.2(e) Other aspects of such an Existing Contract may also need to be changed. If the parties to the contract are unable to negotiate such changes, they shall seek appropriate changes through the mechanisms provided within the contract, including the rights, if any, to seek unilateral or other changes pursuant to Section 205 or Section 206 of the Federal Power Act and the FERC's Rules and Regulations or as otherwise provided by law.

4.4 Relationship Between ~~ISO~~ CAISO And and UDCs.

4.4.1 General Nature of Relationship Between ~~ISO~~ CAISO and UDCs.

4.4.1.1 ——— The ~~ISO~~ CAISO shall not be obliged to accept ~~Schedules, Adjustment Bids or bids for Ancillary Services~~ which would require Energy to be transmitted to or from the Distribution System of a UDC directly connected to the ~~ISO~~ CAISO Controlled Grid unless the relevant UDC has entered into a UDC Operating Agreement. The UDC Operating Agreement shall require UDCs to comply with the applicable provisions of this Section 4.4 and any other expressly applicable Sections of this ~~ISO~~ CAISO Tariff ~~and the ISO Protocols~~ as these may be amended from time to time.

4.4.1.2 ——— The ~~ISO~~ CAISO shall operate the ~~ISO~~ CAISO Controlled Grid, and each UDC shall operate its Distribution System at all times in accordance with Good Utility Practice and in a manner ~~which that~~ ensures safe and reliable operation. The ~~ISO~~ CAISO shall, ~~in respect of pursuant to~~ its obligations set forth in this Section 4.4, have the right by agreement to delegate certain operational responsibilities to the relevant Participating TO or UDC pursuant to this Section 4.4. All information made available to UDCs by the ~~ISO~~ CAISO shall also be made available to Scheduling Coordinators. All information pertaining to the physical state or operation, maintenance and failure of the UDC Distribution System affecting the operation of the ~~ISO~~ CAISO Controlled Grid that is made available to the ~~ISO~~ CAISO by the UDC shall also be made available to Scheduling Coordinators upon receipt of reasonable notice.

4.4.32 UDC Responsibilities.

Recognizing the ~~ISO's~~ CAISO's duty to ensure efficient use and reliable operation of the ~~ISO~~ CAISO Controlled Grid consistent with the Applicable Reliability Criteria, each UDC shall:

4.4.3.1 ——— **a)** operate and maintain its facilities, in accordance with applicable safety and reliability standards, regulatory requirements, applicable operating guidelines, applicable rates, tariffs, statutes and

regulations governing their provision of service to their End-Use Customers and Good Utility Practice so as to avoid any material adverse impact on the ~~ISO~~ CAISO Controlled Grid;

~~4.4.3.2~~ **b)** provide the ~~ISO~~ CAISO Outage Coordination Office each year with a schedule of upcoming maintenance (including all equipment Outages) that has a reasonable potential of impacting the ~~ISO~~ CAISO Controlled Grid in accordance with Section 9.3.6 of this ~~ISO~~ CAISO Tariff and in accordance with the other scheduling procedures described in this ~~ISO~~ CAISO Tariff;

~~4.4.3.3~~ **c)** coordinate with the ~~ISO~~ CAISO, Participating TOs and Generators to ensure that ~~ISO~~ CAISO Controlled Grid Critical Protective Systems, including relay systems, are installed and maintained in order to function on a coordinated and complementary basis with UDCs, Generator's and Participating TO's protective systems.

~~4.4.3.4~~ **d)** ~~Each UDC shall~~ coordinate any requests for emergency Outages on point of interconnection equipment directly with the appropriate ~~ISO~~ CAISO Control Center as specified in Section 7.1.

4.4.63 System Emergency Reports: UDC Obligations.

~~4.4.6.1~~ Each UDC shall maintain all appropriate records pertaining to a System Emergency ~~and~~.

~~4.4.6.2~~ ~~E~~each UDC shall cooperate with the ~~ISO~~ CAISO in the preparation of an Outage review pursuant to Section ~~7.4.13~~ 7.7.13.

4.4.74 Coordination of Expansion or Modifications to UDC Facilities.

Each UDC and the Participating TO with which it is interconnected shall coordinate in the planning and implementation of any expansion or modifications of a UDC's or Participating TO's system that will affect their transmission interconnection, the ~~ISO~~ CAISO Controlled Grid or the transmission services to be required by the UDC. The Participating TO shall be responsible for coordinating with the ~~ISO~~ CAISO.

4.4.85 Information Sharing.

4.4.85.1 System Planning Studies.

The CAISO, Participating TOs and UDCs shall share information such as projected Load growth and system expansions necessary to conduct necessary System Planning Studies to the extent that these may impact the operation of the ~~ISO~~ CAISO Controlled Grid.

4.4.85.2 System Surveys and Inspections.

The ~~ISO~~ CAISO and each UDC shall cooperate with each other in performing system surveys and inspections to the extent these relate to the operation of the ~~ISO~~ CAISO Controlled Grid.

4.4.85.3 Reports.

4.4.8.3.1 — The ~~ISO~~ CAISO shall make available to the UDCs any public annual reviews or reports regarding performance standards, measurements and incentives relating to the ~~ISO~~ CAISO Controlled Grid and shall also make available, upon reasonable notice, any such reports that the ~~ISO~~ CAISO receives from the Participating TOs. Each UDC shall make available to the ~~ISO~~ CAISO any public annual reviews or reports regarding performance standards, measurements and incentives relating to the UDC's distribution system to the extent these relate to the operation of the ~~ISO~~ CAISO Controlled Grid.

4.4.5.4 Maintenance.

4.4.8.3.2 — The ~~ISO~~ CAISO and UDCs shall develop an operating procedure to record requests received for Maintenance Outages by the ~~ISO~~ CAISO and the completion of the requested maintenance and turnaround times.

4.4.8.3.3 — The UDCs shall maintain records that substantiate all maintenance performed on UDC facilities ~~which that~~ are under the Operational Control of the ~~ISO~~ CAISO. These records shall be made available to the ~~ISO~~ CAISO upon receipt of reasonable notice.

4.4.86.4 Installation of and Rights of Access to UDC Facilities.

4.4.86.4.1 Installation of Facilities.

4.4.86.4.1.1 Meeting Service Obligations. The ~~ISO~~ CAISO and the UDC shall each have the right on reasonable notice to install or to have installed equipment (including metering equipment) or other facilities on the property of the other, to the extent that such installation is necessary for the installing

party to meet its service obligations unless to do so would have a negative impact on the reliability of the service provided by the party owning the property.

4.4.86.4.1.2 Governing Agreements for Installations. The ~~ISO~~ CAISO and the UDC shall enter into agreements governing the installation of equipment or other facilities containing customary, reasonable terms and conditions.

4.4.8.4.6.2 Access to Facilities.

The UDCs shall grant the ~~ISO~~ CAISO reasonable access to UDC facilities free of charge for purposes of inspection, repair, maintenance, or upgrading of facilities installed by the ~~ISO~~ CAISO on the UDC's system, provided that the ~~ISO~~ CAISO must provide reasonable advance notice of its intent to access UDC facilities and opportunity for UDC staff to be present. Such access shall not be provided unless the parties mutually agree to the date, time and purpose of each access. Agreement on the terms of the access shall not be unreasonably withheld.

4.4.8.46.3 Access During Emergencies.

Notwithstanding any provision in this Section 4.4 the ~~ISO~~ CAISO may have access, without giving prior notice, to any UDC's equipment or other facilities during times of a System Emergency or where access is needed in connection with an audit function.

4.4.97 UDC Facilities under ~~ISO~~ CAISO Control.

The ~~ISO~~ CAISO and each UDC shall enter into an agreement in relation to the operation and maintenance of the UDC's facilities ~~which that~~ are under the ~~ISO~~ CAISO's Operational Control.

4.5 Responsibilities of a Scheduling Coordinator.

4.5.1 Scheduling Coordinator Certification.

The ~~ISO~~ CAISO shall accept ~~Schedules and bids~~ Bids for Energy and Ancillary Services only from Scheduling Coordinators ~~which that the CAISO#~~ has certified as having met the requirements of this Section 4.5.1. Scheduling Coordinators ~~scheduling offering~~ Ancillary Services shall additionally meet the requirements of Section 8.4.

4.5.1A — Each Scheduling Coordinator shall:

- (a) demonstrate to the ~~ISO~~CAISO's reasonable satisfaction that it is capable of performing the functions of a Scheduling Coordinator under this ~~ISO~~ CAISO Tariff including (without limitation) the functions specified in Sections 4.5.3 and 4.5.4 ~~and that it is capable of complying with the requirements of all ISO Protocols;~~
- (b) identify each of the Eligible Customers (including itself if it trades for its own account) which it is authorized to represent as Scheduling Coordinator and confirm that the metering requirements under Section 10 are met in relation to each Eligible Customer for which it is submitting ~~bids~~ Bids under this ~~ISO~~ CAISO Tariff;
- (c) confirm that each of the End-Use Customers it represents is eligible for Direct Access;
- (d) confirm that none of the Wholesale Customers it represents is ineligible for wholesale transmission service pursuant to the provisions of FPA Section 212(h);
- (e) demonstrate to the ~~ISO's~~CAISO's reasonable satisfaction that it meets the financial criteria set out in Section 12.1;
- (f) enter into an Scheduling Coordinator Agreement with the CAISO; and
- (g) provide NERC tagging data.

4.5.1.1 Procedure to become a Scheduling Coordinator.

4.5.1.1.1 Scheduling Coordinator ~~Applicant makes a Request~~Application.

To become a Scheduling Coordinator, a Scheduling Coordinator Applicant must submit a completed written application, as provided in Appendix T, to the ~~ISO~~ CAISO by mail, fax, e-mail or in person. A Scheduling Coordinator Applicant may retrieve the application and necessary information from the ~~ISO~~ CAISO's Website Home Page.

4.5.1.1.2 CAISO Information.

The ~~ISO~~ CAISO will provide the following information, in its most current form, on the ~~ISO~~ CAISO Home Page Website. Upon a request by a Scheduling Coordinator Applicant, the ~~ISO~~ CAISO will send the following information by electronic mail:

- (a) the Scheduling Coordinator Application Form (including the ~~ISO~~ CAISO Application File Template, which is Appendix T);
- (b) the ~~ISO~~ CAISO Tariff and Business Practice Manuals and ISO Protocols;
- (c) Interim Black Start Agreement;
- (d) historical ~~ISO~~ CAISO charges (Note: prior to January 2, 1998, estimated ISO charges) including, but not limited to, charges for purchased Ancillary Services, ISO Grid Management Charge, ISO Grid Operations Charge, Imbalance Energy market charges, and Usage Charges t(Note: with respect to historical charges prior to implementation of MRTU, the CAISO will provide historical CAISO Grid Operations Charges, and Imbalance Energy market charges) to assist the Scheduling Coordinator aApplicant in determining the ~~ISO~~ CAISO Security Amount the Scheduling Coordinator Applicant must provide; and
- (e) a pro forma letter of understanding for payment for Scheduling Coordinator Applicants applicants with Approved Credit Ratings, guarantee, letter of credit and escrow agreement for the ~~ISO~~ CAISO Security Amount, all of which will be in a form acceptable to the ~~ISO~~ CAISO.

4.5.1.1.3 Duplicate Information.

If two or more Scheduling Coordinators apply simultaneously to register with the ~~ISO~~ CAISO for a single meter or Meter Point for an ~~ISO~~ CAISO Metered Entity or if an Scheduling Coordinator applies to register with the ~~ISO~~ CAISO for a meter or Meter Point for an ~~ISO~~ CAISO Metered Entity for which an Scheduling Coordinator has already registered, the ~~ISO~~ CAISO will return the application with an explanation that only one Scheduling Coordinator may register with the ~~ISO~~ CAISO for the meter or Meter Point in question and that an Scheduling Coordinator has already registered or that more than one Scheduling Coordinator is attempting to register for that meter or Meter Point. The ~~ISO~~ CAISO will send

the Scheduling Coordinator Applicant the name and address of the applicable Scheduling Coordinator or Scheduling Coordinator Applicant.

4.5.1.1.4 Scheduling Coordinator Applicant returns Application.

At least 60 days before the proposed commencement of service, the Scheduling Coordinator Applicant must return a completed application form with the non-refundable application fee set by the ~~ISO~~ [CAISO](#) Governing Board to cover the application processing costs, site visit and the costs of furnishing the ~~ISO~~ [CAISO](#) Tariffs.

4.5.1.1.5 Notice of Receipt.

Within 3 Business Days of receiving the application, the ~~ISO~~ [CAISO](#) will send a written notification to the Scheduling Coordinator Applicant that it has received the application and the non-refundable fee.

4.5.1.1.6 [CAISO](#) Review of Application.

Within 14 days after receiving an application, the ~~ISO~~ [CAISO](#) will notify the Scheduling Coordinator Applicant whether the Scheduling Coordinator Applicant has submitted all necessary information as set forth in ~~ISO~~ [CAISO](#) Tariff Section 4.5.1, and the ~~ISO~~ [CAISO](#) Application File Template requirements.

4.5.1.1.6.1 Information Requirements.

The Scheduling Coordinator Applicant must submit with its application:

- (a) the proposed date for commencement of service, which may not be less than 60 days after the date the application⁷ was filed, unless waived by the [CAISO](#);
 - (b) financial and security information as set forth in ~~ISO~~ [CAISO](#) Tariff Section 12.1;
- and
- (c) the prescribed non-refundable application fee.

4.5.1.1.6.2 Scheduling Coordinator Applicant's Obligation for Contracts.

A⁸ Scheduling Coordinator Applicant must certify that it is duly authorized to represent the Generators and Loads, which are its Scheduling Coordinator Customers and must further certify that:

(a) represented Generators have entered into Participating Generator Agreements or Qualifying Facility Participating Generator Agreements as provided in Appendices B.2 and B.3, respectively with the [CAISO](#);

(b) represented UDCs have entered into UDC Agreements as provided in Appendix B.8 with the [CAISO](#);

(c) represented ~~ISO-CAISO~~ Metered Entities have entered into Meter Service Agreements as provided in Appendix B.6 with the [CAISO](#);

(d) none of the Wholesale Customers it will represent are ineligible for wholesale transmission service pursuant to the provisions of the FPA Section 212(h); and

(e) each End-Use Customer it will represent is eligible for Direct Access service pursuant to an established program approved by the California Public Utilities Commission or a Local Regulatory Authority.

4.5.1.1.7 Deficient Application.

In the event [that the CAISO has determined that](#) the application is deficient, the ~~ISO-CAISO~~ will send a written notification of the deficiency to the Scheduling Coordinator Applicant within 14 days of receipt by the ~~ISO-CAISO~~ of the application explaining the deficiency and requesting additional information.

4.5.1.1.7.1 Scheduling Coordinator Applicant's Additional Information.

Once the ~~ISO-CAISO~~ requests additional information, the Scheduling Coordinator Applicant has 7 days, or such longer period as the ~~ISO-CAISO~~ may agree, to provide the additional material requested by the ~~ISO-CAISO~~.

4.5.1.1.7.2 No Response from Scheduling Coordinator Applicant.

If the Scheduling Coordinator Applicant does not submit additional information within 7 days or the longer period referred to in Section 4.5.1.1.7.1, the application may be rejected by the ~~ISO-CAISO~~.

4.5.1.1.8 [CAISO](#) Approval Or Rejection Of An Application.

4.5.1.1.8.1 Approval or Rejection Letter.

(a) If the ~~ISO~~ CAISO approves the application, it will send an approval letter with a signed Scheduling Coordinator Agreement for the Scheduling Coordinator Applicant's signature and any required software licensing agreement.

(b) If the ~~ISO~~ CAISO rejects the application, the ~~ISO~~ CAISO will send a rejection letter stating one or more of the following grounds:

- i. incomplete information;
- ii. non-compliance with security requirements;
- iii. non-compliance with third party contractual obligations;
- iv. non-compliance with technical requirements; or
- v. non-compliance with any other ~~ISO~~ CAISO Tariff requirements.

Upon request, the ~~ISO~~ CAISO will provide guidance as to how the Scheduling Coordinator Applicant can cure the grounds for the rejection.

4.5.1.1.8.2 Time for Processing Application.

The ~~ISO~~ CAISO will make a decision whether to accept or reject the application within 14 days of receipt of the application. If more information is requested, the ~~ISO~~ CAISO will make a final decision within 14 days of the receipt of all outstanding or additional information requested.

4.5.1.1.9 Scheduling Coordinator Applicant's Response.

4.5.1.1.9.1 Scheduling Coordinator Applicant's Acceptance.

If the ~~ISO~~ CAISO accepts the application, the Scheduling Coordinator Applicant must return an executed Scheduling Coordinator Agreement, Meter Service Agreements, Interim Black Start Agreements and letter of credit, guarantee or escrow agreement for the ~~ISO~~ CAISO Security Amount, as applicable.

4.5.1.1.9.2 Scheduling Coordinator Applicant's Rejection.

4.5.1.1.9.2.1 Resubmittal.

If an application is rejected, the Scheduling Coordinator Applicant may resubmit its application at any time. An additional application fee will not be required for the second application submitted within 6 months after a rejection.

4.5.1.1.9.2.2 Appeal.

The Scheduling Coordinator Applicant may also appeal against the rejection of an application by the [ISO-CAISO](#). An appeal must be submitted within 28 days following the rejection of its application.

4.5.1.1.10 Post Application Procedures Prior To Final Certification.

4.5.1.1.10.1 Scheduling Coordinator's Administrative, Financial and Technical Requirements.

The [ISO-CAISO](#) will not certify that a Scheduling Coordinator Applicant has become a Scheduling Coordinator until the Scheduling Coordinator Applicant has:

- (a) provided the technical/operational information required to complete the [ISO-CAISO](#) Application File Template, and to comply with [ISO-CAISO](#) Tariff Section 10.3;
- (b) executed software licensing agreement for the software used in conducting business with the [ISO-CAISO](#) in a form approved by the [CAISO](#), if applicable;
- (c) bought and installed any required software for functional interface in order to Validate, Estimate and Edit meter values (VEE).
- (d) purchased the requisite Value Area Network (VAN) service in order to support Electronic Data Interchange (EDI) requirements;
- (e) provided its bank account information and arranged for Fed-Wire System transfers as defined in Tariff Appendix A;
- (f) submitted a timetable for completion of its operational facilities, in order to coordinate site visits by [ISO-CAISO](#) staff to ensure compliance with the [ISO-CAISO](#) Tariff Section 4.5.4.1; and
- (g) bought and installed a computer link account in order to communicate with the [ISO-CAISO](#).

4.5.1.1.11 Final Certification of Scheduling Coordinator Applicant.

The Scheduling Coordinator Applicant will become a Scheduling Coordinator when:

- (a) its application has been accepted;
- (b) it has entered into an Scheduling Coordinator Agreement, Meter Service Agreements and Interim Black Start Agreements, if applicable, with the [CAISO](#);
- (c) the Scheduling Coordinator Applicant has met the financial requirements of ~~ISO~~ [CAISO](#) Tariff Section 12.1; and
- (d) the Scheduling Coordinator Applicant has fulfilled all technical/operational requirements of ~~ISO~~ [CAISO](#) Tariff Section 4.5.4.1, Section 4.5.1.1.10.1, and the ~~ISO~~ [CAISO](#) Application File Template.

The ~~ISO~~ [CAISO](#) will not certify a Scheduling Coordinator Applicant as a Scheduling Coordinator until the Scheduling Coordinator Applicant has completed all the above referenced requirements to the ~~ISO's~~ [CAISO's](#) satisfaction, at least 14 days before the commencement of service.

4.5.1.2 Scheduling Coordinator's Ongoing Obligations After Certification.

4.5.1.2.1 Scheduling Coordinator's Obligation to Report Changes.

4.5.1.2.1.1 Obligation to Report a Change in Filed Information.

Each Scheduling Coordinator has an ongoing obligation to inform the ~~ISO~~ [CAISO](#) of any changes to any of the information submitted by it to the ~~ISO~~ [CAISO](#) as part of the application process, including any changes to the additional information requested by the ~~ISO~~ [CAISO](#). Appendix T sets forth the procedures for changing the Scheduling Coordinator's information and timing of notifying the ~~ISO~~ [CAISO](#) of such changes.

4.5.1.2.1.2 Obligation to Report a Change in Credit Rating.

The Scheduling Coordinator has an ongoing obligation to inform the ~~ISO~~ [CAISO](#) within 3 Business Days **of any change to its Credit Rating if its Approved Credit Rating has been reduced below the CAISO requirements.**

4.5.1.2.2 ~~ISO's~~CAISO's Response for Failure to Inform.

4.5.1.2.2.1 Failure to Promptly Report a Material Change.

If a Scheduling Coordinator fails to inform the ~~ISO~~ CAISO of a material change in its information provided to the CAISO, which may affect the reliability or safety of the ~~ISO Balancing Authority Area~~ CAISO ~~Controlled Grid~~, or the financial security of the CAISO, the ~~ISO~~ CAISO may suspend or terminate the Scheduling Coordinator's rights under the ~~ISO~~ CAISO Tariff in accordance with the terms of ~~ISO~~ CAISO Tariff Sections 12.3 and 4.5.1 respectively. If the ~~ISO~~ CAISO intends to terminate the Scheduling Coordinator's rights it shall file a Notice of Termination with FERC. Such termination shall be effective upon acceptance by FERC of a Notice of Termination.

4.5.2 Eligible Customers Represented by Scheduling Coordinators.

Each Scheduling Coordinator shall within ten (10) days of a request by the ~~ISO~~ CAISO provide the ~~ISO~~ CAISO with a list of the Eligible Customers ~~which that~~ it represents at the date of the request.

4.5.3 Responsibilities of a Scheduling Coordinator.

Each Scheduling Coordinator shall be responsible for:

4.5.3.1 Obligation to Pay. Paying the ~~ISO's~~CAISO's charges in accordance with this ~~ISO~~ CAISO Tariff;

4.5.3.2 Submit ~~Schedules~~Bids. Submitting ~~Schedules~~Bids for Energy in the Day-Ahead Market and ~~HASP for the HASP and the Hour-Ahead Market~~Real-Time Market in relation to Market Participants for which it serves as Scheduling Coordinator, Scheduling Coordinators shall provide the ~~ISO~~ CAISO with ~~intertie~~ Interconnection schedules prepared in accordance with all NERC, WECC and ~~ISO~~ CAISO requirements;

4.5.3.3 Modifications in Demand and Supply. Coordinating and allocating modifications in ~~scheduled~~ Demand and exports and ~~scheduled~~ Generation and imports at the direction of the ~~ISO~~ CAISO in accordance with this ~~ISO~~ CAISO Tariff;

4.5.3.3A ~~Trades between Scheduling Coordinators.~~ Billing and settling an Inter-Scheduling Coordinator Energy or Ancillary Service Trade shall be done in accordance with the agreements between the parties to the trade. The parties to an Inter-Scheduling Coordinator Energy or Ancillary Service Trade shall notify the ISO, in accordance with the ISO Protocols, of the Zone in which the transaction is deemed to occur, which, for Inter-Scheduling Coordinator Energy Trades, shall be used for the purpose of identifying which Scheduling Coordinator will be responsible for payment of applicable Usage Charges;

4.5.3.4 ~~Scheduling Deliveries~~ **Inter-SC Trades.** Submitting any applicable Inter-SC Trades that the Market Participants intend to have settled through the CAISO Markets, pursuant to this CAISO Tariff. Including in its Schedules to be submitted to the ISO under this ISO Tariff, the Demand, Generation and Transmission Losses necessary to give effect to trades with other Scheduling Coordinators;

4.5.3.5 **Tracking and Settling Trades.** Tracking and settling all intermediate trades, including bilateral transactions and Inter-SC Trades, among the entities for which it serves as Scheduling Coordinator;

4.5.3.6 **Ancillary Services.** Providing Ancillary Services in accordance with Section 8;

4.5.3.7 **Annual and Weekly Forecasts.** Submitting to the ~~ISO~~ CAISO the forecasted weekly peak Demand on the ~~ISO~~ CAISO Controlled Grid and the forecasted Generation capacity. The forecasts shall cover a period of twelve (12) months on a rolling basis;

4.5.3.8 **Business Practice Manuals.** ~~ISO Protocols.~~ Complying with all ~~ISO~~ CAISO Business Practice Manuals ~~Protocols~~ and ensuring compliance by each of the Market Participants which it represents with all applicable provisions of the ~~ISO~~ Business Practice Manuals ~~Protocols~~;

4.5.3.9 **Interruptible Imports.** Identifying any Interruptible Imports included in its ~~Schedules~~ Bids or Inter-SC Trades;

4.5.3.10 **Participating Intermittent Resources.** Submitting Schedules consistent with the ~~ISO~~ CAISO ~~Protocols~~ Tariff; and

4.5.3.11 Compliance with Environmental Constraints, Operating Permits and Applicable Law. Submitting ~~Ancillary Services bids, Adjustment Bids and Supplemental Energy bids~~ Bids so that any

service provided in accordance with such ~~bids-Bids~~ does not violate environmental constraints, operating permits or applicable law. All submitted ~~bids-Bids~~ must reflect resource limitations and other constraints as such are required to be reported to the ~~ISO-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 ~~ISO~~ CAISO and who shall have sufficient authority to commit and bind the Scheduling Coordinator.

4.5.4.2 Submitting Balanced Schedules.~~[NOT USED]~~

~~A Scheduling Coordinator shall submit to the ISO only Balanced Schedules in the Day Ahead Market and the Hour Ahead Market. A Schedule shall be treated as a Balanced Schedule when aggregate Generation, Inter Scheduling Coordinator Energy Trades (whether purchases or sales), and imports or exports to or from external Control Areas adjusted for Transmission Losses as appropriate, equals aggregate forecast Demand with respect to all entities for which the Scheduling Coordinator schedules in each Zone. If a Scheduling Coordinator submits a Schedule that is not a Balanced Schedule, the ISO shall reject that Schedule provided that Scheduling Coordinators shall have an opportunity to validate their Schedules prior to the deadline for submission to the ISO by requesting such validation prior to the applicable deadline. On an interim basis, the ISO may assist Scheduling Coordinators in matching Inter-Scheduling Coordinator Energy Trades.~~

4.5.4.3 Dynamic Scheduling.

Scheduling Coordinators may ~~dynamically schedule imports of~~ submit Bids for imports of Energy, Supplemental Energy, and Ancillary Services ~~(other than Regulation)~~ for which associated Energy is delivered from Dynamically_ from System Resources located outside of the ~~ISO-CAISO~~ Control Area, provided that: (a) such dynamic scheduling is technically feasible and consistent with all applicable NERC and WECC criteria and policies, (b) all operating, technical, and business requirements for dynamic

scheduling functionality, as posted in standards on the ~~ISO-CAISO Home Page~~ Website, are satisfied, (c) the Scheduling Coordinator for the dynamically scheduled System Resource executes an agreement with the ~~ISO-CAISO~~ for the operation of dynamic scheduling functionality, and (d) all affected host and intermediary Control Areas each execute with the ~~ISO-CAISO~~ 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 ~~Service a Scheduling Coordinator Agreement.~~

- (a) A Scheduling Coordinator's Scheduling Coordinator Agreement may be terminated by the ~~ISO-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 seven (7) days after the ~~ISO-CAISO~~ has given written notice of the default;
 - (ii) if the Scheduling Coordinator fails to pay any sum under this ~~ISO-CAISO~~ Tariff and fails to remedy the default within a period of seven (7) days after the ~~ISO-CAISO~~ has given written notice of the default; or
 - (iii) if the Scheduling Coordinator commits any other default under this ~~ISO-CAISO~~ Tariff or any of the ~~ISO-CAISO Business Practice Manuals Protocols~~ which, if capable of being remedied, is not remedied within thirty (30) days after the ~~ISO-CAISO~~ has given it written notice of the default; or
- (b) by the Scheduling Coordinator on sixty (60) days written notice to the ~~CAISO~~, provided that such notice shall not be effective to terminate the Scheduling Coordinator Agreement until the Scheduling Coordinator has complied with all applicable requirements of Section 4.5.2.

The ~~ISO-CAISO~~ shall, following termination of a Scheduling Coordinator Agreement and within thirty (30) days of being satisfied that no sums remain owing by the Scheduling Coordinator under the ~~ISO-CAISO~~ Tariff, return or release to the Scheduling Coordinator, as appropriate, any money or credit support provided by such Scheduling Coordinator to the ~~ISO-CAISO~~ under Section 12.1.

4.5.4.4.1 Pending acceptance of termination of service pursuant to Section 4.5.4.5.1 by FERC, the ~~ISO-CAISO~~ will suspend the certification of a Scheduling Coordinator which has received a notice of termination under Section 4.5.4.4 **(a)** and the Scheduling Coordinator will not be eligible to submit ~~Schedules and bids for Energy and Ancillary Services Bids or Inter-SC Trades~~ to the ~~CAISO~~.

4.5.4.5 Notification of Termination.

The ~~ISO-CAISO~~ shall, promptly after providing written notice of default to a Scheduling Coordinator as specified in Section 4.5.4.4 **(a)**, notify the Scheduling Coordinators that could be required to represent End-Use Eligible Customers of the Scheduling Coordinator under Section 4.5.4.6.2 if the default is not cured. The ~~ISO-CAISO~~ shall, as soon as reasonably practicable following the occurrence of any of the events specified in Section 4.5.4.4, notify the Scheduling Coordinator and the Scheduling Coordinators that could be required to represent ~~End-End-Use~~ Eligible Customers of the defaulting Scheduling Coordinator, and the UDCs, and shall as soon as reasonably practicable after the issuance of such notice of termination post such notice on the ~~ISO-CAISO Home Page Website~~. Termination of the Scheduling Coordinator Agreement will automatically remove the Scheduling Coordinator's certification under Section 4.5 and Section 8.4.

4.5.4.5.1 Filing of Notice of Termination.

Any notice of termination given pursuant to Section 4.5.4.4 shall also be filed by the ~~ISO-CAISO~~ with FERC.

4.5.4.6 Continuation of Service on Termination.

4.5.4.6.1 Option for Eligible Customers to choose a new Scheduling Coordinator.

When the ~~ISO-CAISO~~ suspends the certification of a Scheduling Coordinator pending termination, Eligible Customers of the defaulting Scheduling Coordinator shall be entitled to select another Scheduling Coordinator to represent them. The ~~ISO-CAISO~~ will post notice of any suspension on the ~~ISO-CAISO Home Page Website~~. Until the ~~ISO-CAISO~~ is notified by another Scheduling Coordinator that it represents an Eligible Customer of the defaulting Scheduling Coordinator, the Eligible Customer of the defaulting Scheduling Coordinator will receive interim service in accordance with Section 4.5.4.6.2.

4.5.4.6.2 Interim Service.

The ~~ISO~~ CAISO shall maintain a list of Scheduling Coordinators willing to represent Eligible Customers of a defaulting Scheduling Coordinator, which list may be differentiated by UDC Service Area. Scheduling Coordinators who indicate to the ~~ISO~~ CAISO their desire to be on such list shall be placed thereon by the ~~ISO~~ CAISO in random order.

(a) When the ~~ISO~~ CAISO suspends the certification of a Scheduling Coordinator in accordance with Section 4.5.4.4.1, Eligible Customers of the defaulting Scheduling Coordinators shall be assigned to all Scheduling Coordinators on the list established pursuant to this Section 4.5.4.6.2 in a non-discriminatory manner to be established by the CAISO, and each Eligible Customer shall thereafter be represented by the Scheduling Coordinator to which it is assigned unless and until it selects another Scheduling Coordinator in accordance with Section 4.5.4.6.1, subject to this Section 4.5.4.6.2 subsection (b).

(b) Unless the ~~ISO~~ CAISO is notified by another Scheduling Coordinator that it represents an Eligible Customer of a defaulting Scheduling Coordinator within seven (7) days of the notice of termination being posted on the ~~ISO~~ CAISO Home Page Website, the Scheduling Coordinator to which that Eligible Customer has been assigned in accordance with subsection (a) may establish a reasonable minimum period for service, not to exceed thirty (30) days.

(c) In the event no Scheduling Coordinator indicates its willingness to represent Eligible Customers of a defaulting Scheduling Coordinator, the UDC, who has the obligation to serve End-Use Customers of the Eligible Customer, if any, shall arrange to serve those End-Use Customers of such Eligible Customers that are located within the Service Area of the UDC. Such service will be provided in a manner consistent with that which the UDC provides, pursuant to the rules and tariffs of the Local Regulatory Authority, for its bundled ~~end~~End-use-Use customers.

(d) This Section shall not in any way require a UDC to provide or arrange for Scheduling Coordinator service for wholesale Eligible Customers.

4.6 Relationship Between ~~ISO~~ CAISO and Generators.

The ~~ISO-CAISO~~ shall not ~~Schedule Energy or Ancillary Services generated~~ accept Bids for by any Generating Unit interconnected to the ~~ISO-CAISO~~ Controlled Grid, or to the Distribution System of a Participating TO or of a UDC otherwise than through a Scheduling Coordinator. The ~~ISO-CAISO~~ shall further not be obligated to accept Bids from Scheduling Coordinators Schedules or Adjustment Bids or bids for Ancillary Services relating to Generation from any Generating Unit interconnected to the ~~ISO-CAISO~~ Controlled Grid unless the relevant Generator undertakes in writing to the ~~ISO-CAISO~~ to comply with all applicable provisions of this ~~ISO-CAISO~~ Tariff as they may be amended from time to time, including, without limitation, the applicable provisions of this Section 4.6 and Section 7.47.

4.6.1 General Responsibilities.

4.6.1.1 Operate Pursuant to Relevant Provisions of ~~ISO-CAISO~~ Tariff.

Participating Generators shall operate, or cause their facilities to be operated, in accordance with the relevant provisions of this ~~ISO-CAISO~~ Tariff, including, but not limited to, the operating requirements for normal and emergency operating conditions specified in Section 7 and the requirements for the dispatch and testing of Ancillary Services specified in Section 8.

(i) Each **Participating** Generator shall immediately inform the ~~CAISO~~, through its respective Scheduling Coordinator, of any change or potential change in the current status of any Generating Units that are under the Dispatch control of the ~~ISO-CAISO~~. This will include, but not be limited to, any change in status of equipment that could affect the maximum output of a Generating Unit, the minimum load of a Generating Unit, the ability of a Generating Unit to operate with automatic voltage regulation, operation of the PSSs (whether in or out of service), the availability of a Generating Unit governor, or a Generating Unit's ability to provide Ancillary Services as required. Each **Participating** Generator shall immediately report to the ~~CAISO~~, through its Scheduling Coordinator any actual or potential concerns or problems that it may have with respect to Generating Unit direct digital control equipment, Generating Unit voltage control equipment, or any other equipment that may impact the reliable operation of the ~~ISO-CAISO~~ Controlled Grid.

(ii) In the event that a **Participating** Generator cannot meet its Generation schedule as specified in the Day-Ahead Schedule, or comply with a Dispatch Instruction, whether due to a Generating Unit trip or

the loss of a piece of equipment causing a reduction in capacity or output, the **Participating** Generator shall notify the CAISO, through its Scheduling Coordinator at once. If a **Participating** Generator will not be able to meet a time commitment or requires the cancellation of a Generating Unit start up, it shall notify the CAISO, through its Scheduling Coordinator at once.

4.6.1.2 Operate Pursuant to Relevant Operating ~~Protocols~~ Procedures.

Participating Generators shall operate, or cause their Generating Units and associated facilities to be operated, in accordance with the relevant ~~Operating~~ Procedures protocols and Business Practice Manuals established by the ~~ISO~~ CAISO or, prior to the establishment of such ~~procedures protocols~~, the ~~operating~~ Operating Procedures protocols established by the TO or UDC owning the facilities that interconnect with the Generating Unit of the Participating Generator.

4.6.3 Participating Generators Connected to UDC Systems.

With regard to any Generating Unit directly connected to a UDC system, a Participating Generator shall comply with applicable UDC tariffs, interconnection requirements and generation agreements. With regard to a Participating Generator's Generating Units directly connected to a UDC system, the ~~ISO~~ CAISO and the UDC will coordinate to develop procedures to avoid conflicting ~~ISO~~ CAISO and UDC operational directives.

4.6.3.1 Exemption for Generating Units Less Than 1 MW.

A Generator with a Generating Unit directly connected to a UDC system will be exempt from compliance with this Section 4.6 and Section 10.1.3 in relation to that Generating Unit provided that (i) the rated capacity of the Generating Unit is less than 1 MW, and (ii) the Generator does not use the Generating Unit to participate in the CAISO Markets ~~ISO's Ancillary Services and/or to submit Supplemental Energy bids~~. This exemption in no way affects the calculation of or any obligation to pay the appropriate charges or to comply with all the other applicable Sections of this ~~ISO~~ CAISO Tariff.

4.6.3.2 Existing Contracts for Regulatory Must-Take Generation.

Notwithstanding any other provision of this ~~ISO~~ CAISO Tariff, the ~~ISO~~ CAISO shall discharge its responsibilities in a manner ~~which that~~ honors any contractual rights and obligations of the parties to

contracts, or final regulatory treatment, relating to Regulatory Must-Take Generation of which protocols or other instructions are notified in writing to the ~~ISO~~ CAISO from time to time and on reasonable notice.

4.6.4 Identification of Generating Units.

Each Participating Generator shall provide data identifying each of its Generating Units and such information regarding the capacity and the operating characteristics of the Generating Unit as may be reasonably requested from time to time by the ~~ISO~~ CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File shall be accurate and actually based on physical characteristics of the resources except for the Pump Ramping Conversion Factor, which is configurable.

4.6.5 WECC Requirements.

4.6.5.1 Participating Generator Performance Standard.

Participating Generators shall, in relation to each of their Generating Units, meet all applicable WECC standards including any standards regarding governor response capabilities, use of power system stabilizers, voltage control capabilities and hourly Energy delivery. Unless otherwise agreed by the CAISO, a Generating Unit must be capable of operating at capacity registered in the ~~ISO~~ CAISO Controlled Grid interconnection data, and shall follow the voltage schedules issued by the ~~ISO~~ CAISO from time to time.

4.6.5.2 Reliability Criteria.

Participating Generators shall comply with the requirements of the WSCC Reliability Criteria Agreement, including the applicable WSCC Reliability Criteria set forth in Section IV of Annex A thereof. In the event that a Participating Generator fails to comply, it will be subject to the sanctions applicable to such failure. Such sanctions shall be assessed pursuant to the procedures contained in the WSCC Reliability Criteria Agreement. Each and all of the provisions of the WSCC Reliability Criteria Agreement are hereby incorporated by reference into this Section 4.6.5.2 as though set forth fully herein, and Participating Generators shall for all purposes be considered Participants as defined in that Agreement, and shall be subject to all of the obligations of Participants, under and in connection with the WSCC Reliability Criteria

Agreement. The Participating Generators shall copy the ~~ISO~~ CAISO on all reports supplied to the WECC in accordance with Section IV of Annex A of the WSCC Reliability Criteria Agreement.

4.6.5.3 Payment of Sanctions.

Each Participating Generator shall be responsible for payment directly to the WECC of any monetary sanction assessed against that Participating Generator by the WECC pursuant to the WSCC Reliability Criteria Agreement. Any such payment shall be made pursuant to the procedures specified in the WSCC Reliability Criteria Agreement.

~~4.6.6.24.6.6~~ Forced Outages.

Procedures equivalent to those set out in Section 9.3 shall apply to all Participating Generators in relation to Forced Outages.

4.6.7 Recordkeeping; Information Sharing.

4.6.7.1 Requirements for Maintaining Records.

Participating Generators shall provide to the ~~ISO~~ CAISO such information and maintain such records as are reasonably required by the ~~ISO~~ CAISO to plan the efficient use and maintain the reliability of the ~~ISO~~ CAISO Controlled Grid.

4.6.7.2 Providing Information to Generators.

The ~~ISO~~ CAISO shall provide to any Participating Generator, upon its request, copies of any operational assessments, studies or reports prepared by or for the ~~ISO~~ CAISO (unless such assessments studies or reports are subject to confidentiality rights or any rule of law that prohibits disclosure) concerning the operations of such Participating Generator's Generating Units, including, but not limited to, reports on major Generation Outages, available transmission capacity, and Congestion.

4.6.7.3 Preparation of Reports on Major Incidents.

In preparing any report on a major incident the ~~ISO~~ CAISO shall have due regard to the views of any Participating Generator involved or materially affected by such incident.

4.6.8 Sharing Information on Reliability of ~~ISO~~ CAISO Controlled Grid.

The ~~ISO~~ CAISO and each Participating Generator shall have the obligation to inform each other, as promptly as possible, of any circumstance of which it becomes aware (including, but not limited to, abnormal temperatures, storms, floods, earthquakes, and equipment depletions and malfunctions and deviations from the Registered Data and operating characteristics) that is reasonably likely to threaten the reliability of the ~~ISO~~ CAISO Controlled Grid or the integrity of the Participating Generator's facilities. The ~~ISO~~ CAISO and each Participating Generator shall also inform the other as promptly as possible of any incident of which it becomes aware (including, but not limited to, equipment outages, over-loads or alarms) which, in the case of a Participating Generator, is reasonably likely to threaten the reliability of the ~~ISO~~ CAISO Controlled Grid or, in the case of the CAISO, is reasonably likely to adversely affect the Participating Generator's facilities. Such information shall be provided in a form and content which is reasonable in all the circumstances and sufficient to provide timely warning to the other party of the potential impact.

4.6.9 Access Right.

A Participating Generator shall, at the request of the ~~ISO~~ CAISO and upon reasonable notice, provide access to its facilities (including those relating to communications, telemetry and direct control requirements) as necessary to permit the ~~ISO~~ CAISO or an ~~ISO~~ CAISO approved meter inspector to perform such testing as is necessary (i) to test the accuracy of any meters upon which the Participating Generator's compensation is based, or performance is measured, (ii) to test the Participating Generator's compliance with any performance standards pursuant to Section 4.6.5 of this ~~ISO~~ CAISO Tariff, or (iii) to obtain information relative to a Forced Outage.

4.7 Relationship Between ~~ISO~~ CAISO and Participating Loads.

The ~~ISO~~ CAISO shall only accept ~~bids~~ Bids for Supply of Energy or Ancillary Services or Submissions to Self-Provide Ancillary Services Supplemental Energy or Ancillary Services, or Schedules for self-provision of Ancillary Services, from Loads if such Loads are Participating Loads which meet standards adopted by the ~~ISO~~ CAISO and published on the ~~ISO~~ CAISO Home Page Website. The ~~ISO~~ CAISO shall not

~~accept submitted Bids for Supply of Energy schedule Energy~~ or Ancillary Services from a Participating Load other than through a Scheduling Coordinator.

4.8 Relationship Between ~~ISO-CAISO~~ and Eligible Intermittent Resources and Between the ~~ISO-CAISO~~ and Participating Intermittent Resources.

The ~~ISO-CAISO~~ shall not ~~schedule Energy accept Bids from for~~ an Eligible Intermittent Resource other than through a Scheduling Coordinator. ~~No Adjustment Bids or Supplemental Energy bids may be submitted on behalf of Participating Intermittent Resources.~~ Any Eligible Intermittent Resource that is not a Participating Intermittent Resource, or any Participating Intermittent Resource for which ~~Adjustment Bids or Supplemental Energy bids~~ are submitted shall be ~~scheduled bid~~ and settled as a Generating Unit for the associated Settlement Periods (except that the Forecasting Fee shall apply in such Settlement Periods).

4.9 Metered Subsystems

4.9.1 General Nature of Relationship Between ~~ISO-CAISO~~ and MSS.

4.9.1.1 _____ An entity that is determined by the ~~ISO-CAISO~~ to qualify as a Metered Subsystem and that undertakes in writing to the ~~ISO-CAISO~~ to comply with all applicable provisions of the ~~ISO-CAISO~~ Tariff as specified in that written agreement as they may be amended from time to time, including, without limitation, the applicable provisions of this Section 4.9, shall be considered an MSS Operator and shall have the rights and obligations set forth in this Section 4.9. The ~~ISO-CAISO~~ shall not be obligated to accept ~~Schedules, Adjustment Bids or bids for Ancillary Services which~~ ~~Bids that~~ would require Energy to be transmitted to or from a Metered Subsystem unless the written undertaking of the MSS Operator of the Metered Subsystem has become effective.

4.9.2 Coordination of Operations. Each MSS Operator shall operate its MSS at all times in accordance with Good Utility Practice and Applicable Reliability Criteria, including WECC and NERC criteria, and in a manner which ensures safe and reliable operation. All information pertaining to the physical state or operation, maintenance and failure of the MSS affecting the operation of the ~~ISO-CAISO~~ Control Area that is made available to the ~~ISO-CAISO~~ by the MSS Operator shall also be made available

to Scheduling Coordinators, provided that the ~~ISO~~ CAISO shall provide reasonable notice to the MSS Operator. The ~~ISO~~ CAISO shall not be required to make information available to the MSS Operator other than information that is made available to Scheduling Coordinators.

4.9.3 Coordinating Maintenance Outages of MSS Facilities. Each MSS Operator shall make appropriate arrangements to coordinate Outages of Generating Units ~~in accordance with Section 4.6~~. Each MSS Operator shall make appropriate arrangements to coordinate Outages of transmission facilities forming part of its MSS that will have an effect, or are reasonably likely to have an effect, on any interconnection between the MSS and the system of a Participating TO, prior to the submission by that Participating TO of its Maintenance Outage requirements under Section 9.3. The ~~ISO~~ CAISO will coordinate Outages of other Participating TOs transmission facilities that may affect the MSS.

4.9.4 MSS Operator Responsibilities.

The MSS Operator's written undertaking to the ~~ISO~~ CAISO shall obligate the MSS Operator to comply with all provisions of the ~~ISO~~ CAISO Tariff, as amended from time to time, applicable to the UDCs, including, without limitation, the applicable provisions of Section 4.4 and Section 7.47. In addition, recognizing the ~~ISO's~~ CAISO's responsibility to promote the efficient use and reliable operation of the ~~ISO~~ CAISO Controlled Grid and the Control Area consistent with the Applicable Reliability Criteria, each MSS Operator shall:

4.9.4.1 operate and maintain its facilities, in accordance with applicable safety and reliability standards, regulatory requirements, applicable operating guidelines, applicable rates, tariffs, statutes and regulations governing their provision of service to their End-Use Customers and Good Utility Practice so as to avoid any material adverse impact on the ~~ISO~~ CAISO Controlled Grid, it being understood that, if the MSS Operator does not so operate and maintain its facilities and the ~~ISO~~ CAISO concludes, after notice is provided to the MSS Operator, that such failure impairs or threatens to impair the reliability of the ~~ISO~~ CAISO Controlled Grid, the ~~ISO~~ CAISO may suspend MSS status, in accordance with this Section 4.9, until the MSS Operator demonstrates the ability and willingness to so operate and maintain its facilities;

4.9.4.2 provide the ~~ISO~~ CAISO Outage Coordination Office each year with a schedule of upcoming maintenance of facilities forming part of the MSS that will affect or is reasonably likely to affect the ~~ISO~~ CAISO Controlled Grid in accordance with Section 9.3.6;

4.9.4.3 coordinate with the CAISO, Participating TOs and Generators to ensure that ~~ISO~~ CAISO Controlled Grid Critical Protective Systems, including relay systems, are installed and maintained in order to function on a coordinated and complementary basis with the protective systems of the MSS, Participating TOs and Generators and notify the ~~ISO~~ CAISO as soon as is reasonably possible of any condition of which it becomes aware that may compromise the ~~ISO~~ CAISO Controlled Grid Protective Systems;

4.9.4.4 be responsible for any Reliability Must-Run Generation and Voltage Support required for reliability of the MSS, including the responsibility for any costs of such Reliability Must-Run Generation, and Voltage Support and may satisfy this requirement through Generating Units owned by the MSS or under contract to the MSS;

4.9.4.5 be responsible for Black Start requirements for reliability of the MSS, however, if the MSS can self-provide this requirement, the MSS shall not pay its pro rata share of the Black Start requirement in accordance with Section ~~8-12-511~~; and

4.9.4.6 be responsible for ~~Intra-Zonal~~ Congestion Management and transmission line Outages within or at the boundary of the MSS, and all associated costs of actions the MSS Operator has to take to resolve such Congestion internal to the MSS and not be responsible for ~~Intra-Zonal~~ Congestion Management elsewhere ~~in the Zone~~ except to the extent that a Scheduling Coordinator is delivering Energy, Ancillary Services, or RUC Capacity to or from the MSS. An MSS Operator must notify and communicate with the CAISO regarding transmission line Outages to the extent such Outages impact the CAISO Controlled Grid.

4.9.5 **Scheduling by or on behalf of a MSS Operator.** All ~~Schedules-Bids, including but not limited to Self-Schedules~~, submitted on behalf of an MSS Operator for the delivery of Energy and Ancillary Services to Loads connected to the MSS and for the delivery of Energy and Ancillary Services from Generating Units forming part of the MSS or System Units shall be submitted by a Scheduling

Coordinator that complies with all applicable provisions of the ~~ISO-CAISO~~ Tariff, which Scheduling Coordinator may be the MSS Operator, provided that the MSS Operator complies with all applicable requirements for Scheduling Coordinators. A Scheduling Coordinator shall separately identify Schedules Bids that it submits on behalf of an MSS Operator.

4.9.5.1 Without limiting the foregoing, the Scheduling Coordinator for the MSS must submit gross generation information for the System Unit, Generating Unit, and information regarding imports, exports and Gross Loads to the ~~ISO-CAISO~~ in the format and in accordance with the timelines applicable to other Scheduling Coordinators.

4.9.5.2 The Scheduling Coordinator for the MSS will designate, in discrete quantities and with prices for both Ancillary Services and Energy: (1) ~~Schedules Bids~~ in Day-Ahead Market and HASP Hour-Ahead Energy markets (including Schedules Bids for internal Generation and internal Demand within the MSS), (2) ~~bids or self-provided Schedules Submissions to Self-Provide Ancillary Services or Bids~~ for Regulation, Spinning Reserve, and Non-Spinning Reserve, and Replacement Reserve capacity and associated bid Bid for Energy, or (3) Adjustment Bids, (4) Supplemental Energy bids, or (5) any feasible combination thereof.

4.9.5.3 MSS Demand Forecast

The Scheduling Coordinator for the MSS shall provide CAISO with Demand forecasts of the MSS. To the extent that the Scheduling Coordinator does not provide requisite Demand Forecast for the MSS it represents, the CAISO shall produce a Demand Forecast for each MSS Load takeout point.

4.9.6 System Emergencies.

4.9.6.1 The ~~ISO-CAISO~~ has authority to suspend MSS control and direct, via communications with the MSS Operator, the operation of Generating Units within the MSS, including Generating Units that may comprise a System Unit, if such control is necessary to maintain ~~ISO-CAISO~~ Controlled Grid reliability.

4.9.6.2 If ~~a Load curtailment~~ Shedding is required to manage System Emergencies, the ~~ISO-CAISO~~ will determine the amount and location of Load to be reduced pursuant to Section ~~7.4.6~~ 7.5.1

and ~~7.4.6-17.7.5.2~~. Each MSS Operator shall be responsible for notifying its customers and Generators connected to its system of curtailments and service interruption.

4.9.6.3 System Emergency Reports: MSS Obligations.

4.9.6.3.1 Each MSS Operator shall maintain all appropriate records pertaining to a System Emergency.

4.9.6.3.2 Each MSS Operator shall cooperate with the ~~ISO-CAISO~~ in the preparation of an Outage review pursuant to Section ~~7.7.137.4.13~~.

4.9.7 Coordination of Expansion or Modifications to MSS Facilities.

Each MSS Operator and any Participating TO with which its system is interconnected, if applicable, shall coordinate in the planning and implementation of any expansion or modifications of a MSS's or Participating TO's system that will affect their transmission interconnection, the ~~ISO-CAISO~~ Controlled Grid or the transmission services to be required by the MSS Operator. The MSS Operator and any Participating TO with which the MSS is interconnected shall be responsible for coordinating with the ~~ISO-CAISO~~.

4.9.8 Ancillary Services Obligations for MSS.

4.9.8.1 Ancillary Services ~~obligations-Obligations~~ will be allocated to the Scheduling Coordinator scheduling Load within a MSS in accordance with the ~~ISO-CAISO~~ Tariff. The ~~ISO-CAISO~~ shall have the right to call upon ~~the Self-Provided~~ Ancillary Service ~~of capacity self-provided by~~ a Scheduling Coordinator for an MSS or procured by the ~~ISO-CAISO~~ from such Scheduling Coordinator in accordance with the ~~ISO-CAISO~~ Tariff. The Scheduling Coordinator representing the MSS Operator may provide Submissions to self-provide or bid-Bid or (including self-provide) Ancillary Services from a System Unit or from individual Generating Units or Participating Loads in the MSS. Alternatively, the Scheduling Coordinator representing the MSS may purchase Ancillary Services from the ~~ISO-CAISO~~ or third parties to meet all or part of its Ancillary Services ~~obligations-Obligations~~ in accordance with the ~~ISO-CAISO~~ Tariff.

4.9.8.2 If the MSS Operator desires to follow internal Load with a System Unit or Generating Units in the MSS, and also to provide Regulation to the CAISO, the MSS must provide adequate telemetry consistent with the ~~ISO~~ CAISO Tariff and all applicable standards to allow performance in response to ~~ISO~~ CAISO AGC signals to be measured at the interconnection of the MSS to the ~~ISO~~ CAISO Controlled Grid.

4.9.9 Load Following.

4.9.9.1 The MSS Operator may operate a System Unit, Participating Load, or Generating Units in the MSS to follow its Load, provided that: (a) the Scheduling Coordinator for the MSS Operator shall remain responsible for purchases of ~~Imbalance~~ Energy in accordance with the ~~ISO~~ CAISO Tariff if the MSS Operator does not operate its System Unit or Generating Units and schedule imports into the MSS, to match the ~~metered~~ Metered Demand in the MSS and exports from the MSS; and (b) if the deviation between ~~the~~ Generation ~~in the MSS~~ and imports into the MSS and ~~metered~~ Metered Demand ~~in the MSS~~ and exports from the MSS exceeds a deviation band equal to three percent (3%) of ~~the lesser of~~ the MSS Operator's metered ~~or Hour Ahead scheduled~~ Demand ~~and exports~~ from the MSS, adjusted for Forced Outages and any ~~ISO~~ CAISO directed firm Load Shedding for the MSS's portfolio as a whole (the "Deviation Band"), then the Scheduling Coordinator for the MSS Operator shall pay the additional amounts specified in Section 4.9.9. ~~2. The Scheduling Coordinator for an MSS Operator that chooses to follow its Load in accordance with this Section 4.9.9 shall provide sixty (60) days advance notice to the ISO. If the Scheduling Coordinator later desires not to follow the Load of the MSS Operator, the Scheduling Coordinator shall provide sixty (60) days advance notice to the ISO that it will no longer follow Load.~~

4.9.9.2 Under the circumstances described in Section 4.9.9.1, the Scheduling Coordinator for a Load-following MSS Operator shall pay amounts for: (i) excess MSS generation supplied to the CAISO markets and (ii) excess MSS Load relying on CAISO markets and not served by MSS generating resources. based on a price that is the effective weighted average Ex Post Price applicable to the MSS's Scheduling Coordinator for the billing interval (the "Deviation Price"). The revenue received from these

payments will be used as an off-set to the ~~ISO's~~CAISO's Grid Management Charge. The payments due from a Scheduling Coordinator will be calculated as follows:

4.9.9.2.1 If the metered Generation resources and imports into the MSS exceed: (i) the metered Demand and exports from the MSS, and (ii) Energy expected to be delivered by the Scheduling Coordinator for the MSS in response to the ~~ISO's~~CAISO's Dispatch ~~instructions~~ Instructions and/or Regulation set-point signals issued by the ~~ISO's~~CAISO's AGC by more than the Deviation Band, then the payment for excess energy outside of the deviation band shall be rescinded and Scheduling Coordinator for the MSS Operator will pay the ~~ISO- CAISO~~ an amount equal to one hundred percent (100%) of the product of the highest LMP paid to MSS Operator for its generation in the in the settlement interval and Deviation Price ~~and~~ the amount of the Imbalance Energy that is supplied in excess of the Deviation Band.

4.9.9.2.2 If metered Generation resources and imports into the MSS are insufficient to meet: (i) the metered Demand and exports from the MSS, and (ii) Energy expected to be delivered by the Scheduling Coordinator for the MSS in response to the ~~CAISO's~~ CAISO's Dispatch ~~instructions~~ Instructions and/or Regulation set-point signals issued by the ~~ISO's~~CAISO's AGC by more than the Deviation Band, then the Scheduling Coordinator for the MSS Operator shall pay the ~~ISO- CAISO~~ an amount equal to the product of the IOU- LAP price for the settlement interval Deviation Price and two hundred percent (200%) of the shortfall that is outside of the Deviation Band. The payment in the previous sentence is in addition to the charges for the Imbalance Energy that serves the excess MSS Demand charges that may be applicable under the ~~ISO- CAISO~~ CAISO Tariff.

4.9.9.3 GMC Charges. If the ~~ISO- CAISO~~ is charging Grid Management Charges for ~~uninstructed Uninstructed deviations~~ Deviations, and the Scheduling Coordinator for a Load-following the MSS has ~~uninstructed Uninstructed deviations~~ Deviations associated with ~~Load following from~~ the MSS's resources, then the ~~ISO- CAISO~~ will net the Generation and imports into the MSS to match the Demand and exports out of the MSS, and will not assess GMC associated with ~~uninstructed Uninstructed deviations~~ Deviations for such portion of Energy that is used to match MSS Demand and net exports.

4.9.9.3.1 If Generation, above the amount to cover Demand and exports, was sold into the [CAISO's Real-Time Imbalance Energy market](#)~~Market~~, then the Scheduling Coordinator for the MSS will be charged GMC associated with ~~uninstructed~~ [Uninstructed deviations](#)~~Deviations~~ for this quantity.

4.9.9.3.2 If insufficient Generation and imports was available to cover Demand and exports, and the Scheduling Coordinator for the MSS purchased Imbalance Energy from the ~~ISO's~~[CAISO's](#) market, then such Scheduling Coordinator will be charged GMC associated with ~~uninstructed~~ [Uninstructed deviations](#)~~Deviations~~ for this quantity.

4.9.9.3.3 Only GMC associated with ~~uninstructed deviations~~ [Deviations](#) (the Ancillary Services and Real-Time Energy Operations Charge (ASREO)) will be treated on a net basis. GMC for Control Area Services (CAS) will be charged based on Gross Load and exports out of the MSS. The Scheduling Coordinator for the MSS Operator will be assessed the GMC Congestion Management Charge (CONG) in accordance with Section ~~4.4.8.14.4.5.1~~ [11.22.2.5](#). Ancillary Service bids accepted by the ~~ISO~~ [CAISO](#) and Instructed Energy will be assessed the GMC ASREO.

4.9.10 Information Sharing.

4.9.10.1 System Planning Studies and Forecasts.

The [CAISO](#), the MSS Operator and Participating TOs shall share information such as projected Load growth and system expansions necessary to conduct necessary system planning studies to the extent that these may impact the operation of the ~~ISO~~ [CAISO](#) Control Area. Each MSS Operator shall provide to the ~~ISO~~ [CAISO](#) annually its ten-year forecasts of Demand growth, internal Generation, and expansion of or replacement for any transmission facilities that are part of the MSS that will or may significantly affect any point of interconnection between the MSS and the ~~ISO~~ [CAISO](#) Controlled Grid. Such forecasts shall be provided on the date that UDCs are required to submit forecasts to the ~~ISO~~ [CAISO](#) under Section ~~4.4.8.14.4.5.1~~.

Each MSS Operator or each Scheduling Coordinator for an MSS Operator shall also submit weekly and monthly peak Demand Forecasts in accordance with the ~~ISO's~~[CAISO's Business Practice Manuals](#)~~protocols~~.

4.9.10.2 System Surveys and Inspections.

The ~~ISO~~ CAISO and each MSS Operator shall cooperate with each other in performing system surveys and inspections to the extent these relate to the operation of the ~~ISO~~ CAISO Control Area.

4.9.10.3 Reports.

4.9.10.3.1 The ~~ISO~~ CAISO shall make available to each MSS Operator any public annual reviews or reports regarding performance standards, measurements and incentives relating to the ~~ISO~~ CAISO Controlled Grid and shall also make available, upon reasonable notice, any such reports that the ~~ISO~~ CAISO receives from Participating TOs. Each MSS Operator shall make available to the ~~ISO~~ CAISO any public annual reviews or reports regarding performance standards, measurements and incentives relating to the MSS's Distribution System to the extent these relate to the operation of the ~~ISO~~ CAISO Controlled Grid.

4.9.10.3.2 The ~~ISO~~ CAISO and the MSS Operators shall develop an operating procedure to record requests received for Maintenance Outages by the ~~ISO~~ CAISO and the completion of the requested maintenance and turnaround times.

4.9.10.3.3 Each MSS Operator shall promptly provide such information as the ~~ISO~~ CAISO may reasonably request concerning the MSS Operator's operation of the MSS to enable the ~~ISO~~ CAISO to meet its responsibility under the ~~ISO~~ CAISO Tariff to conduct reviews and prepare reports following major Outages. Where appropriate, the ~~ISO~~ CAISO will provide appropriate assurances that the confidentiality of commercially sensitive information shall be protected. The ~~ISO~~ CAISO shall have no responsibility to prepare reports on Outages that affect customers on the MSS, unless the Outage also affects customers connected to the system of another entity within the ~~ISO~~ CAISO Control Area. The MSS Operator shall be solely responsible for the preparation of any reports required by any governmental entity or the WECC with respect to any Outage that affects solely customers on the MSS.

4.9.10.3.4 Reliability Information. Each MSS Operator shall inform the CAISO, and the ~~ISO~~ CAISO shall inform each MSS Operator, in each case as promptly as possible, of any circumstance of which it becomes aware (including, but not limited to, abnormal temperatures, storms, floods,

earthquakes, and equipment depletions and malfunctions and deviations from Registered Data and operating characteristics) that is reasonably likely to threaten the reliability of the ~~ISO~~ CAISO Controlled Grid or the integrity of the MSS respectively. Each MSS Operator and the ~~ISO~~ CAISO each shall also inform the other as promptly as possible of any incident of which it becomes aware (including, but not limited to, equipment outages, over-loads or alarms) which, in the case of the MSS Operator, is reasonably likely to threaten the reliability of the ~~ISO~~ CAISO Controlled Grid, or, in the case of the CAISO, is reasonably likely to adversely affect the MSS. Such information shall be provided in a form and content which is reasonable in all the circumstances, sufficient to provide timely warning to the entity receiving the information of the threat and, in the case of the CAISO, not unduly discriminatory with respect to the ~~ISO's~~CAISO's provision of similar information to other entities.

4.9.10.3.5 Forms. The ~~ISO~~ CAISO shall, in consultation with MSS Operators, jointly develop and, as necessary, revise, any necessary forms and procedures for collection, study, treatment, and transmittal of system data, information, reports and forecasts.

4.9.4411 Installation of and Rights of Access to MSS Facilities.

4.9.4411.1 Installation of Facilities.

4.9.4411.1.1 Meeting Service Obligations.

The ~~ISO~~ CAISO and each MSS Operator shall each have the right, if mutually agreed, on reasonable notice to install or to have installed equipment (including metering equipment) or other facilities on the property of the other, to the extent that such installation is necessary for the installing party to meet its service obligations unless to do so would have a negative impact on the reliability of the service provided by the party owning the property.

4.9.4411.1.2 Governing Agreements for Installations.

The ~~ISO~~ CAISO and the MSS Operator shall enter into agreements governing the installation of equipment or other facilities containing customary and reasonable terms and conditions.

4.9.4411.2 Access to Facilities.

Each MSS Operator shall grant the ~~ISO~~ CAISO reasonable access to MSS facilities free of charge for purposes of inspection, repair, maintenance, or upgrading of facilities installed by the ~~ISO~~ CAISO on the MSS's system, provided that the ~~ISO~~ CAISO must provide reasonable advance notice of its intent to access MSS facilities. Such access shall not be provided unless the parties mutually agree to the date, time and purpose of each access. Agreement on the terms of the access shall not be unreasonably withheld.

4.9.4411.3 Access During Emergencies.

Notwithstanding any provision in this Section 4.9, the ~~ISO~~ CAISO may have access, without giving prior notice, to any MSS Operator's equipment or other facilities during times of a System Emergency or where access is needed in connection with an audit function.

4.9.4512 MSS System Unit.

4.9.4512.1 A MSS Operator may aggregate one or more Generating Units and/or Participating Loads as a System Unit. A System Unit must be modeled as an aggregated Generation unit and must provide a set of Generation Distribution Factors. Except as specifically provided in the agreement referred to in Section 4.9.1.1, all provisions of the ~~ISO~~ CAISO Tariff applicable to Participating Generators and to Generating Units (and, if the System Unit includes a Load, to Participating Loads), shall apply fully to the System Unit and the Generating Units and/or Loads included in it. The MSS Operator's written undertaking to the ~~ISO~~ CAISO in accordance with Section 4.9.1.1 shall obligate the MSS Operator to comply with all provisions of the ~~ISO~~ CAISO Tariff, as amended from time to time, applicable to the System Unit, including, without limitation, the applicable provisions of Section 4.6.1 and Section ~~7.47.7~~. In accordance with Section ~~7.36.1~~, the ~~ISO~~ CAISO will obtain control over the System Unit, not the individual Generating Unit, except for Regulation, to comply with Section 4.6.

4.9.4512.2 Without limiting the generality of Section ~~4.9.15.14.9.12.1~~, a MSS Operator that owns or has an entitlement to a System Unit:

4.9.1512.2.1 is required to have a direct communication link to the ~~ISO's~~CAISO's EMS satisfying the requirements applicable to Generating Units owned by Participating Generators, or Participating Loads, as applicable, for the System Unit and the individual resources that make up the System Unit;

4.9.1512.2.2 shall provide resource-specific information regarding the Generating Units and Loads comprising the System Unit to the ~~ISO~~ CAISO through telemetry to the ~~ISO's~~CAISO's EMS;

4.9.1512.2.3 shall obtain ~~ISO~~ CAISO certification of the System Unit's Ancillary Service capabilities in accordance with Section 8.4 and 8.940 before the Scheduling Coordinator representing the MSS may self-provide its Ancillary Service ~~obligations~~ Obligations or ~~bid~~ Bid into the ~~ISO's~~CAISO's markets from that System Unit;

4.9.1512.2.4 shall provide the ~~ISO~~ CAISO with control over the AGC of the System Unit, if the System Unit is supplying Regulation to the ~~ISO~~ CAISO or is designated to self-provide Regulation; and

4.9.1512.2.5 shall install ~~ISO~~ CAISO certified meters on each individual resource or facility that is aggregated to a System Unit.

4.9.12.3 ~~4.9.15.3~~ Subject to Section ~~4.9.15.54.9.12.4~~, the ~~ISO~~ CAISO shall have the authority to exercise control over the System Unit to the same extent that it may exercise control pursuant to the ~~ISO~~ CAISO Tariff over any other Participating Generator, Generating Unit or, if applicable, Participating Load, but the ~~ISO~~ CAISO shall not have the authority to direct the MSS Operator to adjust the operation of the individual resources that make up the System Unit to comply with directives issued with respect to the System Unit.

4.9.12.4 ~~4.9.15.5~~ When and to the extent that Energy from a System Unit is scheduled to provide for the needs of Loads within the MSS and is not being ~~bid~~ Bid to the ~~CAISO's~~ Markets Ancillary Service or Supplemental Energy markets, the ~~ISO~~ CAISO shall have the authority to ~~dispatch~~ Dispatch the System Unit only to avert or respond to a circumstance described in the third sentence of Section ~~7.3.47.6.1~~ or, pursuant to Section ~~7.4.2.37.7.2.3~~, to a System Emergency.

4.9.13 MSS Elections and Participation in CAISO Markets.

MSS entities must make an election or choice on three issues that govern the manner in which the MSS participates in the CAISO Markets. The MSS entity must choose either: (i) net settlements or gross settlements, (ii) to Load-follow or not Load-follow with its generation resources, and (iii) to have its Load participate in the RUC procurement process or not have its Load participate in the RUC procurement process. The MSS Operator shall make annual elections regarding net or gross settlement, Load-following, and participation in (opt-in) or non participation in (opt-out) of the RUC procurement process for the next annual period consistent with long-term CRRs and subject to CAISO approval. After the first annual period, the MSS Operator may default to its previous set of annual elections.

The election regarding net or gross settlements and the election regarding participation in RUC procurement must be made at least 60 days prior to the deadline for the annual CRR allocation process described in Section 36.8.3. The election regarding whether to Load-follow or not Load-follow with the MSS Operator's generating resources must be made at least 60 days prior to the beginning of the operating year.

The default for the first twelve months after this Section 4.9.13 and Section 36 becomes effective shall be: 1) non Load-following; 2) gross settlement as specified in Section 11.2.3.1; and 3) to opt in to RUC procurement process. In subsequent years, the prior year election will be the default if the MSS Operator does not make a timely election, unless the MSS Operator has been found to have violated Load-following or RUC opt out requirements and is no longer eligible for making such elections. If the MSS Operator fails to elect for net Settlement as specified in Section 11.2.3.2, the default mechanism for all MSS settlements shall be gross settlement as specified in Section 11.2.3.1.

The Load-following, net or gross settlement, and RUC procurement elections of an MSS Operator change certain aspects of, but do not preclude, the participation of the MSS in the CAISO markets. An MSS Operator may: (i) Bid to supply energy to, or purchase energy from, the CAISO markets, (ii) Bid to provide available capacity in RUC, and (iii) Bid or make a Submission to Self-Provide Ancillary Services from a "System Unit" or from individual Generating Units or Participating Loads within the MSS. An MSS Operator also may purchase Ancillary Services from CAISO or third parties to meet its Ancillary Service obligations under CAISO Tariff.

4.9.13.1 Gross or Net Settlement.

An MSS Operator has the option to settle with the CAISO on either a gross basis or a net basis for its Load and generating resources. This election shall be made annually for a period consistent with annual CRR Allocation. If the MSS Operator elects net settlement, then CRRs would be allocated on MSS net Load and the MSS may choose the MSS LAP as its CRR sink in the first tiers of CRR Allocation. If the MSS Operator elects gross settlement, then CRRs would be allocated on a gross load basis and the MSS may not choose the MSS LAPs as its CRR sink in the first tiers of CRR Allocation.

4.9.13.2 Load-Following or Non Load-Following Election.

The MSS Operator has the option to operate its generating resources to follow its Load. If an MSS Operator elects Load-following and net settlements, all generating resources within the MSS must be designated as Load-following resources. If an MSS Operator elects Load-following and gross settlements, generating resources within the MSS can be designated as either load-following or non load-following resources.

If the MSS Operator has elected gross settlement and is a Load-following MSS: (i) it must designate in its generation master file which of its generating resources are Load-following resources, (ii) it must comply with the additional bidding requirements in Section 30.5.2.5, and (iii) the generation resources designated as Load-following resources cannot set Real-Time prices. However, Load-following resources will be eligible to receive bid cost recovery to ensure that the price paid for energy dispatched by CAISO is not less than the MSS Operator's accepted bid price.

4.9.14 MSS Settlements.

4.9.14.1 ~~The ISO~~ CAISO will assess the Scheduling Coordinator for the MSS the neutrality adjustments and Existing Contracts cash neutrality charges pursuant to Section ~~41.2.9~~ 11.14 (or collect refunds therefore) based on the net ~~metered~~ Metered Demand and exports of the MSS.

4.9.14.2 If the ~~ISO~~ CAISO is charging Scheduling Coordinators for summer reliability or demand programs, the MSS Operator may petition the ~~ISO~~ CAISO for an exemption of these charges. If the MSS Operator provides documentation to the ~~ISO~~ CAISO by November 1 of any year demonstrating that the

MSS Operator has secured generating capacity for the following calendar year at least equal to one hundred and fifteen percent (115%), on an annual basis, of the peak Demand responsibility of the MSS Operator, the ~~ISO~~ CAISO shall grant the exemption. Eligible generating capacity for such a demonstration may include on-demand rights to Energy, peaking resources, and Demand reduction programs. The peak Demand responsibility of the MSS Operator shall be equal to the annual peak Demand Forecast of the MSS Load plus any firm power sales by the MSS Operator, less interruptible Loads, and less any firm power purchases. Firm power for the purposes of this Section ~~4.9.16.24.9.14.2~~ shall be Energy that is intended to be available to the purchaser without being subject to interruption or curtailment by the supplier except for Uncontrollable Forces or emergency. To the extent that the MSS Operator demonstrates that it has secured generating capacity in accordance with this Section ~~4.9.16.24.9.14.2~~, the Scheduling Coordinator for the MSS Operator shall not be obligated to bear any share of the ~~ISO's~~ CAISO's costs for any summer Demand reduction program or for any summer reliability Generation procurement program pursuant to ~~ISO~~ CAISO Tariff Section ~~40.3.1.842.1.8~~ for the calendar year for which the demonstration is made.

~~4.9.16.314.3~~ If the ~~ISO~~ CAISO is compensating Generating Units for Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs, and if MSS Operator charges the ~~ISO~~ CAISO for the Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs, of the Generating Units serving the Load of the MSS, then the Scheduling Coordinator for the MSS shall bear its proportionate share of the total amount of those costs incurred by the ~~ISO~~ CAISO based on the MSS gross ~~metered~~ Metered Demand and exports and the Generating Units shall be made available to the ~~ISO~~ CAISO through the submittal of ~~Supplemental Energy bids~~ Bids. If the MSS Operator chooses not to charge the ~~ISO~~ CAISO for the Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs of the Generating Units serving the Load of the MSS, then the Scheduling Coordinator for the MSS shall bear its proportionate share of the total amount of those costs incurred by the ~~ISO~~ CAISO based on the MSS's net ~~metered~~ Metered Demand and exports. The MSS Operator shall make the election whether to charge the ~~ISO~~ CAISO for these costs on an annual basis on November 1 for the following calendar year.

~~4.9.16.4~~ ~~———— The Scheduling Coordinator for the MSS shall be responsible for Transmission Losses, in accordance with the ISO Tariff, only within the MSS, at any points of interconnection between the MSS~~

~~and the ISO Controlled Grid, and for the delivery of Energy to the MSS or from the MSS, provided the MSS Operator fulfills its obligation to provide for Transmission Losses on the transmission facilities forming part of the MSS. A Generation Meter Multiplier shall be assigned to the Generating Units on the MSS at the Points of Interconnection for use of the ISO Controlled Grid. That GMM shall be 1.0 for all Generating Units within the MSS that are located at or behind a Point of Interconnection, to the extent that the Load at the Point of Interconnection for that portion of the MSS exceeds the amount of Generation produced by the Generating Units connected to that portion of the MSS, except that a GMM shall be calculated by the ISO for Energy produced pursuant to a Dispatch instruction from the ISO.~~

4.9.16.5 ~~If the MSS Operator has elected to follow its Load in accordance with Section 4.9.9, then the MSS is not eligible to receive bid cost recovery as provided for in Section 11.2.4.1.1.1 and the Scheduling Coordinator for the MSS shall be allocated costs associated with bid cost recover on a net Metered Demand basis. If the MSS Operator has elected to not follow its Load in accordance with Section 4.9.9, then the MSS is eligible to receive bid cost recovery as provided for in Section 11.2.4.1.1.1, if applicable, subject to resource specific performance review, and the Scheduling Coordinator for the MSS shall be allocated costs associated with bid cost recovery on a gross metered Demand basis.~~

6 COMMUNICATIONS.

6.1 Methods of Communications.

6.1.1 Full-Time Communications Facility Requirement.

Each Scheduling Coordinator, Utility Distribution Company, Participating Transmission Owner, Participating Generator, Control Area Operator (to the extent the agreement between the Control Area Operator and the ~~ISO-CAISO~~ so provides), and Metered Subsystem Operator must provide a communications facility manned twenty-four (24) hours a day, seven (7) days a week capable of receiving Dispatch Instructions issued by the ~~ISO-CAISO~~.

6.1.2 ~~6.3.1~~ Information Transfer from Scheduling Coordinator to CAISO.

Unless otherwise agreed by the CAISO, Scheduling Coordinators who wish to ~~schedule or submit Bids~~ bid into CAISO Markets for Energy or Ancillary Services to the CAISO must submit the information to the CAISO's secure communication system ~~by direct computer link~~. Scheduling Coordinators that wish to submit ~~dynamic~~ Dynamic ~~s~~ Schedules or ~~b~~ Bids for Ancillary Services to the CAISO must also comply with the applicable requirements of Sections 4.5.4.3, 8.4.5 and ~~8.4.7.3-28.4.7.2.1~~.

6.1.3 ~~6.3.2~~ Submitting Information to the CAISO's Secure Communication System ~~By Direct Computer Link~~.

For Scheduling Coordinators submitting information to the CAISO's secure communication system ~~by direct computer link~~, each such Scheduling Coordinator shall establish a network connection with the CAISO's secure communication system ~~ISO through the WEnet network. This shall be a permanent link with the ISO~~. Link initialization procedures shall be necessary to establish ~~the a~~ connection to the CAISO's secure communication system ~~for the first time, and to re-establish the connection each time the connection is restored after a system or communication failure~~. In order to log in, each Scheduling Coordinator ~~shall will be~~ furnished a digital certificate by the ~~ISO-CAISO~~ with user ID and password.

~~6.1.3.1~~ ~~6.4.1A.3~~ The ~~ISO-CAISO~~ will make available ~~Data-data Templates-templates~~ and ~~Validation-validation Rules-rules~~ information that ~~document~~ provides a description of the templates which will be utilized to enter data into the ~~CAISO's~~ secure communication systems. ~~For each of the three communications mechanisms, data entry is as follows:~~

- ~~(a) direct entry of data into the template screens through the use of a browser;~~
- ~~(b) upload of ASCII delimited text through use of an upload button on the template screens which activates the FTP mechanism; or~~
- ~~(c) use of the Scheduling Coordinator's own API.~~

~~6.1.4~~ ~~6.3.3~~ **Information Transfer from ISO-CAISO to Scheduling ~~Coordinator~~.**

Unless otherwise agreed between a Scheduling Coordinator and the ~~ISO,CAISO~~, the ~~ISO-CAISO~~ shall furnish scheduling information to Scheduling Coordinators by electronic transfer as described in Sections ~~6.4.1 and 6.4.1.4~~. If electronic data transfer is not available, the information may be furnished by facsimile. If it is not possible to communicate with the Scheduling Coordinator using the primary means of communication, an alternate means of communication shall be selected by the ~~ISO-CAISO~~.

~~6.1.5~~ ~~6.5~~ **Information to be Provided By Connected Entities to the ISO-CAISO.**

~~6.5.1~~ Each ~~Participating TO and~~ Connected Entity shall provide to the ~~CAISO~~:

~~6.1.5.1. 6.5.1.1~~ A single and an alternative telephone number and a single and an alternative facsimile number by which the ~~ISO-CAISO~~ may contact 24 hours a day a representative of the ~~Participating TO or~~ Connected Entity in, or in relation to, a System Emergency;

~~6.1.5.2 6.5.1.2~~ The names or titles of the ~~Participating TO's or~~ Connected Entity's representatives who may be contacted at such telephone and facsimile numbers.

~~6.1.5.3~~ ~~6.5.2~~ Each representative specified pursuant to Section ~~6.5.16.1.5~~ shall be a person having appropriate experience, qualification, authority, responsibility and accountability within ~~the Participating TO~~ or the Connected Entity to act as the primary contact for the ~~ISO-CAISO~~ in the event of a System Emergency.

~~6.1.5.4~~ ~~6.5.3~~ The details required under this Section ~~6.56.1.5~~ shall at all times be maintained up to date and the ~~Participating TO and the~~ Connected Entity shall notify the ~~ISO-CAISO~~ of any changes promptly and as far in advance as possible.

~~6.2~~ CAISO's Secure Communication System.

~~6.4.1B~~ The ISO shall provide non-discriminatory access to information concerning the status of the ISO Controlled Grid by posting that information on the public access sites on WEnet, or other similar computer communications device, or by telephone or facsimile in the event of computer systems failure.

~~6.2.1~~ Scheduling Coordinators.

~~6.2.1.16.4.1.4.1~~ Scheduling Coordinators ~~Market Participants~~ shall arrange access to WEnet through the Internet Service Provider ~~the CAISO's secure communication system.~~ Scheduling Coordinators shall maintain a secure electronic communication system for receiving Dispatch Instructions that is approved by the CAISO.

~~6.2.1.26.4.1A.2~~ Details of the technical aspects of ~~the CAISO's secure communication system~~ each of these mechanisms, including information on how to change mechanisms and back-up procedures for individual Scheduling Coordinator failures, will be made available by the ~~ISO-CAISO~~ to Scheduling Coordinators on request. It is assumed that each Scheduling Coordinator has made application for and signed a Scheduling Coordinator Agreement. As such, each Scheduling Coordinator will already be familiar with and have arranged the mechanism, including security arrangements, by which it will initially communicate with the ~~ISO-CAISO~~.

~~6.2.1.3~~ Individually Assigned Login Accounts.

~~6.4.1B.1~~ ~~WEnet~~ The CAISO will provide an interface for data exchange between the ~~ISO-CAISO~~ and Scheduling Coordinators who shall each have individually assigned login accounts via digital

~~certificates on WEnet. 6.4.1B.2~~ Through the use of the security provisions of CAISO's secure communication system~~WEnet~~, ~~some~~ data will be provided by the CAISO to Scheduling Coordinators on a confidential basis (such as Day-Ahead Schedules for individual Scheduling Coordinators~~Schedules and bids~~), ~~and other ISO-CAISO data that is not confidential~~ (such as ISO-CAISO Demand ~~forecasts of Demand~~) will be published on the public access reporting system of public section of WEnet ~~the CAISO Website~~ and be available to anyone. ~~The public information that the CAISO provides over WEnet shall include, at a minimum, but not be limited to:~~

6.2.1.4 6.6 Failure or Corruption of the CAISO's Secure Communication System~~WEnet~~.

Based on the designed reliability of the WEnet, there is no external back-up communications system in the event of a total or partial failure of WEnet or the material corruption of data on WEnet. In the extremely unlikely event of WEnet failure, communications will be lost to all Scheduling Coordinators and the ISO will use the latest valid information available to operate until restoration of WEnet.

The CAISO shall, in consultation with Scheduling Coordinators, make provision for procedures to be implemented in the event of a total or partial failure of WEnet ~~the CAISO's secure communication system~~ or the material corruption of data on WEnet ~~the CAISO's secure communication system~~ and include these ~~procedures in the ISO Protocols~~. The CAISO shall ensure that such alternative communications systems are tested periodically.

6.2.1.5 6.7 Confidentiality.

All information posted on the CAISO's secure communication system ~~WEnet~~ shall be subject to the confidentiality obligations contained in Section 20 of this ISO-CAISO Tariff.

6.2.1.6 6.8 Standards of Conduct.

The ISO-CAISO and all Market Participants shall comply with their obligations, to the extent applicable, under the standards of conduct set out in 18 C.F.R. §37.

6.2.2 Public Market Information.

6.2.2.1 Non-Discriminatory Access to Information.

The CAISO shall provide non-discriminatory access to information concerning the status of the CAISO Controlled Grid or facilities that affect the CAISO Controlled Grid by posting that information on the CAISO Website, or other similar computer communications device, or by telephone or facsimile in the event of computer systems failure.

6.2.2.2 Open Access Same-Time Information System.

~~6.4.1.4.2~~ The ~~ISO-CAISO~~ shall ~~arrange~~ provide a public access information reporting system, Open Access Same-Time Information System (OASIS), to deliver market operations and grid management information for the Internet Service Provider to provide a pathway for public Internet connectivity through the ~~WEnet backbone~~ to accommodate users other than Market Participants ~~without the need for a separate, dedicated user data link.~~ OASIS will be accessible to the public via a link on the CAISO Website. ~~This public Internet connection may provide a reduced level of data exchange and reduced information concerning the reliability and performance of the ISO Controlled Grid when compared to that provided to Market Participants through dedicated user data links.~~

6.3 6.2.1A Communication of Dispatch Instructions.

Normal verbal and electronic communication of Dispatch Instructions between the ~~ISO-CAISO~~ and Generators or Participating Load will be via the relevant Scheduling Coordinator.

6.3.1 Scheduling Coordinator Responsibility to Pass Dispatch Instructions to Participating Generator or Load.

Each Scheduling Coordinator must immediately pass on to the Generator or Participating Load concerned any communication for the Generator or Participating Load which it receives from the ~~ISO-CAISO.~~ Communication delays by the Scheduling Coordinator may result in Uninstructed Deviation Penalties or other adjustments pursuant to this CAISO Tariff. ~~If the ISO considers that there has been a failure at a particular point in time or inadequate response over a particular period of time by the Generating Units to the Dispatch Instruction, the ISO will notify the relevant Scheduling Coordinator.~~ The ~~ISO-CAISO~~ may, with the prior permissions of the Scheduling Coordinator concerned, communicate with

and give Dispatch Instructions to the operators of Generating Units and Loads directly without having to communicate through their appointed Scheduling Coordinator. In situations of deteriorating system conditions or emergency, the ~~ISO-CAISO~~ reserves the right to communicate directly with the Generator(s) as required to ensure System Reliability.

~~6.3.2~~ ~~6.1.2~~ **Recording of Dispatch Instructions.**

The ~~ISO-CAISO~~ shall maintain records of all electronic, fax and verbal communications related to a Dispatch ~~i~~nstruction. The ~~ISO-CAISO~~ shall maintain a paper or electronic copy of all Dispatch ~~instructions-Instructions~~ delivered by fax and all Dispatch ~~i~~nstructions delivered electronically. The ~~ISO-CAISO~~ shall record all voice conversations that occur related to Dispatch ~~instructions-Instructions~~ on the Dispatch Instruction communication equipment. These records, copies and recordings may be used by the ~~ISO-CAISO~~ to audit the Dispatch Instruction, and to verify the response of the Market Participant concerned to the Dispatch Instruction.

~~6.3.3~~ ~~6.1.3~~ **Contents of Dispatch Instructions.**

Dispatch Instructions shall include, ~~but are not limited to~~, the following information ~~as appropriate~~:

- (a) _____ exchange of operator names;
- (b) _____ specific resource being Dispatched;
- (c) _____ specific MW value ~~and price point~~ of the resource being Dispatched;
- (d) _____ specific type of instruction (action required);
- (e) _____ time the resource is required to begin initiating the Dispatch Instruction;
- (f) _____ time the resource is required to achieve the Dispatch Instruction;
- (g) _____ time of notification of the Dispatch Instruction; and
- (h) _____ any other information which the ~~ISO-CAISO~~ considers relevant.

~~6.3~~ **Communication Protocols.**

~~Communications between the ISO and Scheduling Coordinators shall be as described below:~~

6.4 Communication of Operating Orders.

The CAISO shall use normal verbal and electronic communication to issue operating orders to the Connected Entity.

~~**6.4.1.3C** . WEnet may be used by the ISO to communicate operating orders to the Scheduling Coordinators and other Market Participants, both in advance of actual operation and in real time. Such orders may include but are not limited to:~~

~~(a) Notifying Scheduling Coordinators and other Market Participants to be on call to provide Non-Spinning Reserve and Replacement Reserves and Black Start;~~

~~(b) Issuing start-up instructions;~~

~~(c) Stating the amount of Spinning Reserves to be carried;~~

~~(d) Requesting specific Ramping patterns;~~

~~(e) Indicating which Scheduling Coordinators and other Market Participants are to provide Regulation;~~

~~(f) Specifying the minimum amount of unloaded capacity that must be maintained in order to meet Regulation Requirements;~~

~~(g) Issuing shut-down instructions; and~~

~~(h) Specifying the voltage level and reactive reserve each Market Participant must maintain.~~

6.4 Transmission System Information and Communications

6.4.1 WEnet.

~~**6.4.1A** The ISO shall engage the services of an Internet Service Provider (ISP) to establish, implement and operate WEnet as a wide-band, wide-area backbone which is functionally similar to the Internet.~~

~~**6.4.1A.1** WEnet provides the backbone on which any of three communications mechanisms will be utilized. These are:~~

- ~~_____ (a) _____ use of a web browser such as Netscape;~~
- ~~_____ (b) _____ use of File Transfer Protocol (FTP); or~~
- ~~_____ (c) _____ use of an Application Programming Interface (API).~~

~~**6.4.1.1 _____ Advisory Information:**~~

~~The following may be provided over such time scales as the ISO may in its discretion decide:~~

- ~~(a) _____ Future planned transmission Outages;~~
- ~~(b) _____ Generator Meter Multipliers.~~

~~**6.4.1.2 _____ Day-Ahead and Hour-Ahead Information:**~~

- ~~(a) _____ Date;~~
- ~~(b) _____ Hour;~~
- ~~(c) _____ Total forecast Demand by UDC;~~
- ~~(d) _____ Inter-Zonal Congestion price per Congested path; Total Regulation and Reserve service capacity reservation cost by Zone;~~
- ~~(e) _____ Total capacity of Inter-Zonal Interfaces; and~~
- ~~(f) _____ Available capacity of Inter-Zonal Interfaces.~~

~~**6.4.1.3 _____ Ex Post Information:**~~

- ~~(a) _____ Date;~~
- ~~(b) _____ Hour; and~~
- ~~(c) _____ Hourly Ex Post Price.~~

~~**6.4.1.3A _____** WEnet shall be used by the ISO to post Usage Charges for Inter-Zonal Interfaces within the ISO Controlled Grid.~~

~~**6.4.1.3B _____** WEnet shall serve as a bulletin board to enable Market Participants to inform one another of scheduling changes and trades made.~~

~~**6.4.1.3D _____** WEnet shall be used by the ISO to provide information to Market Participants regarding the ISO Controlled Grid. Such information may include but is not limited to:~~

- ~~(a) _____ Voltage control parameters;~~
- ~~(b) _____ ISO historical data for Congestion;~~

~~(c) — Forecasts of Usage Charges; and~~

~~(d) — Generation Meter Multipliers to support seven (7) day advance submission of Schedules by Scheduling Coordinators. Additional Generation Meter Multipliers may be published for different seasons and loading patterns.~~

~~6.4.1.4 — Reliable Operation of the WEnet.~~

~~6.5~~ ~~6.2~~ — CAISO Communications.

The CAISO will provide a secure communication system to publish confidential information and communicate with Scheduling Coordinators, and OASIS to publish public information.

~~6.5.1 — Communication With Congestion Revenue Rights Participants.~~

~~6.5.1.1 — CRR Participants With Non-Disclosure Agreements.~~

~~6.5.1.1.1 — Yearly, the CAISO shall provide information that will include, but is not limited to, the following:~~

~~(a) — Full Network Model;~~

~~(b) — Constraints and interface definition; and~~

~~(c) — Load Distribution Factors for each allocation and auction that is published prior to the auction.~~

~~6.5.1.1.2 — Monthly, the CAISO shall provide information that will include, but is not limited to, the following:~~

~~(a) — Full Network Model;~~

~~(b) — Constraints and interface definition; and~~

~~(c) — Load Distribution Factors for each allocation and auction that is published prior to the auction.~~

~~6.5.1.2 — CRR Participants Without Non-Disclosure Agreements.~~

6.5.1.2.1 Yearly, the CAISO shall provide CRR information specific to that CRR Holder or Candidate CRR Holder as it relates to participation in the annual allocation or auction.

6.5.1.2.2 Monthly, the CAISO shall provide CRR information specific to that CRR Holder or Candidate CRR Holder as it relates to participation in the monthly allocation or auction.

6.5.1.3 Public Market Information.

6.5.1.3.1 Yearly, the CAISO shall publish the following information including, but not limited to:

- (a) clearing prices for all Aggregated PNodes used in the auction clearing for on-peak and off-peak;
- (b) CRR Holder;
- (c) Source Name;
- (d) Sink Name;
- (e) Start and End dates;
- (f) Cleared MW values; and
- (g) Clearing price for CRRs obtained in the auction.

6.5.1.3.2 Monthly, the CAISO shall publish the following information including, but not limited to:

- (a) clearing prices for all Aggregated PNodes used in the auction clearing for on-peak and off-peak;
- (b) CRR Holder;
- (c) Source Name;
- (d) Sink Name;
- (e) Start and End dates;
- (f) Cleared MW values; and
- (g) Clearing price for CRRs obtained in the auction.

6.5.1.3.3 Seasonally, the CAISO shall publish the following information including, but not limited to:

- (a) Set of LDFs that represent typical seasonal on-peak and off-peak values, not used for Settlements, before the new season.

6.5.2 **Communications Prior to the Day-Ahead Market.**

6.5.2.1 **Communications Regarding the State of the CAISO Controlled Grid**

The CAISO shall use OASIS to provide public information to Market Participants regarding the CAISO Controlled Grid or facilities that affect the CAISO Grid. Such information may include but is not limited to:

- (a) Future planned Outages of transmission facilities;
- (b) Operational Transfer Capability (OTC); and
- (c) Available Transfer Capability (ATC) for WECC paths and interconnections with external Control Areas.

6.5.2.2 **Communications With Scheduling Coordinators.**

6.5.2.2.1 **Bid Adder Eligibility.**

6.5.2.2.1.1 By the 20th of each month, the CAISO will notify Scheduling Coordinators of Bid Adder eligibility, applicable Bid Adder value for the following month, and Frequently Mitigated Units that are eligible for a Bid Adder.

6.5.2.2.1.2 Scheduling Coordinators shall have one week to review Bid Adder information and provide comment back to the CAISO by the 27th of each month.

6.5.2.2.2 **Day-Ahead Market Bid Submittal.**

Seven Days prior to the target Day-Ahead Market, Scheduling Coordinators can begin submitting Bids for that DAM.

6.5.2.3 **Public Market Information.**

6.5.2.3.1 **Load Forecasts.**

6.5.2.3.1.1 Beginning seven days prior to the target Day-Ahead Market, and updated as necessary, the CAISO will publish its peak Load forecasts by IOU service area.

6.5.2.3.1.2 By 6:00 pm the day prior to (two days before the operating day) the target Day-Ahead Market, the CAISO will publish its updated Load forecast by IOU service area.

6.5.2.3.2 **Network and System Conditions.**

By 6:00 pm the day prior to (two days ahead of) the target Day-Ahead Market, the CAISO will publish known network and system conditions, including but not limited to OTC and ATC, the total capacity of Inter-Control Area Interfaces, and the available capacity.

6.5.2.3.3 **Ancillary Services Requirements**

By 6:00 pm the day prior to (two days ahead of) the target Day-Ahead Market, the CAISO will publish forecasted Ancillary Services requirements and regional constraints by AS Region.

6.5.2.3.4 **Gas Price Indices.**

The CAISO will publish relevant gas price indices when available.

6.5.3 **Day-Ahead Market Communications.**

6.5.3.1 **Communications With Scheduling Coordinators**

6.5.3.1.1 Prior to 6:00 am, the CAISO will continuously screen Inter-SC Trade of Energy submitted by Scheduling Coordinators and provide feedback to the Scheduling Coordinators about the consistency and validity of the Inter-SC Trade of Energy based on information available to the CAISO.

6.5.3.1.2 Between 6:00 am and the end of the Inter-SC Trading Period, the CAISO performs the validation of Inter-SC Trades and will notify the participants of the status of their Inter-SC Trades.

6.5.3.1.3 Between 5:00 am and 10:00 am, the CAISO will provide feedback to Scheduling Coordinators about their validated ETC and TOR quantities, and calculated Default Energy Bids.

6.5.3.1.4 After the close of the DAM bidding at 10:00 am, the CAISO will send a message to the Scheduling Coordinators regarding the outcome of the Bid validation.

6.5.3.1.5 By 1:00 pm, the CAISO will publish the result of the DAM and the resource will be flagged if it is being Dispatched under its RMR Contract. Any such Dispatch shall be deemed a Dispatch Notice under the RMR Contract.

6.5.3.1.6 After the results of the DAM are published by 1:00 pm, the CAISO performs the Inter-SC Trade of Energy post-market validation and communicates the results back to the applicable Scheduling Coordinator.

6.5.3.1.7 The results of the Day-Ahead Market will be published by 1:00 pm and will include:

- (a) Unit commitment status for resources committed in the IFM;
- (b) Day-Ahead Schedules and prices;
- (c) Day-Ahead AS Awards and prices;
- (d) RUC Awards and RUC Capacity and resource-specific RUC Prices;
- (e) Day-Ahead and RUC Start-Up Instructions; and
- (f) Day-Ahead final resource Bid mitigation results.

6.5.3.2 Public Market Information.

6.5.3.2.1 Before 10:00 am (one day before the target Operating Day) the CAISO will publish updated Outage information regarding the transmission system on OASIS.

6.5.3.2.2 The results of the Day-Ahead Market will be published on OASIS by 1:00 pm and will include:

- (a) Total Day-Ahead Schedules (MWh) by Generator, Load and Intertie for the CAISO Control Area;
- (b) Total Day-Ahead AS Awards by AS Region;
- (c) RUC prices by Bus;
- (d) Day-Ahead LMP for Energy, including the SMEC, MCC and MCL;

(e) Day-Ahead ASMP by Bus;

(f) Day Ahead mitigation indicator;

(g) System Load forecast;

(h) Intertie shadow prices; and

(i) Total Day-Ahead system marginal loss costs and average system losses in MWh for each Trading Hour of the next Operating Day.

6.5.4 HASP Communications.

The HASP opens at 1:00 pm the day before the target Operating Day and Scheduling Coordinators can submit Bids into the HASP as of that time.

6.5.4.1 Communications With Scheduling Coordinators.

6.5.4.1.1 Before T-135, the CAISO will continuously screen Inter-SC Trades of Energy submitted by Scheduling Coordinators and communicate with the Scheduling Coordinators about the consistency and validity of the Inter-SC Trade of Energy based on information available to the CAISO.

6.5.4.1.2 Between T-135 and T-45, the CAISO will perform the Inter-SC Trade of Energy pre-market validation check and will provide feedback to the Scheduling Coordinators about the validity of the Inter-SC Trade of Energy based on information available to the CAISO.

6.5.4.1.3 At approximately T-75, the CAISO will send a message to the Scheduling Coordinators regarding the outcome of the Bid validation.

6.5.4.1.4 In between T-270 and the Real-Time, the CAISO will issue RTM Start-Up Instructions for Short Start Units consistent with the resources start-up time.

6.5.4.1.5 No later than T-40, on an hourly basis, the CAISO will publish via the secure communication system the following:

(a) HASP Intertie Schedules and LMPs; and

(b) HASP Intertie AS Awards and ASMPs

6.5.4.1.6 No later than T-30, on an hourly basis, the CAISO will publish via the secure communication system the following:

- (a) HASP advisory Schedules;
- (b) HASP advisory AS Awards; and
- (c) HASP final resource Bid mitigation results.

6.5.4.1.7 At approximately T-30, the CAISO performs the Inter-SC Trade of Energy post-market validation and sends the results back to the applicable Scheduling Coordinators.

6.5.4.1.8 After T-30, on an hourly basis, the CAISO will publish via the secure communication system the following:

- (a) Advisory Resource-Specific LMPs, and
- (b) Resource-Specific ASMPs.

6.5.4.2 Public Market Information.

6.5.4.2.1 By T-105 the CAISO will publish information regarding Outages on the transmission system on OASIS that will be used for HASP Schedules and Congestion Management.

6.5.4.2.2 At T-30, on an hourly basis, the CAISO will publish on OASIS the following:

- (a) HASP Schedules by Intertie;
- (b) Total HASP advisory Schedules (MWh) by Generator;
- (c) Total HASP advisory Schedules (MWh) by Intertie;
- (d) HASP AS Awards by Intertie;
- (e) HASP LMPs for Scheduling Points;
- (f) HASP advisory LMPs;
- (g) HASP Intertie ASMP for AS by Bus;
- (h) HASP advisory ASMP for AS by Bus;

(i) HASP Intertie congestion shadow prices; and

(j) Total HASP marginal loss costs and average system losses in MWh for the next Operating Hour.

6.5.5 Real-Time Market Communications.

The CAISO shall issue Dispatch Instructions to Scheduling Coordinators determined pursuant to the RTM throughout any given day.

6.5.5.1 6.2.1 Communications with Scheduling Coordinators.

Communications between the ~~ISO-CAISO~~ and Scheduling Coordinators shall take place via the CAISO's secure communication system direct computer link to a dedicated terminal at the Scheduling Coordinator's scheduling center. If there is a failure of electronic communications with a Scheduling Coordinator, then, at the ~~ISO-CAISO's~~ discretion, the Scheduling Coordinator may communicate by facsimile, ~~but only if the ISO and the Scheduling Coordinator have communicated by telephone in advance.~~ Communication by facsimile requires verbal approval by the CAISO.

6.5.5.1.1 Every 15 minutes, the CAISO will communicate via the secure communication system Start-Up and Shut-Down Instructions and Real-Time AS Awards to internal resources.

6.5.5.1.2 Every 5 minutes for Target T+10, the CAISO will send Dispatch Instructions via the secure communication system. The Dispatch Instruction will be flagged if a resource is being dispatched under its RMR Contract.

6.5.5.2 Public Market Information.

6.5.5.2.1 Every hour the CAISO shall post via OASIS information regarding the status of the RTM. This information shall include but is not limited to the following:

(a) Mitigation indicator.

6.5.5.2.2 Every 15 minutes the CAISO shall post via OASIS information regarding the status of the RTM. This information shall include but is not limited to the following:

(a) Total Real-Time AS Awards by Region; and

(b) Real-Time ASMPs by Bus.

6.5.5.2.3 Every 10 minutes the CAISO shall post via OASIS information regarding the status of the RTM. This information shall include but is not limited to the following:

(a) Settlement Interval LMPs.

6.5.5.2.4 Every 5 minutes the CAISO shall post via OASIS information regarding the status of the RTM. This information shall include but is not limited to the following:

(a) Load forecast;

(b) Total Real-Time Dispatched Energy and Demand;

(c) Real-Time Dispatch Interval LMP;

(d) Real-Time marginal loss costs and average system losses; and

(e) Actual operating reserve.

6.5.6 Market Bid Information.

6.5.6.1 Public Market Information.

6.5.6.1.1 180 days after the operating day, the CAISO will publish the following information excluding Scheduling Coordinators specific information via OASIS:

(a) AS Market Bids;

(b) Energy Market Bids; and

(c) RUC Market Bids.

6.5.6.1.2 30 days after the operating day, the CAISO will publish via OASIS all Minimum Load Costs.

6.9 ISO Postings.

~~6.9.1~~ Information to be Provided by the ISO to all Scheduling Coordinators. By 6:00 p.m. two days prior to a Trading Day, the ISO shall publish on WEnet information, including the following to all Scheduling Coordinators for each Settlement Period of the Trading Day:

~~6.9.1.1~~ **Scheduled Line Outages.** Scheduled transmission line Outages;

~~6.9.1.2~~ **Forecast Loop-Flow.** Forecast Loop Flow over ISO Inter-Zonal Interfaces and Scheduling Points;

~~6.9.1.3~~ **Advisory Demand Forecasts.** Advisory Demand Forecasts by location;

~~6.9.1.4~~ **Updated Transmission Loss Factors.** Updated Generation Meter Multipliers reflecting Transmission Losses to be supplied by each Generating Unit and by each import into the ISO Control Area;

~~6.9.1.5~~ **Ancillary Services.** Expected Ancillary Services requirement by reference to Zones for each of the reserve Ancillary Services.

~~6.9.2~~ **Public Dissemination of Information: Day-Ahead.**

| By 3:00 p.m. of the day preceding the Trading Day, the ISO shall make available to all Market Participants the following information on the scheduling of Ancillary Services: Ancillary Service | Quantity Units | Period | Clearing Prices |
|---|----------------|--------|-----------------|
| Regulation/AGC | MW | Hourly | \$/MW |
| Spinning Reserve | MW | Hourly | \$/MW |
| Non-Spinning Reserve | MW | Hourly | \$/MW |

| | | | |
|---------------------|----|--------|-------|
| Replacement Reserve | MW | Hourly | \$/MW |
| Black Start | MW | Annual | \$/MW |

7 SYSTEM OPERATIONS UNDER NORMAL AND EMERGENCY OPERATING CONDITIONS.

7.1 CAISO Control Center Operations.

~~7.1.1~~ ~~ISO~~ Control Center.

7.1.1.1 ~~Establish~~Maintain ~~ISO~~ CAISO Control Center.

The ~~ISO~~ CAISO shall ~~establish~~ maintain a WECC approved Control Area and control center to direct the operation of all facilities forming part of the ~~ISO~~ CAISO Controlled Grid, ~~including~~ Reliability Must-Run Units, System Resources, and Generating Units providing Ancillary Services. ~~7.1.4~~ ~~Primary~~ CAISO ~~Control Center~~. The Primary CAISO Control Center shall have Operational Control over:

- (a) all transmission lines greater than 230kV and associated station equipment on the ~~ISO~~ CAISO Controlled Grid;
- (b) all Interconnections; and
- (c) all 230 kV and lower voltage transmission lines and associated station equipment identified in the CAISO Register as that portion of the CAISO Controlled Grid located in the PG&E PTO Service Territory.

7.1.2 ~~Establish~~ Maintain Back-up Control Facility.

The ~~ISO~~ CAISO shall ~~establish~~ maintain back-up control facilities remote from the ~~ISO~~ CAISO Control Center sufficient to enable the ~~ISO~~ CAISO to continue to direct the operation of the ~~ISO~~ CAISO Controlled Grid, Reliability Must-Run Units, System Resources and Generating Units providing Ancillary Services in the event of the ~~ISO~~ CAISO Control Center becoming inoperable. ~~7.1.5~~ ~~Backup~~ CAISO ~~Control Center~~. The Backup CAISO Control Center shall have Operational Control over all 230 kV and lower voltage transmission lines and associated station equipment identified in the CAISO Register as that portion of the CAISO Controlled Grid located in the SCE and SDGE PTO Service Territories.

7.1.3 CAISO Control Center Authorities.

The ~~ISO~~ CAISO shall have full authority, subject to ~~Section 4.2~~ this CAISO Tariff, to direct the operation of the facilities referred to in Section 7.1.1 and 7.1.2 including (without limitation), to:

- (a) direct the physical operation by the Participating TOs of transmission facilities under the Operational Control of the CAISO, including (without limitation) circuit breakers, switches, voltage control equipment, protective relays, metering, and Load Shedding equipment;
- (b) commit and dispatch Reliability Must-Run Units, except that the ~~ISO~~ CAISO shall only commit Reliability Must-Run Generation for Ancillary Services capacity according to Section ~~30.6.4~~ 41 of the Tariff;
- (c) order a change in operating status of auxiliary equipment required to control voltage or frequency;
- (d) take any action it considers to be necessary consistent with Good Utility Practice to protect against uncontrolled losses of Load or Generation and/or equipment damage resulting from unforeseen occurrences;
- (e) control the output of Generating Units, Interconnection schedules, and System Resources that are selected to provide Ancillary Services or ~~Imbalance~~ Energy;
- (f) ~~dispatch: (i)~~ Dispatch Curtailable Demand which has been scheduled to provide Non-Spinning Reserve ~~or Replacement Reserve,~~ **or (ii) Loads through direct Load control or other means at the CAISO's discretion that are curtailable as an Ancillary Service;**
- (g) procure ~~Supplemental~~ Energy for a threatened or imminent System Emergency; and
- (h) require the operation of resources which are at the CAISO's disposal in a System Emergency, as described in Section 7.7.4.

The ~~ISO~~ CAISO will exercise its authority under this Section 7.1.3 by issuing Dispatch Instructions to the relevant Market Participants using the relevant communications method described in ~~Section 34.3.6~~ this CAISO Tariff.

~~7.1.4~~ Primary ISO Control Center.

~~The Primary ISO Control Center shall have Operational Control over:~~

~~(a) all transmission lines greater than 230kV and associated station equipment on the ISO Controlled Grid;~~

~~(b) all Interconnections; and~~

~~(c) all 230 kV and lower voltage transmission lines and associated station equipment identified in the ISO Register as that portion of the ISO Controlled Grid located in the PG&E PTO Service Territory.~~

~~7.1.5 Backup ISO Control Center.~~

~~The Backup ISO Control Center shall have Operational Control over all 230 kV and lower voltage transmission lines and associated station equipment identified in the ISO Register as that portion of the ISO Controlled Grid located in the SCE and SDGE PTO Service Territories.~~

7.2 Operating Reliability Criteria.

~~7.2.2.3 Standards to be Observed.~~ The CAISO shall exercise Operational Control over the CAISO Controlled Grid in compliance with all Applicable Reliability Criteria. ~~7.2.2.3.1 Applicable Reliability Criteria.~~ The Applicable Reliability Criteria are ~~defined as~~ the standards established by NERC, WECC and Local Reliability Criteria and include the requirements of the Nuclear Regulatory Commission (NRC) all as modified from time to time.

7.2.1 Reliability Coordinator.

The ~~ISO-CAISO~~ shall be the WECC ~~reliability-Reliability coordinator-Coordinator~~ for the ~~ISO-CAISO~~ Controlled Grid. As Reliability Coordinator, the CAISO, in conjunction with the other WECC Reliability Coordinators, will be responsible for the stable and reliable operation of the Western Interconnection in accordance with the WECC Regional Security Plan.

~~7.2.1.1 Reliability Coordinator.~~

As Reliability Coordinator, the ~~ISO-CAISO~~ may direct activities as appropriate to curtail Schedules, Dispatch Generation or impose transfer limitations as necessary to relieve grid Congestion, mitigate potential overloads or eliminate operation outside of existing Nomogram criteria.

~~7.2.2 7.2.1.2~~ **Authority of the CAISO as a WECC Reliability Coordinators.**

As a the Reliability Coordinator, the CAISO shall have all the authority prescribed to such entities by the WECC, as amended from time to time, that shall including but not be limited to the following:

- (a) The Reliability Coordinator has the final authority to direct operations before, during and after problems or disturbances that have regional impacts. The WECC Security Monitoring plans include collaboration with sub-regional Reliability Coordinators and Control Area operators to determine actions for anticipated problems. If there is insufficient time, or mutual concurrence is not reached, the Reliability Coordinator is authorized to direct actions and the ~~control-Control a~~Area operators must comply.
- (b) In the event of any situation occurring which is outside those problems already identified in the list of known problems, the Reliability Coordinator shall have the responsibility and authority to implement whatever measures are necessary to maintain System Reliability. Those actions include but are not limited to; interchange curtailment, generation Dispatch adjustment (real power, reactive power and voltage), transmission configuration adjustments, special protection activation, load curtailment and any other action deemed necessary to maintain System Reliability.
- (c) The Reliability Coordinator shall also have the responsibility and authority to take action in its sub-region for problems in another sub-region that it may help resolve. This must be accomplished at the request of and in coordination with the Reliability Coordinators of the other sub-regions.

~~7.2.2~~ **[Not used]**

7.3 Transmission Planning Authority.

~~7.3.1 7.2.2.1~~ The ~~ISO-CAISO~~ shall exercise Operational Control over the ~~ISO-CAISO~~ Controlled Grid to meet planning and Operating Reserve criteria no less stringent than those established by WECC and NERC as those standards may be modified from time to time, and Local Reliability Criteria that are in existence on the ~~ISO-CAISO~~ Operations Date and have been submitted to the ~~ISO-CAISO~~ by each Participating TO pursuant to Section 2.2.1(v) of the TCA. All Market Participants and the ~~ISO-CAISO~~ shall comply with the ~~ISO-CAISO~~ Reliability Criteria, standards, and procedures.

~~7.3.2 7.2.2.2~~ The ~~ISO-CAISO~~ Governing Board may establish planning guidelines more stringent than those established by NERC and WECC as needed for the secure and reliable operation of

the ~~ISO-CAISO~~ Controlled Grid. The ~~ISO-CAISO~~ may revise the Local Reliability Criteria subject to and in accordance with the provisions of the TCA.

~~7.2.2.3~~ ~~Standards to be Observed.~~

~~The ISO shall exercise Operational Control over the ISO Controlled Grid in compliance with all Applicable Reliability Criteria.~~

~~7.2.2.3.1~~ ~~Applicable Reliability Criteria.~~

~~Applicable Reliability Criteria are defined as the standards established by NERC, WECC and Local Reliability Criteria and include the requirements of the Nuclear Regulatory Commission (NRC).~~

~~7.2.2.3.2~~ ~~WECC Criteria (Standards).~~

~~(a) Western Interconnection.~~

~~The WECC set of standards for the Western Interconnection, which are based on the NERC standards.~~

~~The WECC further defines procedures and policies applicable to the Western Interconnection. WECC guidelines include:~~

~~(i) Part 1 — Reliability Criteria for Transmission System Planning~~

~~(ii) Part 2 — Power Supply Design Criteria~~

~~(iii) Part 3 — Minimum Operating Reliability Criteria (MORC)~~

~~(iv) Part 4 — Definitions~~

~~(b) Operating Procedures.~~

~~The WECC Operating Procedures submitted to WECC by individual utilities and the ISO to address specific operating problems in their respective grids that could affect operations of the interconnected grid.~~

~~(c) Dispatcher's Handbook.~~

~~The WECC Dispatcher's Handbook supplied by WECC to all utilities and Control Areas as a reference for dispatchers to use during normal and emergency operations of the grid.~~

~~7.2.2.3.3~~ ~~NERC Policies and Standards.~~

~~(a) National Standards~~

~~The NERC national level standards for all utilities to follow to allow for safe and reliable operation of electric systems.~~

~~(b) Operating Manual~~

~~The NERC Operating Manual supplied by NERC to all utilities and Control Areas as a reference for dispatchers to use during normal and emergency operations of the grid.~~

7.4 ~~7.2.3~~ **General Standard of Care.** When the ~~ISO CAISO~~ is exercising Operational Control of the ~~ISO CAISO~~ Controlled Grid, the ~~ISO CAISO~~ and Market Participants shall comply with Good Utility Practice.

7.2.47.5 **Routine Operation of the CAISO Controlled Grid.** The CAISO shall operate the ~~ISO CAISO~~ Controlled Grid in accordance with the standards described in Section ~~7.2.2.37.2~~ and within the limit of all applicable Nomograms and established operating limits and procedures.

7.2.4.17.5.1 **CAISO Controlled Facilities.**

7.2.4.1.17.5.1.1 **General.**

The ~~ISO CAISO~~ shall have Operational Control of all transmission lines and associated station equipment that have been transferred to the ~~ISO CAISO~~ Controlled Grid from the PTOs as listed in the ~~ISO CAISO~~ Register.

7.2.4.27.5.2 **Clearing Equipment for Work.**

The clearance procedures of the ~~ISO CAISO~~ and the relevant UDC and PTO must be adhered to by all parties, to ensure the safety of all personnel working on ~~ISO CAISO~~ Controlled Grid transmission lines and equipment. In accordance with Section 9.3, no work shall start on any equipment or line which is under the Operational Control of the ~~ISO CAISO~~ unless final approval has first been obtained from the appropriate ~~ISO CAISO~~ Control Center. Prior to starting the switching to return any line or equipment to

service the ISO CAISO shall confirm that all formal requests to work on the cleared line or equipment have been released.

7.2.4.37.5.3 Equipment De-energized for Work.

In some circumstances, System Reliability requirements may require a recall capability that can only be achieved by allowing work to proceed with the line or equipment de-energized only (i.e. not cleared and grounded). Any personnel working on such de-energized lines and equipment must take all precautions as if the line or equipment were energized. Prior to energizing any such lines or equipment de-energized for work, the ISO CAISO shall confirm that all formal requests to work on the de-energized line or equipment have been released.

7.2.4.47.5.4 Hot-Line Work.

The ISO CAISO has full authority to approve requests by PTOs to work on energized equipment under the Operational Control of the ISO CAISO, and no such work shall be commenced until the ISO CAISO has given its approval.

7.2.4.57.5.5 Intertie Switching.

The ISO CAISO and the appropriate single point of contact for the relevant PTO and the adjacent Control Area shall coordinate during the de-energizing or energizing of any Interconnection.

7.2.4.67.5.6 Operating Voltage Control Equipment.

7.2.4.6.17.5.6.1 Operating Voltage Control Equipment Under ISO CAISO Control.

The ISO CAISO will direct each PTO's single point of contact in the operation of voltage control equipment that is under the ISO CAISO's Operational Control.

7.2.4.6.27.5.6.2 Operating Voltage Control Equipment Under UDC Control.

Each UDC must operate voltage control equipment under UDC control in accordance with existing UDC voltage control guidelines.

7.2.4.6.37.5.6.3 Special ISO CAISO Voltage Control Requirements.

The ~~ISO-CAISO~~ may request a PTO via its single point of contact or a UDC via its single point of contact to operate under special voltage control requirements from time to time due to special system conditions.

7.6 ~~7.3~~ Normal System Operations.

7.6.1 ~~7.3.1~~ Actions for Maintaining Reliability of ~~ISO-CAISO~~ Controlled Grid.

The ~~ISO-CAISO~~ ~~plans shall to~~ obtain the control over Generating Units that it needs to control the ~~ISO-CAISO~~ Controlled Grid and maintain reliability by ~~purchasing-ensuring that sufficient~~ **Energy and** Ancillary Services ~~are procured through the CAISO Markets from the market auction for these services~~. When the ~~ISO-CAISO~~ responds to events or circumstances, it shall first use the generation control it is able to obtain from the **Energy and** Ancillary Services ~~bids-Bids~~ it has received to respond to the operating event and maintain reliability. Only when the ~~ISO-CAISO~~ has used the **Energy and** Ancillary Services that are available to it under such **Energy and** Ancillary Services ~~bids-Bids~~ which prove to be effective in responding to the problem and the ~~ISO-CAISO~~ is still in need of additional control over Generating Units, shall the ~~ISO-CAISO~~ assume supervisory control over other Generating Units. It is expected that at this point, the operational circumstances will be so severe that a ~~Real-Time~~ system problem or emergency condition could be in existence or imminent.

Each Participating Generator shall take, at the direction of the ~~CAISO~~, such actions affecting such Generator as the ~~ISO-CAISO~~ determines to be necessary to maintain the reliability of the ~~ISO-CAISO~~ Controlled Grid. Such actions shall include (but are not limited to):

- (a) compliance with ~~the ISO's~~ Dispatch ~~i~~nstructions including instructions to deliver **Energy and** Ancillary Services in ~~real-time~~**Real-Time** pursuant to the ~~AS Awards, Final~~ Day-Ahead Schedules and ~~Final Hour Ahead~~**HASP Intertie** Schedules, ~~and HASP AS Awards~~;
- (b) compliance with the system operation requirements set out in Section 7 of this ~~ISO-CAISO~~ Tariff;
- (c) notification to the ~~ISO-CAISO~~ of the persons to whom an instruction of the ~~ISO-CAISO~~ should be directed on a 24-hour basis, including their telephone and facsimile numbers; and
- (d) the provision of communications, telemetry and direct control requirements, including the establishment of a direct communication link from the control room of the Generator to the ~~ISO-CAISO~~ in

a manner that ensures that the ~~ISO-CAISO~~ will have the ability, consistent with this ~~ISO-CAISO~~ Tariff and the ~~ISO-Protocols~~, to direct the operations of the Generator as necessary to maintain the reliability of the ~~ISO-CAISO~~ Controlled Grid, except that a Participating Generator will be exempt from ~~ISO-CAISO~~ requirements imposed in accordance with this subsection (d) with regard to any Generating Unit with a rated capacity of less than 10 MW, unless that Generating Unit is certified by the ~~ISO-CAISO~~ to ~~participate in the~~ provide Ancillary Services, ~~ISO's Ancillary Services and/or to submit Supplemental Energy bids.~~

7.7.7.4 **Management of System Emergencies.**

7.7.1 7.4.3.4 **System Emergency.**

When, in the judgment of the CAISO, the System Reliability of the ~~ISO-CAISO~~ Controlled Grid is in danger of instability, voltage collapse or under-frequency caused by transmission or Generation trouble in the ~~ISO-CAISO~~ Control Area, or events outside of the ~~ISO-CAISO~~ Control Area that could result in a cascade of events throughout the WECC grid, the ~~ISO-CAISO~~ will declare a System Emergency. This declaration may include a notice to suspend the Day-Ahead Market, HASP and ~~Hour Ahead and Real-~~ Time Markets, authorize full use of Black Start Generation, initiate full control of manual Load Shedding, authorize the curtailment of Curtailable Demand (even though not scheduled as an Ancillary Service). The ~~ISO-CAISO~~ will reduce the System Emergency declaration to a lower alert status when it is satisfied, after conferring with Reliability Coordinators within the WECC that the major contributing factors have been corrected, all involuntarily interrupted Demand is back in service (except interrupted Curtailable Demand selected as an Ancillary Service). This reduction in alert status will reinstate the competitive markets if they have been suspended.

7.7.2 7.4.2 **Emergency Procedures.**

In the event of a System Emergency, the ~~ISO-CAISO~~ shall take such action as it considers necessary to preserve or restore stable operation of the ~~ISO-CAISO~~ Controlled Grid. The ~~ISO-CAISO~~ shall act in accordance with Good Utility Practice to preserve or restore reliable, safe and efficient service as quickly as reasonably practicable. The ~~ISO-CAISO~~ shall keep system operators in adjacent Control Areas

informed as to the nature and extent of the System Emergency in accordance with WECC procedures and, where practicable, shall additionally keep the Market Participants within the Control Area informed.

7.7.2.1 ~~7.4.1~~ Declarations of System Emergencies.

The ~~ISO~~ CAISO shall, when it considers that conditions giving rise to a System Emergency exist, declare the existence of such System Emergency. A declaration by the ~~ISO~~ CAISO of a System Emergency shall be binding on all Market Participants until the ~~ISO~~ CAISO announces that the System Emergency no longer exists.

7.7.2.2 ~~7.4.2.1~~ Responsibilities of UDCs and MSSs During a System Emergency.

In the event of a System Emergency, UDCs shall comply with all directions from the ~~ISO~~ CAISO concerning the management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set out in this CAISO Tariff, the Business Practice Manuals, and the Operating Procedures ~~and the ISO Protocols~~, and each MSS Operator shall comply with all directions from the ~~ISO~~ CAISO concerning the avoidance, management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set forth in the ~~ISO~~ CAISO Tariff, Business Practice Manuals and Operating Procedures. ~~7.4.2.2~~ During a System Emergency, the ~~ISO~~ CAISO and UDCs shall communicate through their respective control centers and in accordance with procedures established in individual UDC operating agreements, and the ~~ISO~~ CAISO and the MSS Operator shall communicate through their respective control centers and in accordance with procedures established in the agreement through which the MSS Operator undertakes to the ~~ISO~~ CAISO to comply with the provisions of the ~~ISO~~ CAISO Tariff.

7.7.2.3 ~~7.4.2.3~~ System Emergencies. Responsibilities of Generating Units, System Units and System Resources during System Emergencies. ~~7.4.2.4~~

~~7.4.2.4~~ All Generating Units, System Units and System Resources that are owned or controlled by a Participating Generator are (without limitation to the CAISO's other rights under this ~~ISO~~ CAISO Tariff) subject to control by the ~~ISO~~ CAISO during a System Emergency and in circumstances in which the ~~ISO~~ CAISO considers that a System Emergency is imminent or threatened. The ~~ISO~~ CAISO shall, subject to Section ~~7.4.4.1~~, have the authority to instruct a Participating Generator to bring its Generating Unit on-line, off-line, or increase

or curtail the output of the Generating Unit and to alter scheduled deliveries of Energy and Ancillary Services into or out of the ~~ISO~~ CAISO Controlled Grid, if such an instruction is reasonably necessary to prevent an imminent or threatened System Emergency or to retain Operational Control over the ~~ISO~~ CAISO Controlled Grid during an actual System Emergency. The ~~ISO~~ CAISO shall have the authority to instruct an RMR Unit whose owner has selected Condition 2 of its RMR Contract to start-up and change its output if the ~~ISO~~ CAISO has reasonably used all other available and effective resources to prevent a threatened System Emergency without declaring that a System Emergency exists. ~~If~~ If the ~~ISO~~ CAISO so instructs a Condition 2 RMR Unit, it shall compensate that unit in accordance with Section ~~41.2.4.2~~11.5.6.3 and allocate the costs in accordance with Section ~~41.2.4.2.1~~11.5.6.3.2.

~~7.7.3~~ 7.4.3.1 ~~Notifications by ISO~~ CAISO of System Conditions.

The ~~ISO~~ CAISO will provide the following notifications to Market Participants to communicate unusual system conditions or emergencies.

~~7.7.3.1~~ 7.4.3.2 ~~System Alert.~~

CAISO will give a system Alert Notice when the operating requirements of the ~~ISO~~ CAISO Controlled Grid are marginal because of Demand exceeding forecast, loss of major Generation or loss of transmission capacity that has curtailed imports into the ~~ISO~~ CAISO Control Area, or if it otherwise appears that there is insufficient the HASP is short on scheduled Energy and Ancillary Services to meet Real-Time Demand infor the ~~ISO~~ CAISO Control Area.

~~7.7.3.2~~ 7.4.3.3 ~~System Warning.~~

The ~~ISO~~ CAISO will give a system warning notice when the operating requirements for the ~~ISO~~ CAISO Controlled Grid are not being met in the ~~Hour-Ahead Market~~HASP or ~~Real-Time Market~~, or the quantity of Regulation, Spinning Reserve, Non-Spinning Reserve, ~~Replacement Reserve~~ and ~~Supplemental~~ Energy available to the ~~ISO~~ CAISO is not acceptable for the Applicable Reliability Criteria. This system warning notice will notify Market Participants that the ~~ISO~~ CAISO will, acting in accordance with Good Utility Practice, take such steps as it considers necessary to ensure compliance with Applicable Reliability Criteria, including the negotiation of Generation through processes other than competitive ~~bids~~Bids.

~~7.4.3.4~~ System Emergency.

~~When, in the judgment of the ISO, the System Reliability of the CAISO Controlled Grid is in danger of instability, voltage collapse or under frequency caused by transmission or Generation trouble in the CAISO Control Area, or events outside of the CAISO Control Area that could result in a cascade of events throughout the WECC grid, the CAISO will declare a System Emergency. This declaration may include a notice to suspend the Day Ahead, Hour Ahead and Real Time Markets, authorize full use of Black Start Generation, initiate full control of manual Load Shedding, authorize the curtailment of Curtailable Demand (even though not scheduled as an Ancillary Service). The CAISO will reduce the System Emergency declaration to a lower alert status when it is satisfied, after conferring with Reliability Coordinators within the WECC that the major contributing factors have been corrected, all involuntarily interrupted Demand is back in service (except interrupted Curtailable Demand selected as an Ancillary Service). This reduction in alert status will reinstate the competitive markets if they have been suspended.~~

~~7.7.4~~ ~~7.4.4~~ Intervention in CAISO Market Operations.

~~The ISO-CAISO may intervene in the operation of the CAISO Markets ~~Day Ahead Market, the Hour Ahead Market or the Real Time Market~~ and set the Administrative Price, if the ~~ISO-CAISO~~ determines that such intervention is necessary in order to prevent, contain or correct a System Emergency as follows.~~

~~**7.4.4.1** **1)**~~ ~~The ~~ISO-CAISO~~ will not intervene in the operation of the Day-Ahead Market unless there has been a total or major collapse of the ~~ISO-CAISO~~ Controlled Grid and the ~~ISO-CAISO~~ is in the process of restoring it. The ~~ISO-CAISO~~ shall, where reasonably practicable, utilize Ancillary Services which it has the contractual right to instruct and which are capable of contributing to containing or correcting the actual, imminent or threatened System Emergency prior to issuing instructions to a Participating Generator under Section ~~7.4.2.4~~7.2.3. In the event that the CAISO has exhausted all Economic Bids in the IFM, the CAISO shall use the scheduling priorities listed in Section 31.4 to clear the IFM.~~

~~**7.4.4.2** **2)**~~ ~~Before any such intervention the ~~ISO-CAISO~~ must (in the following order): (a) dispatch all Supply Bids ~~scheduled Generation and all other Generation~~ offered or available to it regardless of price (including all Adjustment Bids, Supplemental Energy ~~b~~Bids, Ancillary Services Bids)~~

~~and reserves~~); (b) dispatch all interruptible Loads made available by UDCs to the ~~ISO~~ CAISO in accordance with the relevant agreements with UDCs; (c) dispatch or curtail all price-responsive Demand that has been bid into ~~any of the markets~~the Day Ahead Market and exercise its rights under all load curtailment contracts available to it; (d) exercise Load Shedding to curtail Demand on an involuntary basis to the extent that the ~~ISO~~ CAISO considers necessary.

~~7.4.4.3~~ 3) The Administrative Price in relation to each of the markets for Imbalance Energy and Ancillary Services shall be set at the applicable ~~Market Clearing Price~~ price in the Settlement Period immediately preceding the Settlement Period in which the intervention took place. ~~When Administrative Prices are imposed, Inter-Zonal Congestion will be managed in accordance with Section 27.1.1.6(c).~~

~~7.4.4.4~~ 4) The intervention will cease as soon as the ~~ISO~~ CAISO has restored all Demand that was curtailed on an involuntary basis ~~under Section 7.4.4.2(d).~~

~~7.7.5~~ 7.4.5 **Emergency Guidelines.**

The ~~ISO~~ CAISO shall issue ~~protocols~~ guidelines for all Market Participants to follow during a System Emergency. These guidelines shall be consistent with the specific obligations of Scheduling Coordinators and Market Participants referenced in Sections ~~7.4.10~~7.10, ~~7.4.11~~7.11, ~~7.4.27~~7.2, ~~7.4.24~~7.2.3 and ~~7.4.4.17~~7.4(1) of this tariff. All Market Participants shall respond to CAISO Dispatch Instructions with an immediate response during System Emergencies.

~~7.7.5.1~~ 7.4.6 The ~~ISO~~ CAISO shall in accordance with Section ~~7.4.57~~7.5 hereof implement the Electrical Emergency Plan in consultation with the UDCs, the MSS Operator, or other entities, at the CAISO's discretion, when Energy reserve margins are forecast to be at the levels specified in the plan.

~~7.7.5.2~~ 7.4.6.1 Each UDC and MSS Operator will notify its End-Use Customers connected to the UDC's or the MSS's Distribution System of any voluntary curtailments notified to the UDC or to the MSS Operator by the ~~ISO~~ CAISO pursuant to the provisions of the EEP.

~~7.7.6~~ 7.4.7 **Periodic Tests of Emergency Procedures.**

The ~~ISO~~ CAISO shall develop and administer periodic unannounced tests of System Emergency procedures. Such tests shall be designed to ensure that the ~~ISO~~ CAISO Market Participants are capable of promptly and efficiently responding to imminent or actual System Emergencies.

~~7.7.7 7.4.8~~ **_____ Prioritization Schedule for Shedding and Restoring Load.**

~~Prior to the ISO Operations Date, and annually thereafter, On an annual basis,~~ the ~~ISO~~ CAISO shall, in consultation with Market Participants and subject to the provisions of Section 3, develop a prioritization schedule for Load Shedding should a System Emergency require such action. The prioritization schedule shall also establish a sequence for the restoration of Load in the event that multiple Scheduling Coordinators or Market Participants are affected by service interruptions and Load must be restored in blocks. For Load shed in accordance with Section ~~7.4.11.4.27.7.11.4.2~~, the prioritization schedule will only include those UDCs or MSS Operators that have Scheduling Coordinators that have failed to submit Bids with are scheduling in sufficient resources to meet the Load in the UDC or MSS Service Area. For Load shed in accordance with Section ~~7.4.11.4.37.7.11.4.3~~, the prioritization schedule will include all UDCs and MSS Operators.

~~7.4.97.7.8~~ **_____ Under Frequency Load Shedding (UFLS).**

~~7.7.8.1 7.4.9.1~~ Each UDC's agreement with the ~~ISO~~ CAISO and each agreement through which the MSS Operator undertakes to the ~~ISO~~ CAISO to comply with the provisions of the ~~ISO~~ CAISO Tariff shall describe the UFLS program for that UDC or for that MSS. The ~~ISO~~ CAISO and UDC or the ~~ISO~~ CAISO and the MSS shall review the UFLS program periodically to ensure compliance with Applicable Reliability Criteria.

~~7.7.8.2 7.4.9.2~~ **_____** The ~~ISO~~ CAISO shall perform periodic audits of each UDC's UFLS system and of each MSS's UFLS system to verify that the system is properly configured for each UDC or MSS.

~~7.7.9 7.4.9.3~~ The ~~ISO~~ CAISO will use its reasonable endeavors to ensure that UFLS is coordinated among the UDCs and MSSs so that no UDC bears a disproportionate share of the CAISO's UFLS program.

~~7.7.9.1~~ ~~7.4.9.4~~ In compiling its UFLS program, the CAISO, at its discretion, may also coordinate with other entities, review and audit their UFLS programs and systems as described in ~~Section~~ Sections ~~7.4.9.17.7.8.1~~ to ~~7.4.9.37.7.9~~.

7.7.10 ~~7.4.10~~ **Further Obligations Relating to System Emergencies.**

The ~~ISO~~ CAISO and Participating TOs shall comply with their obligations in Section 9 of the TCA.

7.7.11 ~~7.4.11~~ **Use of Load Curtailment Programs.**

7.7.11.1 ~~7.4.11.1~~ **Use of UDC's Existing Load Curtailment Programs.**

As an additional resource for managing System Emergencies, the ~~ISO~~ CAISO will, subject to Section 3, notify the UDCs when the conditions to implement their Load curtailment programs have been met in accordance with their terms. The UDCs will exercise their best efforts, including seeking any necessary regulatory approvals, to enable the ~~ISO~~ CAISO to rely on their curtailment rights at specified levels of Operating Reserve. Each UDC shall by not later than October 1 of each year advise the ~~ISO~~ CAISO of the capabilities of its Load curtailment programs for the forthcoming year, and the conditions under which those capabilities may be exercised and shall give the ~~ISO~~ CAISO as much notice as reasonably practicable of any change to such programs.

7.7.11.2 ~~7.4.11.2~~ **Load Curtailment.**

A Scheduling Coordinator may specify that Loads will be reduced at specified Market Clearing Prices or offer the right to exercise Load curtailment to the ~~ISO~~ CAISO as an Ancillary Service or utilize Load curtailment itself (by way of self-provision of Ancillary Services) as Non-Spinning Reserve ~~or Replacement Reserve~~. The CAISO, at its discretion, may require direct control over such Curtailable Demand to assume response capability for managing System Emergencies. However, non-firm Loads shall not be eligible to provide Curtailable Demand if they are receiving incentives for interruption under existing programs approved by a Local Regulatory Authority, unless: a) participation in the CAISO's Ancillary Services markets is specifically authorized by such Local Regulatory Authority, and b) there exist no contingencies on the availability, nor any unmitigated incentives encouraging prior curtailment, of such interruptible Load for Dispatch as Curtailable Demand as a result of the operation of such existing

program. The ~~ISO~~ CAISO may establish standards for automatic communication of curtailment instructions to implement Load curtailment as a condition for accepting any offered Load curtailment as an Ancillary Service.

~~The ISO may establish standards for automatic communication of curtailment instructions to implement Load curtailment as a condition for accepting any offered Curtailable Demand as an Ancillary Service.~~

7.7.11.3 7.4.11.3 The ~~ISO~~ CAISO shall have the authority to direct a UDC or an MSS Operator to disconnect Load from the ~~ISO~~ CAISO Controlled Grid if necessary to avoid an anticipated System Emergency or to regain ~~operational~~ Operational control over the ~~ISO~~ CAISO Controlled Grid during an actual System Emergency. The ~~ISO~~ CAISO shall direct the UDCs or the MSS Operator to shed Load in accordance with the prioritization schedule developed pursuant to Section ~~7.4.87.7.7~~. When ~~ISO~~ CAISO Controlled Grid conditions permit restoration of Load, the ~~ISO~~ CAISO shall restore Load according to the prioritization schedule developed pursuant to Section ~~7.4.87.7.7~~ hereof. The MSS Operator shall restore Load internal to the MSS.

7.7.11.4 7.4.11.4 Load Shedding.

7.7.11.4.1 7.4.11.4.1 A portion of the ~~ISO~~ CAISO forecast of Control Area Load for each Trading Day will be allocated to each UDC or MSS Service Area. The ~~ISO~~ CAISO will aggregate each Scheduling Coordinator's Day-Ahead Schedules to Load in each UDC or MSS Service Area and will compare those aggregated Load Schedules to the ~~ISO's~~ CAISO's Control Area Load forecast of metered Demand for that UDC or MSS Service Area to determine if the Load in the UDC or MSS Service Area has a resource deficiency based on the Day-Ahead Schedules.

7.7.11.4.2 7.4.11.4.2 If the ~~ISO~~ CAISO forecasts in advance of the ~~Hour-Ahead Market~~ HASP that Load curtailment will be necessary due to a resource deficiency, the ~~ISO~~ CAISO will identify any UDC or MSS Service Area that is resource deficient. The ~~ISO~~ CAISO will provide notice to all Scheduling Coordinators if one or more UDC or MSS is deficient. If Load curtailment is required to manage a System Emergency associated with insufficient ~~Hour-Ahead~~ HASP Schedules of resources, the ~~ISO~~ CAISO will determine the amount and location of Load to be curtailed and will allocate a portion of that required Load

curtailment to each UDC or MSS Operator whose Service Area has been identified, based on ~~Hour-~~
~~Ahead~~[HASP](#) Schedules, as being resource-deficient based on the ratio of its resource deficiency to the
total Control Area resource deficiency. Each UDC or MSS Operator shall be responsible for notifying its
customers and Generators connected to its system of curtailments and service interruptions.

~~7.7.11.4.3~~ ~~7.4.11.4.3~~ If a Load curtailment is required to manage System Emergencies, in any
circumstances other than those described in Section ~~7.4.11.4.2~~~~7.7.11.4.2~~, the ~~ISO~~ [CAISO](#) will determine
the amount and location of Load to be reduced and to the extent practicable, will allocate a portion to
each UDC based on the ratio of its Demand (at the time of the Control Area annual peak for the previous
year) to total Control Area annual peak Demand for the previous year taking into account system
considerations and the UDC's curtailment rights under their tariffs. Each UDC or MSS Operator shall be
responsible for notifying its customers and Generators connected to its system of curtailments and
service interruption.

~~7.7.12~~ ~~7.4.12~~ **Curtailment under Emergency and Non-Emergency Conditions.**

~~7.7.12.1~~ ~~7.4.12.1~~ **Emergency Conditions.**

To the extent practicable, the ~~ISO~~ [CAISO](#) shall allocate necessary curtailments of Existing Rights or Non-
Converted Rights under emergency conditions in accordance with the instructions submitted by the
Responsible PTO pursuant to Section 16.~~2.4A.1~~. If circumstances prevent the ~~ISO's~~[CAISO's](#) compliance
with such instructions, the ~~ISO~~ [CAISO](#) shall allocate such curtailments in a non-discriminatory manner
consistent with Good Utility Practice.

~~7.7.12.2~~ ~~7.4.12.2~~ **Non-Emergency Conditions.**

Unless otherwise specified by the Responsible PTO in the instructions that it submits to the ~~ISO~~ [CAISO](#)
under Section 16.~~2.4A.1~~, the ~~ISO~~ [CAISO](#) will allocate any necessary curtailments under non-emergency
conditions, pro rata, among holders of Existing Rights, at particular Scheduling Points and/or on particular
contract paths, in the order of: (1) non-firm, (2) each priority of conditional firm, and (3) each priority of
firm rights. Priorities for firm and conditional firm transmission service are indicated using [the TRTC](#)
[Instructions contract usage templates](#), as described in Section ~~16~~~~30~~~~2~~~~7~~.

7.7.13 ~~7.4.13~~ **System Emergency Reports and Sanctions.**

7.7.13.1 ~~7.4.13.1~~ **Review of Major Outages.**

The ~~ISO~~ CAISO with the cooperation of any affected UDC shall jointly perform a review following a major Outage that affects at least ten (10) percent of the Load served by the Distribution System of a UDC or any Outage that results in major damage to the ~~ISO~~ CAISO Controlled Grid or to the health and safety of personnel. The review shall address the cause of the Outage, the response time and effectiveness of emergency management efforts, and whether the operation, maintenance or scheduling practices of the CAISO, any Participating TOs, Eligible Customers, UDCs or Participating Generators enhanced or undermined the ability of the ~~ISO~~ CAISO to maintain or restore service efficiently and in a timely manner.

7.7.13.2 ~~7.4.13.2~~ **Provide Information to Review Outages.**

Participating TOs, Participating Generators, Eligible Customers, Scheduling Coordinators and UDCs shall promptly provide information requested by the ~~ISO~~ CAISO to review Outages pursuant to Section ~~7.4.13.17~~ 7.7.13.1 and to prepare Outage reports. The ~~ISO~~ CAISO shall seek the views of any affected Participating TOs, Participating Generators, Eligible Customers, Scheduling Coordinator or UDCs and allow such affected Participating TOs, Participating Generators, Eligible Customers, Scheduling Coordinators or UDCs to comment on any issues arising during the preparation of a report. All findings and reports arising from the ~~ISO's~~ CAISO's review shall be shared with Participating TOs, Participating Generators, Eligible Customers and UDCs.

7.7.13.3 ~~7.4.13.3~~ **Imposing Sanctions.**

If the ~~ISO~~ CAISO finds that the operation and maintenance practices of any Participating TOs, Participating Generators, Eligible Customers, or UDCs prolonged the response time or contributed to the Outage, the ~~ISO~~ CAISO may impose sanctions on the responsible Participating TOs, Participating Generators, Eligible Customers, or UDCs provided that no sanction shall be imposed in respect of actions taken in compliance with the CAISO's instructions or pursuant to a Remedial Action Scheme. The ~~ISO~~ CAISO shall develop and file with FERC a schedule of such sanctions. Any dispute concerning whether sanctions should be imposed under this Section shall be resolved through the ~~ISO~~ CAISO ADR

Procedures. The schedule of sanctions filed with FERC (including categories and levels of sanctions) shall not be subject to the ~~ISO-CAISO~~ ADR Procedures. The ~~ISO-CAISO~~ shall publish on the ~~ISO-CAISO Home Page~~ [Website](#) details of all instances in which a sanction has been imposed.

~~7.7.14~~ ~~7.4.14~~ **CAISO Facilities and Equipment.**

~~7.7.14.1~~ ~~7.4.14.1~~ **CAISO Facility and Equipment Outages.**

The ~~ISO-CAISO~~ has installed redundant control centers, communication systems and computer systems. Most, but not necessarily all, equipment problems or failures should be transparent to [Market](#) Participants. This Section ~~7.4.14.1~~ ~~7.7.14.1~~ addresses some situations when [Market](#) Participants could be affected, but it is impossible to identify and plan for every type of equipment problem or failure. ~~Real-time~~ **Real-Time** situations will be handled by the ~~real-time~~ **Real-Time** ~~ISO-CAISO~~ dispatchers. The ~~ISO-CAISO~~ control room in Folsom is the Primary ~~ISO-CAISO~~ Control Center and the ~~ISO-CAISO~~ control room in Alhambra is the Backup ~~ISO-CAISO~~ Control Center.

~~7.7.14.2~~ ~~7.4.14.2~~ **WEnet-CAISO's Secure Communication System Unavailable.**

~~7.7.14.2.1~~ ~~7.4.14.2.1~~ **Unavailable Critical Functions of WEnet-CAISO's Secure Communication System.**

During a total disruption of the ~~WEnet-CAISO's secure communication system~~ several critical functions of the ~~ISO-CAISO~~ will not be available including:

- (a) the Scheduling Infrastructure (SI) computer will not be able to communicate with Scheduling Coordinators to receive any type of updated Schedule information;
- (b) the SI computer will not be able to communicate Congestion Management information and Schedule changes to the Scheduling Coordinators; and
- (c) the ~~ISO-CAISO~~ will not be able to communicate general information, including emergency information, to any [Market](#) Participants.

~~7.4.14.2.2~~ ~~7.7.14.2.2~~ **Communications during WEnet-Unavailability of CAISO's Secure Communication System.**

During any period of ~~WEnet~~CAISO's secure communication system unavailability, the ~~ISO~~CAISO shall:

- (a) make all reasonable efforts to keep Market Participants aware of current ~~CAISO~~ISO Controlled Grid status using voice communications;
- (b) use the most recent set of ~~Balanced Day-Ahead Schedules, RUC Schedules, AS Awards, HASP Intertie Schedules, and Dispatch Instructions~~ for each Scheduling Coordinator for the current and all future Settlement Periods and/or Trading Days until the ~~WEnet~~CAISO's secure communication system is restored; and
- (c) attempt to take critical ~~Bids, ETC and TOR Self-Schedules~~Schedule changes from Scheduling Coordinators via voice communications as time and manpower allows.

~~7.4.14.2.3~~7.14.2.3 Primary ~~ISO~~CAISO Control Center – Loss of all Voice Communications.

In the event of loss of all voice communication at the Primary ~~CAISO~~ISO Control Center, the Primary ~~CAISO~~ISO Control Center will use alternate communications to notify the Backup ~~CAISO~~ISO Control Center of the loss of voice communications. The Backup ~~CAISO~~ISO Control Center will post information on the situation on the ~~WEnet~~CAISO's secure communication system. Additional voice notifications will be made as time permits. Once voice communications have been restored to the Primary ~~CAISO~~ISO Control Center, the ~~CAISO~~ISO will post this information on the ~~WEnet~~CAISO's secure communication system.

~~7.4.14.2.4~~7.14.2.4 Primary ~~ISO~~CAISO Control Center – Control Center Completely Unavailable.

In the event that the Primary ~~CAISO~~ISO Control Center becomes completely unavailable, the Primary ~~CAISO~~ISO Control Center will use alternate communications to notify the Backup ~~CAISO~~ISO Control Center that the Primary ~~CAISO~~ISO Control Center is unavailable. The Backup ~~CAISO~~ISO Control Center will post information on the situation on the ~~WEnet~~CAISO's secure communication system. Additional voice notifications will be made as time permits.

The Backup ~~CAISO~~ISO Control Center will post confirmation on the ~~WEnet~~CAISO's secure communication system that all computer systems are functioning normally (if such is the case) and take

complete control of the ~~CAISO~~ Controlled Grid. The Backup ~~CAISO~~ Control Center will notify the TOC by direct voice communication of the situation.

Once the Primary ~~CAISO~~ Control Center is again available, all functions will be transferred back, and the Primary ~~CAISO~~ Control Center will notify all Market Participants via the ~~WEnet~~CAISO's secure communication system.

7.4.14.2.5 Primary ~~CAISO~~ Control Center - ~~CAISO~~ Energy Management System (EMS) Unavailable.

Should an outage occur to the redundant EMS computer systems in the Primary ~~ISO-CAISO~~ Control Center, an auto transfer should occur to transfer EMS operation to the redundant EMS back up computers at the Backup ~~ISO-CAISO~~ Control Center. Due to the severity of a total ~~CAISO~~ EMS computer outage, the Primary ~~CAISO~~ Control Center will post information on the ~~WEnet~~CAISO's secure communication system that the Primary ~~CAISO~~ Control Center EMS computer is unavailable and that EMS control has been transferred to the Backup ~~CAISO~~ Control Center.

When the Primary ~~CAISO~~ Control Center EMS computer is restored, the Backup ~~CAISO~~ Control Center will initiate a transfer back of the EMS system to the Primary ~~CAISO~~ Control Center. The Primary ~~CAISO~~ Control Center will post information on the restored EMS computer system status on the ~~WEnet~~CAISO's secure communication system.

7.4.14.2.6 Backup ~~CAISO~~ Control Center – Loss of all Voice Communications.

In the event of a loss of all voice communications at the Backup ~~ISO-CAISO~~ Control Center, the Backup ~~CAISO~~ Control Center will use alternate communications to notify the Primary ~~CAISO~~ Control Center of the loss of voice communications. The Primary ~~CAISO~~ Control Center will post information on the situation via the ~~WEnet~~CAISO's secure communication system. Additional voice notifications will be made as time permits.

Once voice communications have been restored to the Backup ~~CAISO~~ Control Center, the Primary ~~CAISO~~ Control Center will post this information on the ~~WEnet~~CAISO's secure communication system.

7.4.14.2.7 Backup ~~CAISO~~ Control Center – Control Center Completely Unavailable.

In the event that the Backup ~~ISO-CAISO~~ Control Center becomes completely unavailable, the Backup ~~CAISO|ISO~~ Control Center will use alternate communications to notify the Primary ~~CAISO|ISO~~ Control Center that the Backup ~~CAISO|ISO~~ Control Center is unavailable. The Primary ~~CAISO|ISO~~ Control Center will post information on the situation on the ~~WEnet~~CAISO's secure communication system. Additional voice notifications will be made as time permits.

The Primary ~~CAISO|ISO~~ Control Center will post confirmation on the ~~WEnet~~CAISO's secure communication system that all computer systems are functioning normally (if such is the case) and take complete control of the ~~CAISO|ISO~~ Controlled Grid. The Primary ~~CAISO|ISO~~ Control Center will notify the SCE GCC by direct voice communications of the situation.

———Once the Backup ~~CAISO|ISO~~ Control Center is again available all functions will be transferred back, and the Backup ~~CAISO|ISO~~ Control Center will notify all Market Participants via the ~~WEnet~~CAISO's secure communication system.

7.4.14.2-87.7.14.2.8 Use of IOUs' Energy Control Center Computers.

The ~~CAISO~~ and the IOUs will comply with the procedures for the utilization by the ~~CAISO|ISO~~ of the IOUs' Energy control center computers when developed. The ~~CAISO|ISO~~ will post such procedures on the ~~WEnet~~CAISO's secure communication system when agreed.

7.8 7.5 Management of Overgeneration Conditions.

The ~~CAISO~~'s management of Overgeneration relates only to ~~real-time~~Real-Time. In the event that Overgeneration conditions occur during ~~real-time~~Real-Time, the ~~ISO-CAISO~~ will direct the Scheduling Coordinators to take the steps described in this Section 7.57.8 of the ~~ISO-CAISO~~ Tariff and Scheduling Coordinators shall implement ~~ISO-CAISO~~ directions without delay. Overgeneration in ~~real-time~~Real-Time will be mitigated by the ~~ISO-CAISO~~ as follows; provided that the ~~ISO-CAISO~~ Operator will have the discretion, if necessary to avoid a System Emergency, to eliminate one or more of the following steps.

7.8.1 7.5.1 Commencing one hour prior to the start of the Settlement Period, the ~~ISO~~ ~~CAISO~~ will, based on available Adjustment Bids, Supplemental Energy bids and Ancillary Service Energy

~~bids,~~ issue Dispatch ~~instructions~~Instructions to Scheduling Coordinators to reduce Generation and imports for the next operating hour.

7.8.2 ~~7.5.2~~ To the extent that there are insufficient ~~decremental Energy b~~Bids available for the operating hour to fully mitigate the Overgeneration condition, the ~~ISO~~ CAISO will notify Scheduling Coordinators of the projected amount of Overgeneration to be mitigated in that hour.

7.8.3 ~~7.5.3~~ In addition to the action taken under ~~7.5.2~~7.8.2, the ~~ISO~~ CAISO will, if it considers it necessary to maintain the reliable operation of the ~~ISO~~ CAISO Control Area, offer Energy for sale on behalf of Scheduling Coordinators to adjacent Control Area operators at the estimated ~~BEEP Interval Ex Post Price~~LMP or, if the ~~ISO~~ CAISO considers it necessary, at a price established by the ~~ISO~~ CAISO on behalf of Scheduling Coordinators, to be paid to adjacent Control Area operators.

7.8.4 ~~7.5.4~~ To the extent that the steps described in Sections ~~7.5.4~~7.8.1 through ~~7.5.3~~7.8.3 fail to mitigate Overgeneration, the ~~ISO~~ CAISO 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~~ CAISO Control Area.

7.8.5 ~~7.5.5~~ To the extent that the above steps fail to fully mitigate the Overgeneration, the ~~ISO~~ CAISO will issue mandatory Dispatch ~~instructions~~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~~Instructions.

7.8.6 ~~7.5.6~~ Any costs incurred by the ~~ISO~~ CAISO in implementing Section ~~7.5.3~~7.8.3 shall be reimbursed to the ~~ISO~~ CAISO by Scheduling Coordinators based upon the extent to which they supplied Energy, in metered amounts, greater than the Generation and imports ~~scheduled~~dispatched by the CAISO as provided in the Day-Ahead Schedule or in response to Dispatch Instructions 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~~ CAISO shall be responsible for ensuring that there are sufficient Ancillary Services available to maintain the reliability of the ~~ISO~~ CAISO Controlled Grid consistent with WECC and NERC criteria. The ~~ISO's~~ CAISO's Ancillary Services requirements may be self-provided by Scheduling Coordinators. Those Ancillary Services which the ~~ISO~~ CAISO requires to be available but which are not being self-provided will be competitively procured by the ~~ISO~~ CAISO from Scheduling Coordinators in the Day-Ahead Market, the Hour Ahead Scheduling Process (the hourly HASP Ancillary Service Awards) and the RTM consistent with Section 8.3. The provision of Ancillary Services from the interties with adjacent Control Areas is limited to Ancillary Services bid into the competitive procurement processes in the IFM, HASP and RTM. The CAISO will not accept Submissions to Self Provide Ancillary Services that are imports to the CAISO Control Area over the interties with adjacent Control Areas. The amount of Ancillary Services procured in the IFM and HASP and in the Real-Time Market is based upon the CAISO Forecast of CAISO Demand plus HASP Intertie Schedule for the Operating Hour net of Self-Provided Ancillary Services from generation internal to the CAISO Control Area. ~~Hour Ahead Market and in real time or by longer term contracts.~~ The ~~ISO~~ CAISO will manage both ~~ISO~~ CAISO procured and ~~s~~ Self-Provided Ancillary Services as part of the Rreal-Time Dispatch. The ~~ISO~~ CAISO will calculate payments for Ancillary Services supplied by ~~to~~ Scheduling Coordinators and charge the cost of Ancillary Services to Scheduling Coordinators based on their Ancillary Service obligations.

For purposes of this ~~ISO~~ CAISO Tariff, Ancillary Services are: (i) Regulation Up and Regulation Down, (ii) Spinning Reserve, (iii) Non-Spinning Reserve, ~~(iv) Replacement 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 ~~and Replacement Reserve~~ may be submitted by ~~the~~ Demand-side as well as by owners of Generation. Identification of specific services in this ~~ISO~~ CAISO Tariff shall not preclude development of additional interconnected operation services over time. The ~~ISO~~ CAISO and Market

Participants will seek to develop additional categories of these unbundled services over time as the operation of the ~~ISO~~ [CAISO](#) Controlled Grid matures or as required by regulatory authorities.

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 ~~ISO~~ [CAISO](#) shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the ~~ISO~~ [CAISO](#) Controlled Grid. Ancillary Services standards shall be based on WECC Minimum Operating Reliability Criteria (MORC), NERC and ~~ISO~~ [CAISO](#) Controlled Grid reliability requirements. The ~~ISO~~ [CAISO](#) ~~Grid~~ Operations Committee, in conjunction with the relevant reliability council (WECC), shall develop these Ancillary Services standards to determine reasonableness, cost effectiveness, and adherence to NERC and WECC standards. The standards developed by the ~~ISO~~ [CAISO](#) shall be used as a basis for determining the quantity and type of each Ancillary Service which the ~~ISO~~ [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 ~~ISO~~ [CAISO](#) ~~Grid~~ Operations Committee ~~and the ISO Technical Advisory Committee~~ shall periodically undertake a review of the ~~ISO~~ [CAISO](#) Controlled Grid operation to determine any revision to the Ancillary Services standards to be used in the ~~ISO~~ [CAISO](#) Control Area. At a minimum the ~~ISO~~ [CAISO](#) ~~Grid~~ Operations Committee ~~and the ISO Technical Advisory Committee~~ shall conduct such reviews to accommodate revisions to WECC and NERC standards. The ~~ISO~~ [CAISO](#) may adjust the Ancillary Services standards temporarily to take into account, among other things variations in system conditions, ~~R~~Real-~~T~~ime Dispatch constraints, contingencies, and voltage and dynamic stability assessments. Where practicable, the ~~ISO~~ [CAISO](#) will provide notice, via the ~~ISO~~ [CAISO](#) ~~Home Page~~ [Website](#), 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~~ [CAISO](#) ~~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 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 Quantities of Ancillary Services Required and Use of Ancillary Services Regions.

For each of the Ancillary Services, the ~~ISO~~ CAISO shall determine the quantity and location of the Ancillary Service which is required using Ancillary Services Regions. ~~8.2.4 Locational Quantities of Ancillary Services.~~ For each of the Ancillary Services, the CAISO shall determine the required locational dispersion in accordance with CAISO Controlled Grid reliability requirements. ~~These standards shall be used as guidance only.~~ The actual location of Ancillary Services on a daily and hourly basis shall depend on the locational spread of Demand within the CAISO Control Area, regional transmission limitations, ~~the~~ available transmission capacity, transmission outages, the locational mix of Generation, generation outages and historical patterns of transmission and Generation availability so that Ancillary Services are distributed appropriately across the CAISO Control Area.

The Ancillary Services provided ~~and which~~ must be under the direct Dispatch control of the ~~ISO~~ CAISO ~~a Real-Time Dispatch Interval basison an hourly basis each day.~~ The ~~ISO~~ CAISO shall determine the quantities it requires as follows provided for in Sections 8.2.3.1 to 8.2.3.4.3:

8.2.3.1 Regulation Service.

The ~~ISO~~ CAISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the ~~ISO~~ CAISO Control Area to meet WECC and NERC control performance 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, the HASP, and in each 15 minute period in Real-Time ~~and the Hour Ahead Markets~~ shall be determined by the CAISO as a percentage of the applicable CAISO Forecast of CAISO Demand for the Day-Ahead, HASP, and Real-

~~Time Markets aggregate scheduled Demand for that Settlement Period. The CAISO's determination is based upon its need to meet the WECC and NERC control performance criteria.~~

~~(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 the WECC and NERC control performance criteria.~~

~~(b) Publication of Estimated Regulation Percentage for Day-Ahead Market. In accordance with the requirements of Appendix Y, ~~the ISO~~ 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, each hour in the HASP, and in each 15 minute period in Real-Time for the Trading Day. ~~WE~~net 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 WE net 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 the WECC and NERC control performance criteria.~~

8.2.3.2 Spinning And Non-Spinning Reserves.

The ~~ISO~~ CAISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with WECC MORC criteria equal to (a) 5% of the Demand ~~(except the Demand covered by firm purchases from outside the ISO Control Area)~~ to be met by Generation from hydroelectric resources ~~(excluding the Demand covered by firm purchases from outside the CAISO Control Area)~~ plus 7% of the Demand ~~(except the Demand covered by firm purchases from outside the ISO Control Area)~~ to be met by Generation from other resources ~~(excluding the Demand covered by firm purchases from outside the CAISO Control Area)~~, or (b) the single largest Contingency, if this is greater, or (c) by reference to such The CAISO from time to time may determine to use more

stringent criteria ~~as the ISO may determine from time to time.~~ In determining the procurement of Operating Reserves, the CAISO will estimate the amount of Operating Reserves associated with firm imports of Energy and will include such estimates in determining the amount of Operating Reserves to be procured in the IFM and HASP and the scheduled imports in RTM. The Spinning Reserve component of Operating Reserve shall be no less than one-half the Operating Reserve required for each Settlement Period of the Day-Ahead Market, each hour in the HASP, and in each 15 minute period in Real-Time, ~~the Hour Ahead Market and the Real Time Market.~~ When the level of Operating Reserve is determined by Demand, the ~~ISO~~ CAISO shall not maintain Operating Reserve with respect to Demand covered by firm purchases from outside the ~~ISO~~ CAISO Control Area. In determining its Operating Reserve requirements, the CAISO will estimate the amount of Operating Reserves associated with firm imports of Energy and will include such estimates in determining the Operating Reserve requirements in the IFM, HASP, and RTM. In addition, the ~~ISO~~ CAISO shall maintain Operating Reserve equal to the total amount of: (i) Demand covered by Interruptible Imports scheduled by Scheduling Coordinators for any hour and, (ii) on demand obligations of Scheduling Coordinators (i.e., the demand obligations to other entities or Control Areas that the Scheduling Coordinator is to provide from resources within the ~~ISO~~ CAISO Controlled Grid). Such additional Operating Reserve is the responsibility of the Scheduling Coordinator either scheduling ~~interruptible~~ Interruptible imports ~~Imports~~ or with on demand obligations and such additional Operating Reserve must ~~either~~ be self-provided ~~or purchased~~ from the ~~ISO~~ CAISO by Scheduling Coordinators from generation capacity that for the operating hour in question has not been paid a RUC availability payment, has not received an RMR dispatch, and is not satisfying Resource Adequacy obligation to serve CAISO Control Area Load. The specific resource self providing the additional Operating Reserve must have sufficient unloaded capacity available based on Energy and Ancillary Schedules in HASP. When the on-demand obligation is called upon to deliver Energy, the CAISO will schedule such Energy and also simultaneously Dispatch the identified resource supporting the on-demand obligation for the same quantity of Energy. To the extent such additional Operating Reserve is self-provided by a Scheduling Coordinator, it may consist entirely of Non-Spinning Reserve. To the extent that such additional Operating Reserve is not self-provided by a Scheduling Coordinator, the ISO

~~will procure the necessary amounts of Operating Reserve, but not necessarily entirely from Non-Spinning Reserve.~~

~~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.~~

~~8.2.3.3~~ **8.2.3.4 Voltage Support.**

~~The ISO 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 WECC and NERC criteria using a power flow study based on the quantity and location of scheduled Demand. The ISO CAISO shall issue daily voltage schedules (Dispatch ~~instructions~~Instructions) to **Participating** Generators, Participating TOs and UDCs, which are required to be maintained for ISO CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the ISO 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 ~~ISO~~ 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 ~~ISO~~ CAISO Operations Date that are unable to meet this operating power factor requirement may apply to the ~~ISO~~ CAISO for an exemption. Prior to granting such an exemption, the ~~ISO~~ 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 ~~ISO~~ 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 ~~ISO~~ CAISO shall not grant any exemption under this Section from such existing contractual requirements. The ~~ISO~~ 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 ~~ISO~~ 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 compensated in accordance with Section 8-5-98.5.6.2.

All Loads directly connected to the ~~ISO~~ 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 ~~ISO~~ 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 ~~ISO~~ CAISO Controlled Grid. The ~~ISO~~ CAISO 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~~ CAISO's requirements. The ~~ISO~~ CAISO 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~~ CAISO. If the ~~ISO~~ CAISO 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~~ CAISO based on the estimated amount of the Wheeling Through and Wheeling Out transactions each year.

~~8.2.3.4~~ ~~8.2.3.5~~ **Black Start Capability.**

The ~~ISO~~ CAISO shall determine the amount and location of Black Start Generation it requires through contingency studies that are used as the basis of the CAISO's emergency plans. The studies shall specify:

- (a) the initiating disturbance;
- (b) the magnitude of the Outage, including the extent of the Outage (local area, ~~ISO~~ CAISO Controlled Grid, or WECC), the assumed status of Generation after the initiating disturbance, the status of interconnections, the system Demand level at the time of the disturbance, the interconnection support, and assumptions regarding the availability of support from other utilities to help restore Generation and Demand;
- (c) the Generator performance including a percentage of Black Start units (to be determined by the CAISO) which are expected to fail to start, and;
- (d) expected transmission system damage.

The ~~ISO~~ CAISO shall also specify the following load restoration performance goals:

- (i) Black Start unit startup and connection times;
- (ii) CAISO Controlled Grid restoration times; and
- (iii) load restoration times.

Scheduling Coordinators shall provide the ~~ISO~~ CAISO with their load restoration time requirements for any Loads that provide emergency services.

8.2.3.4.1 ~~8.2.5~~ Black Start Units. The CAISO will select Black Start capacity in locations where adequate transmission capacity can be made readily available (assuming no transmission damage) to connect the Black Start Generating Unit to the station service bus of a Generating Unit designated by the CAISO. Black Start Units:

- (a) must be located in the CAISO Control Area;
- (b) may be located anywhere in the CAISO Control Area provided that the Black Start resource is capable of meeting the CAISO performance requirements for starting and interconnection to the CAISO Controlled Grid; but
- (c) must be dispersed throughout the CAISO Control Area.

8.2.3.4.2 ~~8.2.5.1~~ Black Start Services.

- (a) All Participating Generators with Black Start Generating Units must satisfy technical requirements specified by the ~~ISO~~ CAISO.
- (b) The ~~ISO~~ CAISO shall from time to time undertake performance tests, with or without prior notification.
- (c) The ~~ISO~~ CAISO shall have the sole right to determine when the operation of Black Start Generating Units is required to respond to conditions on the ~~ISO~~ CAISO Controlled Grid.
- (d) If the ~~ISO~~ CAISO has intervened in the market for Energy and/or Ancillary Services pursuant to Section 7.4.47.7.4, the price paid by the ~~ISO~~ CAISO for Black Start services shall be sufficient to permit

the relevant Participating Generator to recover its costs over the period that it is directed to operate by the ~~ISO-CAISO~~.

(e) If a Black Start Generating Unit fails to achieve a Black Start when called upon by the CAISO, or fails to pass a performance test administered by the CAISO, the Market Participant that has contracted to supply Black Start service from the Generating Unit shall re-pay to the ~~ISO-CAISO~~ any reserve payment(s) that it has received since the administration of the last performance test or the last occasion upon which it successfully achieved a Black Start when called upon by the CAISO, whichever is the shorter period.

~~8.2.3.5 8.2.3.6~~ **Ancillary Service Substitution.** The CAISO, whenever possible, will increase its purchases of an Ancillary Service that can substitute for another Ancillary Service, when doing so is expected to reduce its total cost of procuring Ancillary Services while meeting reliability requirements. The substitution described in this section can only occur with the purchase of bid-in Ancillary Services; substitution may not involve Self Provided Ancillary Services. The ~~ISO-CAISO~~ will make such adjustments in accordance with the following principles:

- (a) The Regulation requirement must be satisfied only by Regulation ~~b~~Bids from for Resources qualified to provide Regulation;
- (b) Additional Regulation Up capacity can be used to satisfy requirements for any type of reserves (Spinning Reserve, or Non-Spinning Reserve or Replacement Reserve);
- (c) Regulation Up and Spinning Reserve requirements must be collectively satisfied by the combination of Regulation Up and Spinning Reserve ~~bids~~Bids. Spinning Reserve and Regulation may be provided as separate services from the same Generating Unit, provided that the sum of Spinning Reserve and Regulation Up provided is not greater than the maximum ramp rate of the Generating Unit (MW/minute) times ten;
- (d) Additional Regulation Up and Spinning Reserve capacity can be used to satisfy requirements for Non-Spinning and Replacement Reserve, except that any Spinning Reserve capacity that has been designated as 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 cannot be used to satisfy requirements for Replacement Reserve;~~

- (e) Regulation Up, Spinning Reserve, and Non-Spinning Reserve requirements must be collectively satisfied by the combination of Regulation Up, Spinning Reserve and Non-Spinning Reserve ~~bids~~Bids; and
- (f) ~~Additional Regulation, Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve capacity can be used to satisfy requirements for Replacement Reserve except that any Spinning and Non-Spinning Reserve capacity that has been designated as 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 cannot be used to satisfy requirements for Replacement Reserve;~~
- ~~(g) — Total MW purchased from the Regulation Up, Spinning Reserve, and Non-Spinning Reserve, and Replacement Reserve markets will not be changed by this Section 8.2.3.6 8.2.3.5; and~~
- ~~(h) — All quantities of Ancillary Services so procured must be non-negative.~~

~~8.2.4 — Locational Quantities of Ancillary Services.~~

~~For each of the Ancillary Services, the ISO shall determine the required locational dispersion in accordance with ISO Controlled Grid reliability requirements. These standards shall be used as guidance only. The actual location of Ancillary Services on a daily and hourly basis shall depend on the locational spread of Demand within the ISO Control Area, the available transmission capacity, the locational mix of Generation, and historical patterns of transmission and Generation availability.~~

~~**8.2.5 — Black Start Units.** The ISO will select Black Start capacity in locations where adequate transmission capacity can be made readily available (assuming no transmission damage) to connect the Black Start Generating Unit to the station service bus of a Generating Unit designated by the ISO. Black Start Units:~~

- ~~(a) — must be located in the ISO Control Area;~~

~~(b) — may be located anywhere in the ISO Control Area provided that the Black Start resource is capable of meeting the ISO performance requirements for starting and interconnection to the ISO Controlled Grid; but~~

~~(c) — must be dispersed throughout the ISO Control Area.~~

8.3 Procurement of Ancillary Services, Certification and Testing Requirements for Providers of Ancillary Services, and Time-frame For Contracting for Ancillary Services.

8.3.1 Procurement of Ancillary Services.

~~Regulation Up, Regulation Down, and, Operating Reserves, and Replacement Reserve necessary to meet ISO CAISO requirements not met by self-provision will be procured by the ISO CAISO as described in this ISO CAISO Tariff. In the Day-Ahead Market, the CAISO procures one-hundred (100) percent of its Ancillary Service requirements based on the Day-Ahead Demand Forecast net of Self Provided Ancillary Services. After the Day-Ahead Market, the CAISO procures additional Ancillary Services needed to meet system requirements from: (a) imports or System Resources in the HASP, and (b) generation internal to the CAISO Control Area in the Real-Time Market. The amount of Ancillary Services procured in the HASP and in the Real-Time Market is based upon the CAISO Forecast of CAISO Demand for the Operating Hour net of Self Provided Ancillary Services.~~

~~The CAISO procurement of Ancillary Services from imports or System Resources in the HASP is for the entire Operating Hour. The procurement of Ancillary Services from generation internal to the CAISO Control Area for the Real-Time Market is for a fifteen (15) minute time period. The CAISO's procurement of Ancillary Services from imports or System Resources in the HASP and from Generating Units for the Real-Time Market is based on the Ancillary Service Bids submitted in the HASP. The CAISO will procure Regulation Up and Regulation Down in the Real-Time Market.~~

~~As of the ISO CAISO Operations Date, the ISO CAISO will contract for long-term Voltage Support service with Owners of Reliability Must-Run Units under Reliability Must-Run Contracts. Black Start capability will initially be procured by the ISO CAISO through individual contracts with Scheduling Coordinators for Reliability Must-Run Units and other Generating Units which have Black Start capability.~~

These requirements and standards apply to all Ancillary Services whether self-provided or procured by the ~~ISO-CAISO~~.

8.3.2 Procurement Not Limited to ~~ISO-CAISO~~ Control Area.

The ~~ISO-CAISO~~ will procure Spinning Reserves, ~~and~~ Non-Spinning Reserves ~~and Replacement Reserves~~ from Generating Units operating within the ~~ISO-CAISO~~ Control Area and from ~~external~~ imports of System Resources. Scheduling Coordinators are allowed to bid ~~or self-provide their~~ Regulation ~~obligation in whole or in part~~ from resources located outside the ~~ISO-CAISO~~ Control Area by dynamically scheduling such resources. ~~Each System Resource used to bid or self-provide Regulation must comply with the Dynamic Scheduling Protocol in Appendix X. When bidding to supply Ancillary Services in the IFM, HASP or RTM, imports compete for use of intertie transmission capacity when the requested use is in the same direction, e.g., imports of Ancillary Services compete with Energy on interties in the import direction and exports of Ancillary Services (i.e., on demand obligations) compete with Energy on interties in the export direction. To the extent there is Congestion, imports of Ancillary Services will pay Congestion costs in the IFM, HASP and RTM markets.~~

8.3.3 Ancillary Service Regions and Regional Limits

The CAISO will procure Ancillary Services using Ancillary Services Regions. Ancillary Services Regions include the System Region (i.e., the CAISO Control Area) and the Expanded System Region (i.e., the System Region and intertie scheduling points with adjacent Control Areas). The CAISO also may identify and use Sub-Regions within the System Region to ensure appropriate distribution of the Ancillary Services procured for the CAISO Control Area. The definition of the Expanded System Region, the System Region, and any Sub-Regions shall apply collectively to the following Ancillary Services: Regulation Up, Regulation Down, Spinning Reserves and Non-Spinning Reserves.

Within the Expanded System Region, the System Region, and any 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 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 the WECC and NERC requirements for the CAISO Control Area. The CAISO may establish a restriction on the amount of Ancillary Services to be procured from outside the CAISO Control Area by establishing a minimum limit for the System Region. The CAISO may also establish a maximum limit for Ancillary Services procured at any single import Scheduling Point.

The considerations and criteria the CAISO will use to establish Sub-Regions and regional limits include, but are not limited to, an assessment of resource operating constraints, the locational mix of Generating Units, generation outages, historical patterns of transmission and Generating Unit availability, regional transmission limitations and constraints, Available Transmission Capacity, and other factors affecting reliability.

If the CAISO establishes Sub-Regions or changes the use of existing Ancillary Services Regions, it will issue a Market Notice as soon as reasonably practicable after the occurrence of circumstances that leads the CAISO to establish Sub-Regions or change the use of existing Ancillary Services Regions. If for example, the circumstance leading to a change is an extended planned outage of a transmission line or generating resource, the CAISO notice can be prior to submission of Bids in the Day-Ahead Market on the day in which the outage is to occur. If a transmission outage or generating unit outage is a Forced Outage, the CAISO will give notice of any change in the use of Ancillary Services Regions as soon as reasonably practicable after the occurrence of the Forced Outage.

Details regarding: (a) how the CAISO establishes Sub-Regions and the Ancillary Service limits (i.e., a maximum or a minimum amount (or both a maximum and minimum amounts) of Ancillary Services to be procured within a region) for the System Region and/or Sub-Regions, and (b) the process the CAISO will use to notify Market Participants of any change in Ancillary Services Regions, are contained in the Business Practice Manual for Ancillary Services.

8.3.3-4 Certification and Testing Requirements.

Each Generating Unit, System Unit, or Load, or System Resource that is allowed to bid-submit a Bid or self-provide Ancillary Services under this Tariff, and each System Resource that is allowed to submit a Bid to provide Ancillary Services under this Tariff, must comply with the ~~ISO's~~ CAISO's certification and testing requirements as contained in the Business Practice Manual. Each Generating Unit and System

Unit used to bid Regulation or used to self-provide Regulation must have been certified and tested by the ISO CAISO using the process defined in Part A of Appendix K~~7~~. Each Dynamic System Resource ~~used to bid offering or self provide~~ Regulation must comply with the Dynamic Scheduling Protocol in Appendix X. Spinning Reserve may be provided only from Generating Units, System Resources that submit Bids to provide Spinning Reserve from ~~external~~ imports, or System Units, which have been certified and tested by the ISO CAISO using the process defined in Appendix K~~7~~. Non-Spinning Reserve ~~and Replacement Reserve~~ may be provided from Loads, Demand which can be reduced by Dispatch, interruptible exports, on-demand rights from other entities or Control Areas, Generating Units, System Resources that submit Bids to provide Non-Spinning Reserve from ~~external~~ imports, or System Units, which have been certified and tested by the ISO CAISO using the process defined in – Parts C ~~& D~~ of Appendix K, respectively~~57~~. Voltage Support may only be provided from resources including Loads, Generating Units and System Units which have been certified and tested by the ISO CAISO using the process defined in Part ~~E~~ D of Appendix K~~57~~. Black Start capability may only be provided from Generating Units which have been certified and tested by the ISO CAISO using the process defined in Part ~~F~~ E of Appendix K. ISO CAISO certification to provide ~~A~~ ancillary ~~S~~ services may be revoked by the ISO CAISO under the provisions of this Tariff and Parts A ~~F~~ E of Appendix K.

8.3.4.5 The ISO CAISO shall procure ~~on a daily and hourly basis, each day,~~ Regulation Up, Regulation Down, Spinning, and Non-Spinning ~~and Replacement~~ Reserves on a daily, hourly and Real-Time basis in the IFM, HASP and RTM respectively. The ISO CAISO shall procure Ancillary Services Replacement Reserve on a longer-term basis pursuant to Section ~~4040.3.1.3~~ if necessary to meet reliability criteria. The ISO CAISO Governing Board must approve all long-term Replacement Reserve contracts. The ISO CAISO shall contract for Voltage Support annually (or for such other period as the ISO CAISO may determine is economically advantageous) and on a daily or hourly basis as required to maintain System Reliability. The ISO CAISO shall contract annually (or for such other period as the ISO CAISO 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 ~~8.4.6.4~~ 8.4.3 below relating to their operating capabilities, communication capabilities and metering infrastructure. No Scheduling Coordinator shall be permitted to submit a ~~bid~~ Bid to the ~~ISO~~ CAISO for the provision of an Ancillary Service from a Generating Unit, System Unit, Load or System Resource, or to provide a Submission to Self Provide ~~submit a Schedule for self-provision of~~ an Ancillary Service from that Generating Unit, System Unit, ~~or Load or System Resource~~, unless the Scheduling Coordinator is in possession of a current certificate issued by the ~~ISO~~ CAISO confirming that the Generating Unit, System Unit, Load or System Resource complies with the ~~ISO's~~ CAISO's technical requirements for providing the Ancillary Service concerned. Scheduling Coordinators can apply for Ancillary Services certificates in accordance with the requirements ISO's Protocols for considering and processing such applications in the CAISO's Business Practice Manual. The ~~ISO~~ CAISO 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~~ CAISO's technical requirements are not being met, the ~~ISO~~ CAISO may withdraw the certificate for the Generating Unit, System Unit, Load or System Resource concerned.

8.4.1 Operating Characteristics Required to Provide Ancillary Services.

Each Generating Unit, System Unit, Load or System Resource which a Scheduling Coordinator wishes to ~~schedule or bid~~ submit a Bid to provide Ancillary Services must comply with the requirements for the specific Ancillary Service as set forth in the Business Practice Manual. The requirements in the Business Practice Manuals include Ancillary Service control, capability and availability standards. The requirements also involve in regard to the following operating characteristics:

- (a) ramp rate increase and decrease (MW/minute);
- (b) power factor (leading and lagging) as required by Section ~~8.2.3.38-2.3.4~~;

- (c) maximum output (real and reactive), except that System Resources shall be required to comply only with the requirement for maximum real power;
- (d) minimum output (real and reactive), except that System Resources shall be required to comply only with the requirement for minimum real power;
- (e) AGC capability, control scheme, and range; and
- (f) minimum length of time the resource can be available to provide the relevant Ancillary Service.

In the Business Practice Manuals, the ~~ISO~~ CAISO will differentiate the operating characteristics according to the Ancillary Service being provided.

8.4.1.1 Regulation.

A Generating Unit offering Regulation must have the following operating characteristics and technical capabilities:

- (a) it must be capable of being controlled and monitored by the ~~ISO~~ CAISO Energy Management System (EMS) by means of the installation and use of a standard ~~ISO~~ CAISO direct communication and direct control system, a description of which and criteria for any temporary exemption from which, the ~~ISO~~ CAISO shall publish on the ~~ISO~~ CAISO internet "Home Page;" Website;
- (b) it must be capable of achieving at least the ramp rates (increase and decrease in MW/minute) stated in its ~~bid~~ Bid for the full amount of Regulation capacity offered;
- (c) the Regulation capacity offered must not exceed the maximum ramp rate (MW/minute) of that Unit times a value within a range from a minimum of ten minutes to a maximum of thirty minutes, which value shall be specified by the ~~ISO~~ CAISO and published on the ~~ISO~~ CAISO's Website internet "Home Page;"
- (d) the Generating Unit to ~~ISO~~ CAISO Control Center telemetry must in a manner meeting ~~ISO~~ CAISO standards include indications of whether the Generating Unit is on or off AGC at the Generating Unit terminal equipment;

- (e) the Generating Unit must be capable of the full range of movement within the amount of Regulation capability offered without manual Generating Unit operator intervention of any kind; and
- (f) each Participating Generator must ensure that the ~~ISO CAISO~~ EMS control and related SCADA equipment for its generating facility are operational throughout the time period during which Regulation is required to be provided.

8.4.1.2 Voltage Support.

A Generating Unit providing Voltage Support must be under the control of generator automatic voltage regulators throughout the time period during which Voltage Support is required to be provided. A Generating Unit may be required to operate underexcited (absorb reactive power) at periods of light system Demand to avoid potential high voltage conditions, or overexcited (produce reactive power) at periods of heavy system Demand to avoid potential low voltage conditions.

8.4.2 Ancillary Service Control Standards. The providers of ~~ancillary services~~ Ancillary Services under this Tariff must comply with the following control standards:

- (a) Regulation. The ~~ACE~~ Area Control Error will be calculated by the ~~ISO CAISO EMS~~ Energy Management System. Control signals will be sent from the ~~ISO CAISO~~ EMS to raise or lower the output of Generating Units or System Resources providing Regulation when ACE exceeds the allowable ~~ISO CAISO~~ Control Area dead band for ACE;
- (b) Spinning and Non-Spinning Reserve. Each provider of Spinning Reserve or Non-Spinning Reserve must be capable of receiving a Dispatch ~~instruction~~ Instruction within one minute from the time the ~~ISO CAISO~~ Control Center elects to Dispatch the Spinning Reserve resource or Non-Spinning Reserve resource and must ensure that its resource can be at the Dispatched operating level within ten minutes after issue of the Dispatch ~~instruction~~ Instruction;
- ~~(c) Replacement Reserve. Each provider of Replacement Reserve must be capable of receiving a Dispatch instruction within one minute from the time the ISO Control Center elects to Dispatch the Replacement Reserve resource and must ensure that its resource can be at the Dispatched operating level or condition within sixty minutes after issue of the Dispatch instruction;~~

(~~ed~~) Voltage Support. Generating Units providing Voltage Support must have automatic voltage regulators which can correct the bus voltages to be within the prescribed voltage limits and within the machine capability in less than one minute; and

(~~ed~~) Black Start. (i) Voice Communications: each supplier of Black Start capability must ensure that normal and emergency voice communications are available to permit effective Dispatch of the Black Start capability; (ii) ~~ISO CAISO~~ Confirmation: No load served by the Black Start Generating Unit or by any designated Generating Unit or by any transmission facility used for Black Start service may be restored until the ~~ISO CAISO~~ has confirmed that the need for such service has passed.

8.4.3 Ancillary Service Capability Standards. The providers of ~~ancillary services~~ Ancillary Services under this Tariff must comply with the following capability standards

(a) Spinning and Non-Spinning Reserve Capability. Each Generating Unit or external import of a System Resource scheduled to provide Spinning Reserve and each resource providing Non-Spinning Reserve must be capable of converting the full capacity reserved to Energy production within ten minutes after the issue of the Dispatch ~~instruction~~ Instruction by the ~~ISO CAISO~~, and of maintaining that output or scheduled interchange for at least two hours.

~~(b) Replacement Reserve. Each resource providing Replacement Reserve must be capable of supplying any level of output up to and including its full reserved capacity within sixty minutes after issue of Dispatch instructions by the ISO. Replacement Reserve may be supplied from resources already providing another Ancillary Service, such as Spinning Reserve, but only to the extent that the ability to provide the other Ancillary Service is not restricted in any way by the provision of Replacement Reserve. The sum of Ancillary Service capacity supplied by the same resource cannot exceed the capacity of said resource.~~

(~~eb~~) Black Start. Each Black Start Generating Unit must be able to start up with a dead primary and station service bus within ten minutes of issue of a Dispatch ~~instruction~~ Instruction by the ~~ISO CAISO~~ requiring a Black Start. Each Black Start Generating Unit must provide sufficient reactive capability to keep the energized transmission bus voltages within emergency voltage limits over the range of no-load

to full load. Each Black Start Generating Unit must be capable of sustaining its output for a minimum period of 12 hours from the time when it first starts delivering Energy.

8.4.4 Ancillary Service Availability Standards. The providers of ~~ancillary services~~Ancillary Services under this Tariff must comply with the following availability standards.

(a) — Spinning and Non-Spinning Reserve. Each Participating Generator shall ensure: (i) that its Generating Units scheduled to provide Spinning Reserve and Non-Spinning reserve are available for Dispatch throughout the Settlement Period for which they have been scheduled; and (ii) that its Generating Units scheduled to provide Spinning Reserve are responsive to frequency deviations throughout the Settlement Period for which they have been scheduled.

~~(b) — Replacement Reserve. Each resource providing Replacement Reserve must be capable of sustaining the instructed output for at least two hours.~~

8.4.5 Communication Equipment.

Unless otherwise authorized by the CAISO, all Scheduling Coordinators wishing to submit an Ancillary Service ~~schedule or bid~~Bid must have the capability to submit to and receive information ~~by direct computer link from the CAISO's secure communication system~~. In addition, they must be capable of receiving Dispatch ~~instructions~~Instructions electronically and they must provide the ~~ISO~~ CAISO with a telephone number, or fax number through which Dispatch ~~instructions~~Instructions for each Generating Unit, System Unit, Load and System Resource may be given if necessary. The ~~ISO~~ CAISO will determine which method of communication is appropriate; provided that the ~~ISO~~ CAISO will consult with the Scheduling Coordinator, if time permits, and will consider the method of communication then utilized by such Scheduling Coordinator; provided further, that the ~~ISO~~ CAISO shall make the final determination as to the additional communication methods. Participating Generators, owners or operators of Loads and operators of System Units or System Resources whose resources are scheduled, bid in or under contract, shall ensure that there is a 24 hour personal point of contact with the ~~ISO~~ CAISO for the Generating Unit, System Unit, Load or System Resource. A Participating Generator or provider of Curtailable Demand wishing to offer any Ancillary Service must provide a direct ring down voice communications circuit (or a dedicated telephone line available 24 hours a day every day of the year) between the control room

operator for the Generating Unit or Curtailable Demand providing the Ancillary Service and the ~~ISO~~ CAISO Control Center. Each Participating Generator must also provide an alternate method of voice communications with the ~~ISO~~ CAISO from the control room in addition to the direct communication link required above. Operators of Dynamic System Resources from which Dynamic Schedules or bids Bids are submitted to the ~~ISO~~ CAISO shall provide communications links meeting ~~ISO~~ CAISO standards for dynamic imports from System Resources. Participating Generators and operators of System Units providing Regulation shall also provide communication links meeting ~~ISO~~ CAISO standards for direct digital control. Operators of System Resources providing Regulation shall provide communications links meeting ~~ISO~~ CAISO standards for external imports of Regulation. If any communication system becomes unavailable, the relevant Participating Generators, operators of System Units, Loads and System Resources and the ~~ISO~~ CAISO shall take immediate action to identify the cause of the interruption and to restore the communication system. A Scheduling Coordinator that has scheduled or bids submitted a Bid in or contracted for Ancillary Services shall ensure that the Generating Unit, System Unit, Load or System Resource concerned is able to receive and implement Dispatch Instructions.

8.4.6 Metering Infrastructure.

All Participating Generators, owners or operators of Loads and operators of System Units or System Resources which a Scheduling Coordinator wishes to schedule or bid to provide Ancillary Services shall have the metering infrastructure for the Generating Units, System Units, Loads or System Resources concerned which complies with requirements to be established by the ~~ISO~~ CAISO relating to:

- (a) meter type;
- (b) meter location;
- (c) meter reading responsibility;
- (d) meter capability in regard to AGC response; and
- (e) any other aspect of metering infrastructure required by the ~~ISO~~ CAISO under this ~~ISO~~ CAISO Tariff.

8.4.6.1 Additional Requirements for Black Start Units.

A Participating Generator who wishes to offer Black Start must ensure that the requirements set out in Appendix D to this ~~ISO CAISO~~ Tariff are met in relation to the Generating Units from which Black Start will be offered.

8.4.7 Methodology For Procurement of Ancillary Services ~~Upon Commencement of ISO Operations.~~

~~8.4.7.1 Usage Charge in Ancillary Service Bid Evaluation.~~

~~Due to the design of the ISO's scheduling software, the ISO will not take into account Usage Charges in the evaluation of Ancillary Services bids or in price determination and, in the event of Congestion in the Day Ahead Market or Hour Ahead Market, Ancillary Services will be procured and priced on a Zonal basis.~~

~~8.4.7.2~~ 8.4.7.1 ~~Market-Based Prices.~~

Public utilities under the FPA must submit ~~bids~~ Bids for Ancillary Services capped at FERC authorized cost-based rates unless and until FERC authorizes different pricing. Public utilities under the FPA shall seek FERC Ancillary Services rate approval on bases consistent with the ~~ISO CAISO~~ time-frame for contracting for each Ancillary Service (hourly rate for some Ancillary Services, annual rate or otherwise for other Ancillary Services) so that cost-based ~~bids~~ Bids and market-based ~~bids~~ Bids for each service shall be on comparable terms. All other entities may use market-based rates not subject to any restrictions apart from those found in this ~~ISO CAISO~~ Tariff. Public utilities under the FPA which have not been approved to bid at market-based rates, will not be paid above their cost-based ~~bid~~ Bid for the Ancillary Service concerned even if the relevant Market Clearing Price is higher.

~~8.4.7.3~~ 8.4.7.2 ~~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 from resources located within the CAISO Control Area, submit Bids for Ancillary Services from resources located outside the CAISO Control Area, or specify Inter-Scheduling Coordinator Ancillary Service Trades ~~from resources located within the ISO Control Area.~~ Ancillary Services in the Day-Ahead Market, in the HASP, and in the Real-Time Market and the Hour-Ahead Market are comprised of the following: Regulation Up, Regulation Down, Spinning Reserve, and 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~~ Bids must meet the requirements set forth in this ~~ISO~~ CAISO Tariff. The same resource capacity may be offered into more than one ~~ISO~~ CAISO 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~~ CAISO for procuring capacity associated with the specific Ancillary Services. The ~~ISO~~ CAISO will issue ~~R~~real-Time Dispatch Instructions in the Real-Time Market for the Energy associated with the awarded capacity based upon the applicable operational ramp rate submitted with the single Energy Bid ~~curve~~ Curve in accordance with Section ~~30.4.6~~30.10. There is no provision for ~~external exports~~ exports with regard to Ancillary Services ~~bids~~ Bids. The functionality necessary to accept such ~~bids~~ Bids does not exist in the ~~ISO~~ CAISO scheduling software. To the extent a Scheduling Coordinator has on-demand obligation to serve loads outside the control area, it can do so provided that (1) it is using export transmission capacity available in Real-Time, (2) the resource capacity providing Energy to satisfy on-demand obligation is not under an RMR or Resource Adequacy obligation, and has not been paid a RUC availability payment for the Trading Hour.

8.4.7.3.28.4.7.2.1

Scheduling Coordinators may ~~submit b~~Bids for or self-provide external imports ~~imports~~ of Spinning Reserve, or Non-Spinning Reserve ~~or Replacement Reserve~~ from System Resources located outside the ~~ISO~~ CAISO Control Area including Dynamic System Resources, where technically feasible and consistent with WECC criteria; and provided that such Scheduling Coordinators

have certified to the ISO-CAISO their ability to deliver the service to the point of interchange with the ISO-CAISO 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 CAISO).

~~8.4.7.3.3~~ **8.4.7.2.2** _____ Scheduling Coordinators may bid ~~or self provide external imports~~ imports of Regulation from System Resources located outside the ISO-CAISO Control Area, where technically feasible and consistent with WECC 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-CAISO 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-CAISO as to their ability to dynamically adjust interchange schedules based on control signals issued by the ISO-CAISO anytime during a Settlement Period at the discretion of the ISO-CAISO. Such certification shall include a demonstration of their ability to support the dynamic interchange of Regulation service based on ISO-CAISO control signals received on dedicated communications links (either directly or through EMS computers) for ISO-CAISO computer control and telemetry to provide this function in accordance with ISO-CAISO standards and procedures posted on the ISO-CAISO Home Page Website.

~~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 WECC standards.

~~8.4.7.3.5~~ **8.4.7.2.3** Scheduling Coordinators' bidding or self-provision of Ancillary Services according to this Section ~~8.4.7.3~~ 8.4.7.2 shall be consistent with the ISO-CAISO Tariff, Protocols, and Business Practice Manuals.

~~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.

8.5 The Bidding Process.

The ~~ISO-CAISO~~ shall operate a competitive Day-Ahead ~~, HASP, and Real-Time Markets and Hour-Ahead Market~~ to procure Ancillary Services. ~~The Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Dispatch (SCED) applications used in the Integrated Forward Market (IFM), HASP, and the Real-Time Market (RTM) shall calculate optimal resource commitment, energy, and Ancillary Services Awards and Schedules~~ ~~It shall purchase Ancillary Services capacity~~ at least cost to End-Use Customers consistent with maintaining System Reliability. Any Scheduling Coordinator representing Generating Units, System Units, Loads or ~~external~~ imports of System Resources may ~~submit~~ ~~bids~~ into the ~~ISO's~~ ~~CAISO's~~ Ancillary Services markets provided that it is in possession of a current certificate for the Generating Units, System Units, ~~external~~ imports of System Resources or Loads concerned.

8.5.1 Provision of System Information to Scheduling Coordinators.

By 6:00 p.m. two days prior to the Trading Day, the ~~ISO-CAISO~~ shall make available to Scheduling Coordinators general system information including those items of information set forth in Section ~~6.9.4~~. This information shall be provided at the same time as the ~~ISO-CAISO~~ provides general system information to all Scheduling Coordinators wishing to ~~schedule-transmit~~ power on the ~~ISO-CAISO~~ Controlled Grid.

8.5.2 Time Frame for Submitting And Evaluating Bids.

8.5.2.1 Day-Ahead ~~Auction~~Market.

Bids for the ~~ISO's Day-Ahead~~ Regulation ~~Up, Regulation Down~~, Spinning Reserve, ~~and~~ Non-Spinning Reserve ~~and Replacement Reserve~~ service ~~in the Day Ahead M~~arket must be received by ~~Market Close for the Day-Ahead Market~~ ~~10:00 am on the day prior to the Trading Day~~. The ~~bids~~ ~~Bids~~ shall include information for each of the twenty-four (24) Settlement Periods of the Trading Day. Failure to provide the information within the stated time frame shall result in the ~~bids~~ ~~Bids~~ being declared invalid by the ~~ISO-CAISO~~.

8.5.2.2 Hour-Ahead ~~Auction~~HASP. The ~~ISO-CAISO~~ will require Scheduling Coordinators to honor their Day-Ahead Ancillary Services ~~Awards~~ ~~schedules and/or bids~~ when submitting ~~their Hour-~~

~~Hour-Ahead Ancillary Services schedules and/or bids-Bids in the HASP.~~ Bids for ~~the ISO's Hour-Ahead Regulation, Up Regulation Down,~~ Spinning Reserve, ~~and~~ Non-Spinning Reserve ~~and Replacement Reserve~~ service market for each Settlement Period must be received at least ~~two hours~~ seventy-five minutes prior to the commencement of that Settlement Period. The ~~bids-Bids~~ shall include information for only the relevant Settlement Period. Failure to provide the information within the stated time frame shall result in the ~~bids-Bids~~ being declared invalid by the ~~ISO-CAISO~~. ~~Scheduling Coordinators wishing to buy back in the Hour-Ahead Market Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity sold to the ISO in the Day-Ahead Market pursuant to Section 8.7 must do so by submitting a revised bid in the Hour-Ahead Market for the Ancillary Service and resource concerned.~~

8.5.3 Information to Be Submitted By Bidders.

8.5.3.1 Information for Use in Day-Ahead Market, HASP and Real-Time Market and Hour-Ahead Market.

Bids shall be submitted by Scheduling Coordinators acting ~~on behalf of~~ for Participating Generators, and owners or operators of Loads. Bids must be in the format specified by the ~~ISO-CAISO~~ and include the ~~bid-Bid~~ information for each service described in Sections ~~30 8.5.6 to 8.5.10~~ and such other information as the ~~ISO-CAISO~~ may determine it requires to evaluate ~~bids-Bids~~ as published from time to time in this ~~ISO-CAISO~~ Tariff ~~or ISO-Protocols~~. The ~~ISO-CAISO~~ will verify and respond to submitted ~~bid-Bid~~ data in accordance with Appendix E and the ~~ISO-CAISO~~ Protocols. Bidders may submit new ~~bids-Bids~~ on a daily basis (or hourly basis for the ~~Hour-Ahead~~ HASP and RT Market).

8.5.3.2 Information for Use in Real-Time Dispatch of Ancillary Services.

~~Scheduling Coordinators with Ancillary Services awards must submit a single Energy Bid curve in the Real Time Market to correspond to any awarded capacity for the relevant resources~~ Scheduling Coordinators must submit Energy Bids for resources providing Spinning ~~and~~ Non-Spinning ~~or Replacement~~ Reserves.

8.5.4 Bid Evaluation Rules.

Bid evaluation Ancillary Services Bids shall be pursuant to Section 30.7. The following principles will apply in the treatment of Ancillary Services Bids in the CAISO Markets; Bid evaluation shall be based on the following principles:

- (a) ~~the ISO shall~~ not differentiate between bidders for Ancillary Services and Energy other than through cost, price, effectiveness, and capability to provide the Ancillary sService or Energy, and the required locational mix of Ancillary sServices;
- (b) ~~to minimize the costs to users of the ISO Controlled Grid, the ISO shall~~ select the bidders with lowestmost cost effective bids ~~Bids~~ for Ancillary Service capacity which meet its technical requirements, including location and operating capability to minimize the costs to users of the CAISO Controlled Grid;
- (c) ~~for the Day-Ahead Market, the Day-Ahead bids shall be~~ evaluated the Day-Ahead Bids ~~independently for~~ over each of the 24 Settlement Periods of the following Trading Day along with Energy, taking into transmission constraints and AS Regional limits;
- (d) ~~for the Hour-Ahead Market, the ISO shall~~ evaluate bids ~~Bids~~ in the HASP and establish Ancillary Service Awards from Imports at approximately 65 minutes prior to ~~in the two hours preceding~~ the hour of operation;
- (e) evaluate import Bids along with internal resource Bids and establish hourly Ancillary Service Awards in the HASP; and
- (f) establish Real-Time Ancillary Service Awards from generation internal to the CAISO Control Area at 15 minutes intervals to the hour of operation; and
- (eg) ~~the ISO~~ procure sufficient Ancillary Services in the Day-Ahead, HASP, and Real-Time Markets to meet its forecasted requirements, ~~as known at the close of the Day-Ahead Market, except that the ISO may elect to procure a portion of such requirements in the Hour-Ahead Markets if the ISO first provides notice to Scheduling Coordinators of such action, including the approximate hourly megawatt amounts of each Ancillary Service that it intends to procure in the Hour-Ahead Markets;~~
- (f) ~~the ISO will (to the extent available) procure sufficient Ancillary Services to meet its technical requirements; and~~

~~(g) the ISO will evaluate and price only those Ancillary Services bids received.~~

8.5.5 Evaluation of Ancillary Services Bids.

When Scheduling Coordinators bid into the Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve ~~and Replacement Reserve~~ markets, they may submit bids for the same capacity into as many of these markets as desired at the same time by providing the appropriate Bid bid information to the ISO-CAISO. ~~The ISO-CAISO optimization will shall evaluate AS Bids simultaneously with Energy Bids. bids in the markets for Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve sequentially and separately in the following order: Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve. Any capacity accepted by the ISO in one of these markets shall not be passed on to another market, except that capacity accepted in the Regulation market that represents the downward range of movement accepted by the ISO may be passed on to another market; any losing bids in one market may be passed onto another market, if the Scheduling Coordinator so indicates to the ISO.~~ A Scheduling Coordinator may specify ~~capacity bid into~~ that its Bid applies only the markets it desires. A Scheduling Coordinator shall also have the ability to specify different capacity prices ~~and different Energy prices~~ for the Spinning Reserve, Non-Spinning Reserve, ~~Replacement Reserve~~ and Regulation markets. The Bid bid information, ~~bid evaluation and price determination rules~~ set forth below shall be used in the Day-Ahead, Hour-Ahead~~HASP~~ and Real-Time procurement of Regulation Up, Regulation Down Spinning Reserve, and Non-Spinning Reserve, ~~and Replacement Reserve.~~

A Scheduling Coordinator providing one or more Regulation Up, Regulation Down, Spinning Reserve, ~~or~~ Non-Spinning Reserve, ~~and Replacement Reserve~~ services may not change the identification of the Generating Units ~~or Loads~~ offered in the Day-Ahead Market, HASP ~~the Hour-Ahead Market~~ or in ~~real-time the~~ Real-Time Market for such services unless specifically approved by the ISO-CAISO (except with respect to System Units, if any, in which case Scheduling Coordinators are required to identify and disclose the resource specific information for all Generating Units and Curtailable Demands constituting the System Unit ~~scheduled or bid~~ for which Bids and Submissions to Self-Provide Ancillary Services are

~~submitted into the ISO's CAISO's Day-Ahead Market and Hour-Ahead HASP and Real-Time Market as required in SP 3.3.2(e) in Appendix Y).~~

8.5.6 Submission of Ancillary Services Bids

8.5.6.1 Submission of Bids for Regulation Reserves and Operating Reserves.

~~Scheduling Coordinators must submit Bids for Regulation Up, Regulation Down, Spinning Reserve and Non-Spinning Reserve in accordance with the requirements of Section 30.~~

8.5.5.1 Ancillary Service Bid Evaluation and Pricing Terminology.

~~Unless otherwise specifically described herein, the following terminology will apply:~~

~~$CapRes_{ijt}$ = the Ancillary Service reserve reservation bid price (in \$/MW).~~

~~$Cap_{ijt,max}$ = the maximum amount of reserve that can be scheduled by the ISO with respect to a Scheduling Coordinator's bid of that resource to supply Ancillary Services (in MW).~~

~~Cap_{ij} = that portion of an Ancillary Services bid (in MW), identified in the ISO's evaluation process, that may be used to meet the ISO's Requirement for a particular Ancillary Service ($Cap_{ijt} < Cap_{ijt,max}$)~~

~~Requirement = the total amount of reserve that must be scheduled for a particular Ancillary Service required by the ISO in a Settlement Period (in MW).~~

~~i, j, t = Generating Unit i , Scheduling Coordinator j , Settlement Period t .~~

8.5.6 The Regulation Auction.

~~**Bid Information.** Each Scheduling Coordinator j desiring to participate in the ISO's Regulation auction will submit the following information for each relevant Generating Unit or System Unit i for each Settlement Period t of the relevant Trading Day:~~

~~(a) bidder name/Identification Code and Scheduling Coordinator's ID code;~~

- ~~(b) — resource identification (name and Location Code);~~
- ~~(c) — the date for which the bid applies;~~
- ~~(d) — maximum operating level (MW);~~
- ~~(e) — minimum operating level (MW);~~
- ~~(f) — ramp rate (MW/Min) $Ramp_{ijt}$;~~
- ~~(g) — the upward and downward range of generating capacity over which Generating Unit or System Unit i from Scheduling Coordinator j is willing to provide Regulation for Settlement Period t (Cap_{ijt}^{max} (MW) where $Cap_{ijt}^{max} \leq Period_{minutes} * Ramp_{ijt}$. $Period_{minutes}$ is established by the ISO, by giving Scheduling Coordinators twenty-four (24) hours advance notice, within a range from a minimum of 10 minutes to a maximum of 30 minutes. Bidders shall offer upward and downward range for Regulation service;~~
- ~~(h) — the bid price of the capacity reservation, stated separately for Regulation Up and Regulation Down ($CapRes_{ijt}$ (\$/MW));~~
- ~~(i) — type of schedule: Regulation Ancillary Service (ANC_SRVC) or Revised Regulation Ancillary Service (REVISED_ANC_SRVC);~~
- ~~(j) — type of market (Day Ahead or Hour Ahead) and Trading Day;~~
- ~~(k) — preferred bid flag, a “YES” indicates a bid and a “NO” indicates a self-provided schedule; and~~
- ~~(l) — upward and downward range of Generating Unit or System Unit capacity over which the Generating Unit or System Unit is offering to provide Regulation.~~

~~Each Scheduling Coordinator desiring to participate in the ISO's Regulation auction will submit the following information for each relevant external import for each Settlement Period of the relevant Trading Day:~~

- ~~(a) — bidder name/Identification Code and Scheduling Coordinator's ID code;~~
- ~~(b) — type of market (Day Ahead or Hour Ahead) and Trading Day;~~

- (c) — Scheduling Point (the name);
- (d) — interchange ID code (the name of the selling entity, buying entity and a numeric identifier);
- (e) — external Control Area ID;
- (f) — Schedule ID (NERC ID number) and complete WECC tag;
- (g) — preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;
- (h) — the contract reference number, if applicable;
- (i) — maximum operating level (MW);
- (j) — minimum operating level (MW);
- (k) — ramp rate (MW/Min) $Ramp_{ijt}$;
- (l) — the upward and downward range of generating capacity over which System Resource i from Scheduling Coordinator j is willing to provide Regulation for Settlement Period t (Cap_{ijt}^{max} (MW)) where $Cap_{ijt}^{max} \leq Period_{minutes} * Ramp_{ijt} - Period_{minutes}$ is established by the ISO, by giving Scheduling Coordinators twenty four (24) hours advance notice, within a range from a minimum of 10 minutes to a maximum of 30 minutes. Bidders shall offer upward and downward range for Regulation service;
- (m) — the bid price of the capacity reservation, stated separately for Regulation Up and Regulation Down ($CapRes_{ijt}$ (\$/MW)); and
- (n) — type of schedule: (Regulation Ancillary Service).

Bid Evaluation — Based on the quantity and location of the system requirements, the ISO shall select Generating Units, System Units, and System Resources with the bids, which minimize the sum of the total bids of the Generating Units, System Units, and System Resources selected for Regulation Up or Regulation Down, subject to two constraints:

- (a) — the sum of the selected bid capacities must be greater than or equal to the required Regulation capacity; and

~~(b) — each Generating Unit's, System Unit's, or System Resource's bid capacity must be less than or equal to that Generating Unit's, System Unit's, or System Resource's ramp rate times Period minutes where Period_{minute} is established by the ISO, by giving Scheduling Coordinators twenty-four (24) hours advance notice, within a range from a minimum of 10 minutes to a maximum of 30 minutes.~~

~~The total bid for each Generating Unit, System Unit, or System Resource is calculated by multiplying the capacity reservation bid price by the bid capacity.~~

~~Thus, subject to any locational requirements, the ISO will accept winning Regulation bids in accordance with the following criteria:~~

$$\text{Min } \sum_{i,j} \text{TotalBid}_{ijt}$$

~~Subject to~~

$$\sum_{i,j} \text{Cap}_{ijt} \geq \text{Requirement}_t \text{ and } \text{Cap}_{ijt} \leq \text{Cap}_{ijt\text{max}}$$

~~Where~~

$$\text{TotalBid}_{ijt} = \text{CapRes}_{ijt} * \text{Cap}_{ijt}$$

~~Requirement_t = Amount of upward and downward movement capacity required~~

~~**Price Determination**—The price payable to Scheduling Coordinators for Regulation Capacity made available for upward and downward movement in accordance with the ISO's Final Day Ahead Schedules shall, for each Generating Unit, System Unit, and System Resource concerned, be the Zonal Market Clearing Price as follows:~~

$$\text{PAGC}_x = \text{MCP}_{xt}$$

~~Where:~~

The Zonal Market Clearing Price (MCP_{xt}) is the highest priced winning Regulation capacity bid in Zone X based on the capacity reservation bid price, i.e.

$$MCP_{xt} = \text{Max} (CapRes_{ijt}) \text{ in Zone } x \text{ for Settlement Period } t$$

In the absence of Inter-Zonal Congestion, the Zonal Market Clearing Prices will be equal.

The ISO's auction does not compensate the Scheduling Coordinator for the minimum Energy output of Generating Units, System Units, or System Resources bidding to provide Regulation. Therefore, disposition of any minimum Energy associated with Regulation selected in the ISO's Ancillary Services markets is the responsibility of the Scheduling Coordinator selling the Regulation.

The price payable to Scheduling Coordinators for Regulation capacity not included in the ISO's Final Day Ahead Schedules but made available in accordance with amended Ancillary Services supplier schedules issued in accordance with Section 8.7 shall be the bid price of the Regulation Capacity reserved ($CapRes_{ijt}$ (\$/MW)).

8.5.7 The Spinning Reserve Auction.

Bid Information. If the bid is for the provision of Spinning Reserve from a Generating Unit or System Unit, each Scheduling Coordinator j must submit the following information for each Generating Unit or System Unit i for each Settlement Period t of the following Trading Day:

- (a) bidder name/Identification Code;
- (b) resource identification (name and Location Code);
- (c) the date for which the bid applies;
- (d) maximum operating level (MW);
- (e) minimum operating level (MW);
- (f) ramp rate (MW/min);

~~(g) — MW additional capability synchronized to the system, immediately responsive to system frequency, and available within 10 minutes ($Cap_{ijt,max}$) for Generating Unit i , or System Unit i , from Scheduling Coordinator j , for Settlement Period t ;~~

~~(h) — bid price of capacity reserved ($CapRes_{ijt}$ (\$/MW));~~

~~(i) — an indication whether 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;~~

~~(j) — type of schedule: Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);~~

~~(k) — type of market (Day Ahead or Hour Ahead) and Trading Day;~~

~~(l) — preferred bid flag, a “YES” indicates a bid and a “NO” indicates a self-provided schedule; and~~

~~(m) — Spinning Reserve capacity (MW).~~

~~—— If the bid is for the provision of Spinning Reserve from an external import of a System Resource, each Scheduling Coordinator j must submit the following information for each external import of a System Resource i for each Settlement Period t of the following Trading Day:~~

~~(a) — bidder name/Identification Code;~~

~~(b) — the date for which the bid applies;~~

~~(c) — ramp rate if applicable (MW/Min);~~

~~(d) — MW additional capability synchronized to the system, immediately responsive to system frequency and available at the point of interchange with the ISO Control Area, within 10 minutes ($Cap_{ijt,max}$) of the ISO calling for the external import of System Resource i , from Scheduling Coordinator j , for Settlement Period t ;~~

~~(e) — bid price of capacity reserved ($CapRes_{ijt}$ (\$/MW));~~

- (f) ~~an indication whether 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; and, for a dynamic import of a System Resource, the following additional information:~~
- (g) ~~type of market (Day Ahead or Hour Ahead) and Trading Day;~~
- (h) ~~Scheduling Point (the name);~~
- (i) ~~interchange ID code (the name of the selling entity, buying entity and a numeric identifier);~~
- (j) ~~external Control Area ID;~~
- (k) ~~Schedule ID (NERC ID number) and complete WECC tag;~~
- (l) ~~preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;~~
- (m) ~~the contract reference number, if applicable;~~
- (n) ~~type of schedule: Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);~~
- (o) ~~export flag, a "YES" indicates an external export and a "NO" indicates an external import; and~~
- (p) ~~Spinning Reserve capacity (MW).~~

~~**Bid Evaluation.** Based on the quantity and location of the system requirements, the ISO shall select the Generating Units, System Units and external imports of System Resources with the bids which minimize the sum of the total bids of the Generating Units, System Units and external imports of System Resources selected subject to two constraints:~~

- (a) ~~the sum of the selected bid capacities must be greater than or equal to the required Spinning Reserve capacity; and~~
- (b) ~~each Generating Unit's, System Unit's or external import's bid capacity must be less than or equal to that Generating Unit's, System Unit's or external import's ramp rate times 10 minutes.~~

The total bid for each Generating Unit, System Unit or external import of a System Resource is calculated by multiplying the capacity reservation bid price by the bid capacity. Thus, subject to any locational requirements, the ISO will select the winning Spinning Reserve bids in accordance with the following criteria:

$$\text{Min } \sum_{i,j} \text{Totalbid}_{ijt}$$

Subject to _____

$$\sum_{i,j} \text{Cap}_{ijt} \geq \text{Requirement}_t$$

and $\text{Cap}_{ijt} \leq \text{Cap}_{ijtmax}$

Where

$$\text{TotalBid}_{ijt} = \text{Cap}_{ijt} * \text{CapRes}_{ijt}$$

Requirement_t = the amount of Spinning Reserve capacity required

Price Determination. The price payable to Scheduling Coordinators for Spinning Reserve Capacity made available in accordance with the ISO's Final Day Ahead Schedules shall, for each Generating Unit or external import of a System Resource concerned be the Zonal Market Clearing Price for Spinning Reserve calculated as follows:

$$P_{sp_{xt}} = MCP_{xt}$$

Where the Zonal Market Clearing Price (MCP_{xt}) for Spinning Reserve is the highest priced winning Spinning Reserve capacity bid in Zone X based on the capacity reservation bid price, i.e.:

$$MCP_{xt} = \text{Max}(\text{CapRes}_{ijt}) \text{ in Zone } x \text{ for Settlement Period } t$$

In the absence of Inter Zonal Congestion, the Zonal Market Clearing Prices will be equal.

The ISO's auction does not compensate a Scheduling Coordinator for the minimum Energy output of Generating Units, System Units or System Resources bidding to provide Spinning Reserve.

Therefore, any minimum Energy output associated with Spinning Reserve selected in the ISO's auction is the responsibility of the Scheduling Coordinator selling the Spinning Reserve.

The price payable to Scheduling Coordinators for Spinning Reserve Capacity not included in the ISO's Final Day Ahead Schedules but made available in accordance with amended Ancillary Services supplier schedules issued in accordance with Section 8.7 shall be the bid price of the Spinning Reserve capacity reserved ($CapRes_{ijt}$ (\$/MW)).

8.5.8 The Non-Spinning Reserve Auction.

Bid Information. If the bid is for the provision of Non-Spinning Reserve from a Generating Unit or System Unit, each Scheduling Coordinator j must submit the following information for each Generating Unit or System Unit i for each Settlement Period t of the following Trading Day:

- ~~(a) bidder name/Identification Code;~~
- (b) Generating Unit or System Unit identification (name and Location Code);
- (c) the date for which the bid applies;
- (d) maximum operating level (MW);
- (e) minimum operating level (MW);
- (f) ramp rate (MW/Min);
- (g) the MW capability available within 10 minutes (Cap_{ijt}^{max});
- (h) the bid price of the capacity reserved ($CapRes_{ijt}$ (\$/MW));
- (i) time to synchronization following notification (min);
- (j) an indication whether 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;
- (k) type of schedule: Non-Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non-Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

~~(l) — type of market (Day Ahead or Hour Ahead) and Trading Day; and~~

~~(m) — preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule.~~

~~—— If the bid is for the provision of Non-Spinning Reserve from an external import of a System Resource, each Scheduling Coordinator j must submit the following information for each external import of a System Resource i for each Settlement Period t of the following Trading Day:~~

~~**(a) — bidder name/Identification Code;**~~

~~(b) — the date for which the bid applies;~~

~~(c) — ramp rate if applicable (MW/Min);~~

~~(d) — the MW capability available at the point of interchange with the ISO Control Area, within 10 minutes ($Cap_{ijt}max$) of the ISO calling for the external import of System Resource i , from Scheduling Coordinator j , for Settlement Period t ;~~

~~(e) — the bid price of the capacity reserved ($CapRes_{ijt}(\$/MW)$);~~

~~(f) — an indication whether 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; and, for a dynamic import of a System Resource, the following additional information:~~

~~(g) — type of market (Day Ahead or Hour Ahead) and Trading Day;~~

~~(h) — Scheduling Point (the name);~~

~~(i) — interchange ID code (the name of the selling entity, buying entity and a numeric identifier);~~

~~(j) — external Control Area ID;~~

~~(k) — Schedule ID (NERC ID number) and complete WECC tag;~~

~~(l) — preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;~~

~~(m) — the contract reference number, if applicable;~~

~~(n) — type of schedule: Non Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);~~

~~(o) — export flag, a “YES” indicates an external export and a “NO” indicates an external import; and~~

~~(p) — Non Spinning Reserve capacity (MW).~~

~~—— If the bid is for the provision of Non Spinning Reserve from a Load located within the ISO Control Area, each Scheduling Coordinator j must submit the following information for each Load i for each Settlement Period t of the following Trading Day:~~

~~**(a) — bidder name/Identification Code;**~~

~~(b) — Load identification name and Location Code;~~

~~(c) — the date for which the bid applies;~~

~~(d) — Demand reduction available within 10 minutes ($Cap_{ijt}max$);~~

~~(e) — to interruption following notification (min);~~

~~(f) — maximum allowable curtailment duration (hr);~~

~~(g) — the bid price of the capacity reserved ($CapRes_{ijt}(\$/MW)$);~~

~~(h) — an indication whether the capacity reserved would be available for Demand reduction only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency;~~

~~(i) — type of schedule: Non Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);~~

~~(j) — type of market (Day Ahead and Hour Ahead) and Trading Day; and~~

~~(k) — preferred bid flag, a “YES” indicates a bid and a “NO” indicates a self provided schedule.~~

~~**Bid Evaluation** — Based on the quantity and location of the system requirements, the ISO shall select the Generating Units, System Units, Loads or external imports of System Resources with the bids~~

~~which minimize the sum of the total bids of the Generating Units, System Units, Loads or external imports of System Resources selected subject to two constraints:~~

- ~~(a) — the sum of the selected bid capacities must be greater than or equal to the required Non-Spinning Reserve capacity; and~~
- ~~(b) — each Generating Unit's, System Unit's, Load's or external import's bid capacity must be less than or equal to that Generating Unit's, System Unit's, Load's or external import's ramp rate (or time to interruption in the case of a Load offering Demand reduction) times the difference between 10 minutes and the time to synchronize in the case of a Generating Unit or System Unit or to interruption in the case of a Load. The total bid for each Generating Unit, System Unit, Load or external import of a System Resource is calculated by multiplying the capacity reservation bid by the bid capacity.~~

~~Thus subject to any locational requirements, the ISO will accept the winning Non-Spinning Reserve bids in accordance with the following criteria:~~

$$\text{Min } \sum_{i,j} \text{Totalbid}_{ijt}$$

~~Subject to~~ —

$$\sum_{i,j} \text{Cap}_{ijt} \geq \text{Requirement}_t$$

$$\text{Cap}_{ijt} \leq \text{Cap}_{ijtmax}$$

~~Where~~

$$\text{TotalBid}_{ijt} = \text{Cap}_{ijt} * \text{CapRes}_{ijt}$$

~~Requirement_t = the amount of Non-Spinning Reserve capacity required~~

~~**Price Determination.** The price payable to Scheduling Coordinators for Non-Spinning Reserve Capacity made available in accordance with the ISO's Final Day Ahead Schedules shall for each Generating Unit, System Unit, Load or external import of a System Resource concerned be the Zonal Market Clearing Price for Non-Spinning Reserve calculated as follows:~~

$$P_{nonsp_{xt}} = MCP_{xt}$$

Where the Zonal Market Clearing Price (MCP_{xt}) for Non-Spinning Reserve is the highest priced winning Non-Spinning Reserve bid in Zone X based on the capacity reservation bid price, i.e.:

$$MCP_{xt} = \text{Max}(CapRes_{ijt}) \text{ in Zone } x \text{ for Settlement Period } t.$$

In the absence of Inter-Zonal Congestion, the Zonal Market Clearing Prices will be equal.

The price payable to Scheduling Coordinators for Non-Spinning Reserve Capacity not included in the ISO's Final Day-Ahead Schedules but made available in accordance with amended Ancillary Services supplier schedules issued in accordance with Section 8.7 shall be the bid price of the Non-Spinning Capacity reserved ($CapRes_{ijt} (\$/MW)$).

8.5.8A — The Replacement Reserve Auction.

Bid Information. If the bid is for the provision of Replacement Reserve from a Generating Unit or System Unit each Scheduling Coordinator j must submit the following information for each Generating Unit or System Unit i for each Settlement Period t of the following Trading Day:

- (a) — bidder name/Identification Code;
- (b) — Generating Unit or System Unit identification (name and Location Code);
- (c) — the date for which the bid applies;
- (d) — maximum operating level (MW);
- (e) — minimum operating level (MW);
- (f) — ramp rate (MW/Min);
- (g) — the MW capacity available within 60 minutes (Cap_{ijtmax});
- (h) — the bid price of the capacity reserved ($CapRes_{ijt} (\$/MW)$);
- (i) — time to synchronize following notification (min).

(j) — type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);

(k) — type of market (Day Ahead or Hour Ahead) and Trading Day; and

(l) — preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule.

If the bid is for the provision of Replacement Reserve from an external import of a System Resource, each Scheduling Coordinator j must submit the following information for each external import of a System Resource i for each Settlement Period t of the following Trading Day:

(a) — bidder name/Identification Code;

(b) — the date for which the bid applies;

(c) — ramp rate applicable (MW/Min);

(d) — the MW capability available at the point of interchange with the ISO Control Area, within 60 minutes ($Cap_{ijt,max}$) of the ISO calling for the external import of System Resource i , from Scheduling Coordinator j , for Settlement Period t ;

(e) — bid price of capacity reserved ($CapRes_{ijt}$; (\$/MW)); and, for a dynamic import of a System Resource, the following additional information:

(h) — type of market (Day Ahead or Hour Ahead) and Trading Day;

(i) — Scheduling Point (the name);

(j) — interchange ID code (the name of the selling entity, buying entity and a numeric identifier);

(k) — external Control Area ID;

(l) — Schedule ID (NERC ID number) and complete WECC tag;

(m) — preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(n) — the contract reference number, if applicable;

- ~~(e) — type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);~~
- ~~(p) — time to synchronize following notification (less than sixty (60) minutes mandatory); and~~
- ~~(q) — Replacement Reserve capacity (MW).~~

~~If the bid is for the provision of Replacement Reserve from a Load located within the ISO Control Area, each Scheduling Coordinator j must submit the following information for each Load i for each Settlement Period t of the following Trading Day:~~

- ~~(a) — bidder name/Identification Code;~~
- ~~(b) — Load identification (name and Location Code);~~
- ~~(c) — the date for which the bid applies;~~
- ~~(d) — the Demand reduction available within 60 minutes (Cap_{ijt} (MW));~~
- ~~(e) — time to interruption following notification (min);~~
- ~~(f) — maximum allowable curtailment duration (hr);~~
- ~~(g) — the bid price of the capacity reserved ($CapRes_{ijt}$ (\$/MW));~~
- ~~(h) — type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);~~
- ~~(i) — type of market (Day Ahead or Hour Ahead) and Trading Day;~~
- ~~(j) — preferred bid flag, a “YES” indicates a bid and a “NO” indicates a self provided schedule; and~~
- ~~(k) — Curtailable Demand reduction rate (MW/minute).~~

~~**Bid Evaluation.** Based on the quantity and location of the system requirements, the ISO shall select the Generating Units, System Units, Loads or external imports of System Resources with the bids which minimize the sum of the total bids of the Generating Units, System Units, Loads or external imports of System Resources selected subject to two constraints:~~

(a) — the sum of the selected bid capacities must be greater than or equal to the required Replacement Reserve capacity; and

(b) — each Generating Unit's, System Unit's, Load's or external import's bid capacity must be less than or equal to that Generating Unit's, System Unit's, Load's or external import's ramp rate (or time to interruption in the case of a Load offering Demand reduction) times the difference between 60 minutes and the time to synchronize in the case of Generating Unit or System Unit, or to interruption in the case of Load.

The total bid for each Generating Unit, System Unit, Load or external import of System Resource is calculated by multiplying the capacity reservation bid price by the bid capacity.

Thus, subject to any locational requirements, the ISO will select the winning Replacement Reserve bids in accordance with the following criteria:

$$\text{Min} \sum_{i,j} \text{Totalbid}_{ijt}$$

Subject to

$$\sum_{i,j} \text{Cap}_{ijt} \geq \text{Requirement}_t$$

$$\text{Cap}_{ijt} \leq \text{Cap}_{ijtmax}$$

Where

$$\text{TotalBid}_{ijt} = \text{Cap}_{ijt} * \text{CapRes}_{ijt}$$

Requirement_t = the amount of Replacement Reserve capacity required

Price Determination. The price payable to Scheduling Coordinators for Replacement Reserve Capacity made available in accordance with the ISO's Final Day-Ahead Schedules shall, for each Generating Unit, System Unit, Load or external import of a System Resource concerned, be the Zonal Market Clearing Price for Replacement Reserve calculated as follows:

$$P_{\text{RepRes}_{xt}} = \text{MCP}_{xt}$$

~~Where the Zonal Market Clearing Price (MCP_{xt}) for Replacement Reserve is the highest priced winning Replacement Reserve bid in Zone X based on the capacity reservation bid price, i.e.:~~

$$\text{MCP}_{xt} = \text{Max}(\text{CapRes}_{ijt}) \text{ in Zone } x \text{ for Settlement Period } t.$$

~~In the absence of Inter-Zonal Congestion, the Zonal Market Clearing Prices will be equal.~~

~~The price payable to Scheduling Coordinators for Replacement Reserve Capacity not included in the ISO's Final Day Ahead Schedules but made available in accordance with amended Ancillary Services schedules issued in accordance with Section 8.7 shall be the bid price of the Replacement Reserve capacity reserved ($\text{CapRes}_{ijt} (\$/\text{MW})$).~~

8.5.6.2 ~~8.5.9~~ Voltage Support.

As of the ~~ISO~~ CAISO Operations Date, the ~~ISO~~ CAISO will contract for Voltage Support service with the owners of Reliability Must-Run Units. Payments for public utilities under the FPA shall be capped at the FERC authorized cost-based rates unless and until FERC authorizes different pricing. The ~~ISO~~ CAISO shall pay owners of Reliability Must-Run Units for long-term Voltage Support through their Scheduling Coordinators.

In addition, any Participating Generator who is producing Energy shall, upon the ~~ISO's~~ CAISO's specific request, provide reactive energy output outside the Participating Generator's Voltage Support obligation defined in Section 8.2.3.34.

The ~~ISO~~ CAISO shall select Participating Generator's Generating Units which have been certified for Voltage Support to provide this additional Voltage Support. Subject to any locational requirements, the ~~ISO~~ CAISO shall select the least costly Generating Units from a computerized merit order stack to back down to produce additional Voltage Support in each location where Voltage Support is needed.

The ~~ISO~~ CAISO shall pay to the Scheduling Coordinator for that Participating Generator the opportunity cost of reducing Energy output to enable reactive energy production. This opportunity cost shall be:

Max{0, ~~Zonal Settlement Interval Ex Post Price~~LMP - Generating Unit ~~bid~~-Bid price } x reduction in Energy output (MW).

If necessary, the ~~ISO~~-CAISO shall develop a regulatory cost-based determination of marginal operating cost to be used in place of the Generating Unit ~~bid~~-Bid price.

~~8.5.6.3~~ 8.5.10— Black Start Capability and Energy Output.

As of the ~~ISO~~-CAISO Operations Date, the ~~ISO~~-CAISO will contract for Black Start capability and Energy with owners of Reliability Must-Run Units and Black Start Generators. Public utilities under the FPA will be paid rates capped at the FERC authorized cost base rates unless and until FERC authorizes different pricing.

The ~~ISO~~-CAISO shall pay owners of Reliability Must-Run Units for Black Start Energy output through their Scheduling Coordinators. The ~~ISO~~-CAISO shall pay Black Start Generators for Black Start Energy output directly.

8.6 Obligations for and Self-Provision of Ancillary Services.

8.6.1 Ancillary Service Obligations.

Each Scheduling Coordinator shall be assigned a share of the total Regulation ~~Down, Regulation Up,~~ Spinning Reserve, ~~and Non-Spinning and Replacement Reserve~~ requirements by the ~~ISO~~-CAISO (*i.e., a share of the total requirements for each ancillary service in the Day-Ahead Market, HASP, and the Real-Time Market*). Any references in this ~~CAISO~~ Tariff to the Ancillary Service “Regulation” shall be read as referring to “Regulation Up” or “Regulation Down”. ~~The share assigned to each Scheduling Coordinator is described in Section 8.6 and in Section 8.12 as that Scheduling Coordinator’s obligation. Each Scheduling Coordinator’s Regulation obligation in each Zone shall be pro rata based upon the same proportion as the Scheduling Coordinator’s metered hourly Demand (excluding exports) bears to the total metered Demand (excluding exports) served in each hour in that Zone. Each Scheduling Coordinator’s Operating Reserve obligation in each Zone shall be pro rata based upon the same proportion as the ratio of the product of its percentage obligation based on metered output and the sum of its metered Demand and firm exports bears to the total of such products for all Scheduling Coordinators in the Zone. The~~

~~Scheduling Coordinator's percentage obligation based on metered output shall be calculated as the sum of 5% of its real-time Demand (except the Demand covered by firm purchases from outside the ISO CAISO Control Area) met by Generation from hydroelectric resources plus 7% of its Demand (except the Demand covered by firm purchases from outside the ISO CAISO Control Area) met by Generation from non-hydroelectric resources in that Zone, plus 100% of any Interruptible Imports and on-demand obligations which it schedules. Each Scheduling Coordinator's Replacement Reserve obligation in each Zone is calculated as described in Section 8.12.3A. Scheduling Coordinator obligations for each Ancillary Service will be calculated based on the requirement for each Ancillary Service as the ISO determines prior to the adjustment set forth in Section 8.2.3.6.~~

8.6.2 Right to Self-Provide.

Each Scheduling Coordinator may choose to self-provide all, or a portion, of its Regulation Up, Regulation Down, Spinning Reserve, and Non Spinning Reserve, Operating Reserve, and Replacement Reserve obligations in each Zone in the Day-Ahead Market, and, to the extent needed to satisfy CAISO's additional requirement, HASP and Real Time Market. ~~The right to Self-Provide Ancillary Services from capacity that is under a contractual obligation to provide Energy, including but not limited to capacity subject to an RMR Contract and local Resource Adequacy resources, shall be conditional; self-provision of Ancillary Services from such capacity will only be permitted to the extent that capacity is not needed for Energy as a result of the MPM-RRD process described in this CAISO Tariff.~~ To self-provide Ancillary Services a Scheduling Coordinator must provide the CAISO with a Submission to Self Provide an Ancillary Service. Both Ancillary Service Bids and Submissions to Self Provide Ancillary Service can be provided to the CAISO for the same Ancillary Service and for the same hour in the same market.

A Submission to Self-Provide an Ancillary Service is a submission that contains all of the requirements for an Ancillary Service Bid with the exception of capacity price information. Prior to evaluating Ancillary Service Bids, the CAISO will determine whether Submissions to Self Provide Ancillary Services are feasible with regard to resource operating characteristics and regional constraints and are qualified to provide the Ancillary Services in the markets for which they were submitted. A Self Provided Ancillary Service is a Submission to Self Provide an Ancillary Service that has been accepted by the CAISO.

If the total Submissions to Self Provide Ancillary Services exceed the maximum regional requirement for the relevant Ancillary Service in an Ancillary Services Region, the submissions that would otherwise be accepted by the CAISO as feasible and qualified will be awarded on a pro-rata basis among the suppliers offering to Self-Provide the Ancillary Service up to the amount of the requirement. ~~If a regional constraint imposes a limit on the total amount of Reg-Up, Spin, and Non-Spin, and the total self-provision of these AS in that region exceeds that limit, Self-Provided AS are qualified pro rata in three tiers: Reg-Up first, followed by Spin, and then by Non-Spin.~~ Submissions to Self Provide Ancillary Services in excess of the maximum regional requirement for the relevant Ancillary Service in an Ancillary Services Region will not be accepted and qualified by the CAISO as Self Provided Ancillary Services. The ~~ISO-CAISO~~ shall schedule ~~s~~Self-Provided Ancillary Services ~~in the, Day-Ahead Market and the RTM and Hour-Ahead,~~ and Dispatch ~~S~~Self-Provided Ancillary Services in ~~the R~~Real-~~T~~ime. To the extent that a Scheduling Coordinator self-provides Regulation Up, Regulation Down, Spinning Reserve, and Non Spinning Reserve, the ~~ISO-CAISO~~ shall correspondingly reduce the quantity of the Ancillary Services it procures from Bids submitted in the Day-Ahead Market, HASP, and the Real-Time Market concerned, which it procures as described in Sections 8.5.6 to 8.5.8A. ~~To the extent a Scheduling Coordinator's Self Provided Ancillary Service for a particular Ancillary Service is greater than the Scheduling Coordinator's obligation for that particular Ancillary Service in a Settlement Interval, the Scheduling Coordinator will receive the user rate for the Self Provided Ancillary Service for the amount of the Self Provided Ancillary Service in excess of the Scheduling Coordinator's obligation.~~

~~In accordance with Section 34.8 and Section 8.10.2.2, if a Scheduling Coordinator uses capacity scheduled to self-provide Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve to supply Uninstructed Imbalance Energy to the ISO from a Generating Unit, Curtailable Demand, or System Resource under circumstances that would cause the elimination of payments to the Scheduling Coordinator under Section 8.10.2.2 if the capacity had been bid and was selected by the ISO to supply the Ancillary Service, the Scheduling Coordinator shall pay to the ISO the amount of the payment that would be eliminated under that section.~~

Scheduling Coordinators may trade Ancillary Services ~~obligations~~ so that any Scheduling Coordinator may reduce its Ancillary Services obligation through purchase of Ancillary Services capacity

from another Scheduling Coordinator, or self-provide in excess of its obligation to sell Ancillary Services to another Scheduling Coordinator, ~~subject to the limits specified under Section 8.6.4.2. If a Scheduling Coordinator's Day-Ahead self-provided Ancillary Service Schedule is decreased in the Hour-Ahead Market, such decrease shall be deemed to be replaced at the Market Clearing Price in the Hour-Ahead Market, pursuant to Section 8.7.~~

8.6.3 Services Which May Be Self-Provided.

The ~~ISO~~ CAISO shall permit Scheduling Coordinators to self-provide the following Ancillary Services:

- (a) Regulation Up;
- ~~(b) Regulation Down;~~
- ~~(c) Spinning Reserve; and~~
- ~~(d) Non-Spinning Reserve; and~~
- ~~(e) Replacement Reserve.~~

Submissions to Self Provide Regulation Up and Regulation Down capacity will be rejected if Energy Bid provided in the submission is outside of the resource's regulating range. The ~~ISO~~ CAISO may from time to time add other Ancillary Services to this list as it considers appropriate.

8.6.4 Time Frame for Informing ~~ISO~~ CAISO of Self-Provision.

8.6.4.1 Day-Ahead Schedule.

At the Day-Ahead ~~Market~~ scheduling process, Scheduling Coordinators shall be required to submit information on ~~self-provided~~ self-provided Ancillary Services within the time frame stated in Section 8.5.2.1. Failure to submit the required information within the stated time frame for any hour shall lead to the self-provision for that hour being declared invalid by the CAISO, ~~and under such circumstances the ISO shall purchase sufficient Ancillary Services to meet the Scheduling Coordinator's requirements to match its Day-Ahead Schedule.~~

8.6.4.2 HASP. Hour-Ahead Schedule.

~~Increases in each Scheduling Coordinator's self-provided Ancillary Service between the Day Ahead and Hour Ahead Markets shall be limited to the estimated incremental Ancillary Service requirement associated with the increase between the Day Ahead and Hour Ahead Markets in that Scheduling Coordinator's scheduled Zonal Demand. Notwithstanding this limit on increases in Hour Ahead self-provision, a Scheduling Coordinator may buy or sell Ancillary Services through Inter-Scheduling Coordinator Ancillary Service Trades in the Hour Ahead Market. In the HASPHour Ahead scheduling process, Scheduling Coordinators shall be required to submit information on sSelf-Provided Ancillary Services within the time frame stated in Section 8.5.2.2. Failure to submit the required adjusted information within the stated time frame shall lead to the self-provision being declared invalid by the CAISO, and under such circumstances the ISO shall purchase the additional Ancillary Services necessary to meet the requirements for that Scheduling Coordinator.~~

8.6.4.2A Information To Be Submitted By Scheduling Coordinators For Each Service.

Scheduling Coordinators electing to self-provide Ancillary Services shall submit the information for each sSelf-Provided Ancillary Service as described in Sections 30.8.5.6 to 8.5.8A, ~~excluding the capacity price information, but including the name of the trading Scheduling Coordinator in the case of Inter-Scheduling Coordinator Ancillary Service Trades.~~

In the event of an Inter-Scheduling Coordinator Ancillary Service Trade, the Scheduling Coordinators who are parties to that trade must comply with requirements in Section 28.2 of the CAISO Tariff. agree on a Zone in which the trade is deemed to take place and notify the ISO accordingly. ~~The Ancillary Service obligations in the Zone of each Scheduling Coordinator will be adjusted to reflect the trade. The Inter-Scheduling Coordinator Ancillary Service Trades section of a Schedule will include the following information for each Inter-Scheduling Coordinator Ancillary Service Trade.~~

- ~~(a) _____ Scheduling Coordinator's ID code;~~
- ~~(b) _____ Type of market (Day Ahead or Hour Ahead) and Trading Day;~~
- ~~(c) _____ Trading Scheduling Coordinator (buyer or seller);~~
- ~~(d) _____ Zone;~~

~~(e) Schedule type Regulation Up (ARGU), Regulation Down (ARGD), Spinning Reserve (ASPN), Non-Spinning Reserve (ANSP) or Replacement Reserve (AREP); and~~

~~(f) Contracted MW amount of traded Ancillary Service obligation.~~

8.6.4.3 Acceptance of Self-Provided Ancillary Service ~~Schedules~~ Submissions.

The ~~ISO-CAISO~~ will refuse to accept a Submission to sSelf-Provided an Ancillary Service Schedules ~~only~~ to the extent ~~that it they fails~~ to meet the requirements contained in this ~~ISO-CAISO~~ Tariff. In particular, Self-Provided Ancillary Service Schedules must satisfy the following conditions:

- (a) the Scheduling Coordinator has a current certificate of technical eligibility for the Generating Units, System Units, Loads or System Resources selected for the Ancillary Services in question;
- (b) to the extent not provided under (a), the Generating Units, System Units, Loads and System Resources have the instrumentation, communication and metering equipment necessary to permit the ~~ISO-CAISO~~ to dispatch the offered Ancillary Services and verify that the services have been provided;
- (c) the ~~scheduling-Bid~~ information provided by the Scheduling Coordinator is deemed to be valid in accordance with Appendix E and the ~~ISO-CAISO Protocols~~ Tariff; and
- (d) the Generating Units, System Units, Loads or System Resources meet the ~~ISO's~~ CAISO's locational requirements for the Ancillary Services.

8.7 Scheduling of Units to Provide Ancillary Services.

The ~~ISO-CAISO~~ shall ~~prepare provide~~ Scheduling Coordinators with supplier schedules for Ancillary Services Awards (both self-provided and purchased by the CAISO) for the Day-Ahead, HASP and Real-Time Markets and the Hour Ahead Markets. The ~~ISO-CAISO~~ shall notify each Scheduling Coordinator no later than 1:00 p.m. of the day prior to the Trading Day of their Ancillary Services Awards and Ancillary Service sSchedules for the Day-Ahead Market; and no later than one hour prior to the operating hour of their Ancillary Services schedules for Ancillary Services from imports or System Resources in the HASP; and no later than fifteen (15) minutes prior to the operating hour in the Real-Time Market. the Hour Ahead.

Where long-term contracts are involved, the information may be treated as standing information for the duration of the contract.

~~————— If, at any time after the issuance of Final Day Ahead Schedules for the Trading Day and before the close of the Hour Ahead Market for the first Settlement Period of the Trading Day, the ISO determines that it requires Ancillary Services in addition to those included in the Final Day Ahead Schedule (in the appropriate Zone if procuring zonally), the ISO may procure such additional Ancillary Services by providing Scheduling Coordinators with amended supplier schedules for the Day Ahead Markets that include Ancillary Services for which previously submitted (but not selected) bids remain available and have not previously been withdrawn. The ISO shall select such Ancillary Services in price merit order (and in the relevant Zone if the ISO is procuring Ancillary Services on a Zonal basis). Such amended supplier schedules shall be provided to the Scheduling Coordinators no later than the close of the Hour Ahead Market for the first Settlement Period of the Trading Day.~~

Once the ~~ISO~~ CAISO has given Scheduling Coordinators notice of the Day-Ahead Market, HASP and Real-Time Market and ~~Hour Ahead~~ Ancillary Service Awards and Ancillary Service Schedules, these awards and schedules represent binding commitments made in the markets between the ~~ISO~~ CAISO and the Scheduling Coordinators concerned, subject to any amendments issued as described above. ~~Any minimum energy input and output associated with Regulation and Spinning Reserve services shall be the responsibility of the Scheduling Coordinator, or provided in accordance with the must offer obligation as set forth in Section 40.1, as the ISO's auction does not compensate the Scheduling Coordinator for the minimum energy output of Generating Units or System Units, if any, bidding to provide these services. Accordingly, except as set forth under Section 40.1, the Scheduling Coordinators shall adjust their schedules to accommodate the minimum outputs required by the Generating Units or System Units, if any, to facilitate delivery of Energy from Ancillary Services.~~

~~Notwithstanding the foregoing, a Scheduling Coordinator who has sold or self-provided Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity to the ISO in the Day Ahead Market shall be required to replace that capacity in whole or in part from the ISO if the scheduled self-provision is decreased between the Day Ahead and Hour Ahead Markets, or if the~~

~~Ancillary Service associated with a Generating Unit, Curtailable Demand, or System Resource successfully bid in a Day Ahead Ancillary Service Market is reduced in the Hour Ahead Market, for any reason (other than the negligence or willful misconduct of the ISO, or a Scheduling Coordinator's involuntary decrease in such sold capacity or scheduled self-provision on the instruction of the ISO). The price for such replaced Ancillary Service shall be the Market Clearing Price in the Hour Ahead Market for the Ancillary Service for the Settlement Period concerned for the Zone in which the Generating Units or other resources are located. The ISO will purchase the Ancillary Service concerned from another Scheduling Coordinator in the Hour Ahead Market in accordance with the provisions of the ISO Tariff.~~

8.8 Black Start.

- (a) Black Start shall meet the standards specified for Black Start in this Tariff and Appendix K; and
- (b) the ~~ISO~~ CAISO will Dispatch Black Start as required in accordance with the applicable Black Start agreement.

8.9 [Not Used]

8.10 — Verification, Compliance Testing, and Audit of Ancillary Services.

Availability of ~~both~~ contracted and ~~s~~Self-Provided Ancillary Services and RUC Capacity shall be verified by the ~~ISO~~ CAISO by unannounced testing of Generating Units, Loads and System Resources, by auditing of response to ~~ISO~~ CAISO Dispatch ~~instructions~~ Instructions, and by analysis of the appropriate Meter Data, or interchange schedules. The ~~ISO~~ CAISO may test the capability of any Generating Unit, System Unit, System Resource, external import of a System Resource, Participating Load ~~providing Curtailable Demand~~, or reactive device providing ancillary Ancillary services Services or RUC Capacity. Participating Generators, owners or operators of Participating Loads, operators of System Units or System Resources, owners or operators of reactive devices and Scheduling Coordinators shall notify the ~~ISO~~ CAISO immediately whenever they become aware that an Ancillary Service or RUC Capacity is not available in any way. All Participating Generators, owners or operators of Loads, operators of System Units or System Resources and owners or operators of reactive devices shall check, monitor and/or test

their system and related equipment routinely to assure availability of the committed Ancillary Services and RUC Capacity. These requirements apply to Ancillary Services whether the Ancillary Services are contracted or self-provided. For a duration specified by the CAISO, the ~~ISO~~ CAISO may suspend the technical eligibility certificate of a Scheduling Coordinator for a Generating Unit, System Unit, Load or System Resource, which repeatedly fails to perform. The ~~ISO~~ CAISO shall develop measures to discourage repeated non-performance on the part of both bidders and self-providers.

8.9.1 Compliance Testing for Spinning Reserve.

Compliance Testing for Spinning Reserve is addressed in Section 8.10.2 of this CAISO Tariff.

8.10A8.9.2 Compliance Testing for Regulation. The ~~ISO~~ CAISO may test the capability of any Generating Unit or System Resource providing Regulation by using the ~~ISO~~ CAISO EMS to move that Generating Unit's or System Resource's output over the full range of its Regulation capacity within a ten-minute period.

~~**8.10B Compliance Testing for Spinning Reserve.** *The ISO may test the capability of any Generating Unit, System Unit or external import of a System Resource providing Spinning Reserve by issuing unannounced Dispatch instructions requiring the Generating Unit, System Unit or external import of a System Resource to ramp up to its stated ten minute capability in accordance with the Scheduling Coordinator's Bid. Such tests may not necessarily occur on the hour. The ISO shall measure the response of the Generating Unit, System Unit or external import of a System Resource to determine compliance with its stated capabilities.*~~

8.10C8.9.3 Compliance Testing for Non-Spinning Reserve.

(a) Compliance Testing of a Generating Unit, System Unit or System Resource. The ~~ISO~~ CAISO may test the Non-Spinning Reserve capability of a Generating Unit, System Unit or an external import of a System Resource by issuing unannounced Dispatch ~~instructions~~ Instructions requiring the Generating Unit or System Unit to come on line and ramp up or, in the case of a System Resource, to affirmatively respond to Rreal-Time interchange schedule adjustment; all in accordance with the Scheduling Coordinator's

~~bid~~Bid. Such tests may not necessarily occur on the hour. The ~~ISO CAISO~~ shall measure the response of the Generating Unit, System Unit or external import of a System Resource to determine compliance with its stated capabilities.

- (b) Compliance Testing of Curtailable Demand. The ~~ISO CAISO~~ may test the Non-Spinning Reserve capability of a Load providing Curtailable Demand by issuing unannounced Dispatch ~~instructions~~Instructions requiring the operator of the Load to report the switchable Demand of that Load actually being served by the operator at the time of the instruction. No Load will be disconnected as part of the test.

~~8.10D~~ **Compliance Testing for Replacement Reserve.**

- ~~(a) Compliance Testing of a Generating Unit, System Unit or System Resource. The ~~ISO CAISO~~ may test the Replacement Reserve capability of a Generating Unit, System Unit or an external import of a System Resource by issuing unannounced Dispatch instructions requiring the Generating Unit or System Unit to come on line and ramp up or, in the case of a System Resource, to affirmatively respond to a real-time interchange schedule adjustment; all in accordance with the Scheduling Coordinator's bid. Such tests may not necessarily occur on the hour. The ~~ISO CAISO~~ shall measure the response of the Generating Unit, System Unit or external import of a System Resource to determine compliance with its stated capabilities.~~

- ~~(b) Compliance Testing of a Curtailable Demand. The ~~ISO CAISO~~ may test the Replacement Reserve capability of a Load providing Curtailable Demand by issuing unannounced Dispatch instructions requiring the operator of the Load to report the switchable Demand of that Load actually being served by the operator at the time of the instruction. No Load will be disconnected as part of a test.~~

~~8.10E~~8.9.4 **Compliance Testing for Voltage Support.**

- (a) Compliance Testing of a Generating Unit. The ~~ISO CAISO~~ may test the Voltage Support capability of a Generating Unit by issuing unannounced Dispatch ~~instructions~~Instructions

requiring the Generating Unit to adjust its power factor outside the specified power factor band of 0.90 lag to 0.95 lead, but within the limits of the Generating Unit capability curve.

- (b) Compliance Testing of Other Reactive Devices. The ~~ISO~~ CAISO may test the Voltage Support capability of other reactive devices (shunt capacitors, static var compensators, synchronous condensers) by issuing unannounced Dispatch ~~instructions~~ Instructions requiring operation of such devices.

8.10F8.9.5 Compliance Testing for Black Start. The ~~ISO~~ CAISO may test the Black Start capability of a Generating Unit by unannounced tests, which may include issuing Dispatch ~~instructions~~ Instructions to start and synchronize the resource, testing of all communications circuits, simulating switching needed to connect the Black Start Generating Unit to the transmission system, and testing the features unique to each facility that relate to Black Start service.

8.9.6 Compliance Testing for RUC Capacity.

The CAISO may test the capability of a Generating Unit, System Unit or an external import of a System Resource to provide RUC Capacity by issuing unannounced Dispatch Instructions requiring the Generating Unit or System Unit to come on line and ramp up or, in the case of a System Resource, to affirmatively respond to a Real-Time interchange schedule adjustment; all in accordance with the Scheduling Coordinator's Bid. Such tests may not necessarily occur on the hour. The CAISO shall measure the response of the Generating Unit, System Unit or external import of a System Resource to determine compliance with its stated capabilities.

8.10F-18.9.7 Consequences of Failure to Pass Compliance Testing.

- (a) Notification of Compliance Testing Results. If a Generating Unit, Load, or System Resource fails a compliance test, the ~~ISO~~ CAISO shall notify the Scheduling Coordinator whose resource was the subject of the test and the ~~Ancillary Service P~~ provider or owner or operator of the Generating Unit, Participating Load, or System Resource providing

Ancillary Services or RUC Capacity a System Resource providing Ancillary Services of such failure by any means as soon as reasonably practicable after the completion of the test. In addition, regardless of the outcome of the test, the ~~ISO~~ CAISO shall provide the Scheduling Coordinator whose resource was subject to a compliance test written notice of the results of such test. The ~~ISO~~ CAISO shall at the same time send a copy of the notice to the provider or owner or operator of the Generating Unit, Load, or System Resource providing Ancillary Services or RUC Capacity~~Ancillary Service Provider or owner or operator of a System Resource providing Ancillary Services.~~ For any Resource Adequacy resource failing a compliance test, the CAISO also will notify the California Public Utilities Commission of the failure.

- (b) Penalties for Failure to Pass Compliance Testing. The Scheduling Coordinator whose resource fails a compliance test shall be subject to the financial penalties provided for in the ~~ISO~~ CAISO Tariff. In addition, the ~~ISO~~ CAISO shall institute the sanctions described in Section ~~8.10N~~8.9.16.

8.10G8.9.8 **Performance Audits for Standard Compliance.** In addition to testing under Section 8.10-4, the ~~ISO~~ CAISO will periodically audit the performance of resources providing RUC Capacity or Ancillary Services to confirm the ability of such resources to provide the RUC Capacity or to meet the applicable Ancillary Service standard for performance and control.

8.10G.18.9.9 **Performance Audit for Regulation.** The ~~ISO~~ CAISO will audit the performance of a Generating Unit providing Regulation by monitoring its response to ~~ISO~~ CAISO EMS control or, in the case of an external import of a System Resource providing Regulation, by monitoring the dynamic interchange response to ~~ISO~~ CAISO EMS control around its Set Point within its rated MW/minute capability over the range of Regulation capacity scheduled for the current Settlement Period.

8.10H8.9.10 **Performance Audit for Spinning Reserve.** The ~~ISO~~ CAISO will audit the performance of a Generating Unit or external import of a System Resource providing Spinning Reserve by auditing its response to Dispatch instructions and by analysis of Meter Data associated with the

Generating Unit. Such audits may not necessarily occur on the hour. A Generating Unit providing Spinning Reserve shall be evaluated on its ability to respond to a Dispatch ~~instruction~~Instruction, move at the MW/minute capability stated in its ~~bid~~Bid, reach the amount of Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch ~~instruction~~Instruction by the ~~ISO~~ CAISO, and respond to system frequency deviations outside the allowed frequency deadband. An external import of a System Resource providing Spinning Reserve shall be evaluated on its ability to respond to a Dispatch ~~instruction~~Instruction, move at the MW/minute capability stated in its ~~bid~~Bid, reach the amount of Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch ~~instruction~~Instruction by the ~~ISO~~ CAISO.

~~8.10I~~8.9.11 **Performance Audit for Non-Spinning Reserve.** The ~~ISO~~ CAISO will audit the performance of a Generating Unit, Load, or System Resource providing Non-Spinning Reserve by auditing its response to Dispatch ~~instructions~~Instructions, and by analysis of Meter Data associated with the resource. Such audits may not necessarily occur on the hour. A Generating Unit providing Non-Spinning Reserve shall be evaluated on its ability to respond to a Dispatch ~~instruction~~Instruction, move in accordance with the time delay and MW/minute capability stated in its ~~bid~~Bid, and reach the amount of Non-Spinning Reserve capacity under the control of the ~~ISO~~ CAISO scheduled for the current Settlement Period within ten minutes of issue of the Dispatch ~~instruction~~Instruction by the ~~ISO~~ CAISO. An external import of a System Resource providing Non-Spinning Reserve shall be evaluated on its ability to respond to a Dispatch ~~instruction~~Instruction, move in accordance with the time delay and MW/minute capability stated in its ~~bid~~Bid, and reach the amount of Non-Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch ~~instruction~~Instruction by the ~~ISO~~ CAISO. A Load providing Non-Spinning Reserve from Curtailable Demand shall be evaluated on its ability to respond to a Dispatch ~~instruction~~Instruction, move in accordance with the time delay and MW/minute capability stated in its ~~bid~~Bid, and reach the amount of Non-Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch ~~instruction~~Instruction by the ~~ISO~~ CAISO.

~~8.10J~~ **~~Performance Audit for Replacement Reserve.~~** ~~The ISO will audit the performance of a Generating Unit, Load, or System Resource providing Replacement Reserve by auditing its response to~~

~~Dispatch instructions, and by analysis of Meter Data associated with the resource. Such audits may not necessarily occur on the hour. A Generating Unit providing Replacement Reserve shall be evaluated on its ability to respond to a Dispatch instruction, start within the designated time delay, move at the MW/minute capability stated in its bid, reach the amount of Replacement Reserve capacity scheduled for the Settlement Period concerned within sixty minutes of issue of the Dispatch instruction, and sustain operation at this level for a sufficient time to assure availability over the specified period. An external import of a System Resource providing Replacement Reserve shall be evaluated on its ability to respond to a Dispatch instruction, start within the designated time delay, move at the MW/minute capability stated in its bid, reach the amount of Replacement Reserve capacity scheduled for the Settlement Period concerned within sixty minutes of issue of the Dispatch instruction, and sustain operation at this level for a sufficient time to assure availability over the specified period. A Load providing Replacement Reserve from Curtailable Demand shall be evaluated on its ability to respond to a Dispatch instruction, start within the designated time delay, move at the MW/minute capability stated in its bid, reach the amount of Replacement Reserve capacity scheduled for the Settlement Period concerned within sixty minutes of issue of the Dispatch instruction, and sustain operation at this level for a sufficient time to assure availability over the specified period.~~

8.10K8.9.12 Performance Audit for Voltage Support. The ~~ISO~~ CAISO will audit the performance of a resource providing Voltage Support by auditing of its response to Dispatch ~~instructions~~Instructions, and by analysis of Meter Data associated with the resource. A resource providing Voltage Support shall be evaluated on its ability to provide reactive support over the stated power factor range of the resource, provide reactive support within the prescribed time periods, and demonstrate the effective function of automatic voltage control equipment for the amount of Voltage Support under the control of the ~~ISO~~ CAISO for the current Settlement Period.

8.10L8.9.13 Performance Audit for Black Start.

The ~~ISO~~ CAISO will audit the performance of a Black Start Generating Unit by analysis of Meter Data and other records to determine that the performance criteria relating to the Black Start from that Black Start Generating Unit were met when required.

8.9.14 Performance Audit for RUC Capacity.

The CAISO will audit the performance of a Generating Unit, Participating Load, or System Resource providing RUC Capacity by auditing its response to Dispatch Instructions, and by analysis of Meter Data associated with the resource. Such audits may not necessarily occur on the hour. A Generating Unit providing RUC Capacity shall be evaluated on its ability to respond to a Dispatch Instruction, start within the designated time delay, move at the MW/minute capability stated in its Bid, reach the amount of RUC Capacity scheduled for the Settlement Period concerned and sustain operation at this level for a sufficient time to assure availability over the specified period. An external import of a System Resource providing RUC Capacity shall be evaluated on its ability to respond to a Dispatch Instruction, start within the designated time delay, move at the MW/minute capability stated in its Bid, reach the amount of RUC Capacity scheduled for the Settlement Period concerned and sustain operation at this level for a sufficient time to assure availability over the specified period.

8.10M 8.9.15 Consequences of Failure to Pass Performance Audits.

- (a) Notification of Performance Audit Results. ~~The ISO~~ CAISO shall give the Scheduling Coordinator for a provider of RUC Capacity or an Ancillary Services ~~Provider whose resource was subject to a performance audit~~ written notice of the results of such audit. ~~The ISO~~ CAISO will at the same time send a copy of the notice to the provider of RUC Capacity or Ancillary Services~~Ancillary Service Provider~~. For any Resource Adequacy resource failing to pass a performance audit, the CAISO also will notify the California Public Utilities Commission or the relevant Local Regulatory Authority of the failure.
- (b) Penalties for Failure to Pass Performance Audit. The Scheduling Coordinator for a provider of RUC Capacity or an Ancillary Service~~Provider~~ whose resource fails a performance audit shall be subject to the financial penalties provided for in the ~~ISO~~ CAISO Tariff. In addition the sanctions described in Section 8.10 shall come into effect.

8.10N 8.9.16 Sanctions for Poor Performance.

8.10N.1 8.9.17 Warning Notice.

If an Ancillary Service or RUC Capacity resource fails a compliance test or a performance audit, the ~~ISO~~ CAISO will issue a warning notice to the Scheduling Coordinator for that resource and at the same time will send a copy of the notice to the owner and operator of the resource.

8.10N.28.9.18 Scheduling Coordinator's Option to Test.

On receipt of a warning notice the provider of the Ancillary Service or RUC Capacity ~~Provider for the resource concerned~~ may request the CAISO, through its Scheduling Coordinator, to test the capability of the Ancillary Service or RUC Capacity resource ~~concerned~~. The ~~ISO~~ CAISO shall carry out such test as soon as practicable and the cost of such test shall be paid by the Scheduling Coordinator irrespective of the result of the test.

8.10N.38.9.19 Duration of Warning Notice.

A warning notice shall continue in effect until:

- (a) the Ancillary Service or RUC Capacity resource is next tested by the ~~ISO~~ CAISO whether such a test is called for by the Scheduling Coordinator under Section 8.10N.28.9.18 or carried out by the ~~ISO~~ CAISO under Section 8.10; or
- (b) the expiration of a period of six calendar months from the date upon which the ~~ISO~~ CAISO notified the Scheduling Coordinator that the Ancillary Service or RUC Capacity resource failed the test or the performance audit which gave rise to the issue of the warning notice, whichever is the earlier.

8.10P8.9.20 Second failure.

A RUC Capacity ~~or~~ Ancillary Service resource which fails a compliance test or a performance audit conducted during the period when a warning notice for that resource is in effect shall be disqualified immediately from providing the RUC Capacity or the Ancillary Service concerned (whether the Ancillary Service is as part of the ~~ISO's~~ CAISO's auction or ~~as~~ part of a self-provision arrangement), and in the case of Ancillary Services, shall not be permitted to submit a Bbid to the ~~ISO~~ CAISO to provide the

Ancillary Service concerned (or be part of an Ancillary Service self-provision arrangement) until such time as it has successfully re-passed the approval and certification procedure described in the relevant Part of Appendix K. For any Resource Adequacy resource failing a compliance test or performance audit during the periods when a warning notice for that resource is in effect, the CAISO will notify the California Public Utilities Commission or the relevant Local Regulatory Authority of the failure and disqualification.

8.10.1 **Periodic Testing of Units.**

The ~~ISO~~ CAISO shall periodically conduct unannounced tests of resources providing RUC Capacity or Ancillary Services. For RUC Capacity the unannounced tests will confirm the ability of the resource to respond to a Dispatch Instruction, start within the designated time delay, move at the MW/minute capability stated in its Bid, reach the amount of RUC Capacity scheduled for the Settlement Period concerned and sustain operation at this level for a sufficient time to assure availability over the specified period. For Ancillary Services the unannounced tests will ~~to~~ confirm the ability of such resources to meet the applicable Ancillary Service standard for performance and control. The ~~ISO~~ CAISO may test Generating Units, System Units, Loads and System Resources in the manner described herein. The frequency of testing shall be within such timeframes as are reasonable under all the circumstances. Scheduling Coordinators shall manage the resulting Energy output if notification of testing permits the Energy to be included in a scheduled Bid. If a Generating Unit, System Unit, Load, or System Resource fails to meet requirements in a test under this section, the ~~ISO~~ CAISO shall notify the relevant Participating Generator, owner or operator of Loads, System Units or System Resources, or Scheduling Coordinator of such failure as soon as reasonably practicable after the completion of the test. Failure to meet requirements shall lead to the penalties described in Section ~~2.5-268.10.7.~~

8.10.1.1 **Regulation Up and Regulation Down Reserves.**

The ~~ISO~~ CAISO shall continuously monitor the response of a Generating Unit, System Unit, or System Resource to the ~~ISO's~~ CAISO's Regulation instructions in order to determine the resource is under direct control of CAISO's Automatic Generation Control (AGC) system and ~~compliance~~ with CAISO's Dispatch ~~instructions~~ Instructions.

8.10.1.22 **Spinning Reserve.**

The ~~ISO~~ CAISO shall test the Spinning Reserve capability of a Generating Unit, System Unit or System Resource by issuing unannounced Dispatch ~~instructions~~ Instructions requiring the Generating Unit, System Unit or System Resource to ramp up to its ten minute capability. The ~~ISO~~ CAISO shall measure the response of the Generating Unit, System Unit or System Resource to determine compliance with requirements. ***Such tests may not necessarily occur on the hour.*** The Scheduling Coordinator for the Generating Unit, System Unit or System Resource shall be paid pursuant to Section 11.5.6 of the CAISO Tariff, the Energy Bid price of the Generating Unit or System Unit for the output under the Spinning Reserve test.

8.10.1.33 Non-Spinning Reserve.

The ~~ISO~~ CAISO may test the Non-Spinning Reserve capability of a Generating Unit, Load, System Unit or System Resource by issuing unannounced Dispatch ~~instructions~~ Instructions requiring the Generating Unit, Load, System Unit or System Resource to come on line and ramp up or to reduce Demand to its ten minute capability. The ~~ISO~~ CAISO shall measure the response of the Generating Unit, System Unit, System Resource or Load to determine compliance with requirements. The Scheduling Coordinator for the Generating Unit, System Unit, Load or System Resource shall be paid pursuant to Section 11.5.6 the Energy (or Demand reduction) Bid price of the Generating Unit, System Unit, Load or System Resource for its output or reduction, under the Non-Spinning Reserve test.

8.10.1.4 Replacement Reserve. ~~The ISO may test the Replacement Reserve capability of a Generating Unit, Load, System Unit or System Resource by issuing unannounced Dispatch instructions requiring the Generating Unit, Load, System Unit or System Resource to come on line and ramp up or reduce Demand to its sixty minute capability. The ISO shall measure the response of the Generating Unit, Load, System Unit or System Resource to determine compliance with requirements. The Scheduling Coordinator for the Generating Unit, Load, System Unit or System Resource shall be paid the Energy or Demand reduction Bid price of the Generating Unit, Load, System Unit or System Resource for the output, or reduction, of the Generating Unit, Load, System Unit or System Resource under the Replacement Reserve test.~~

8.10.43.10.1.5 Voltage Support.

The ~~ISO~~ CAISO shall monitor a Generating Unit's response to Voltage Support instructions in order to determine compliance with Dispatch ~~instructions~~ Instructions.

~~8.10.5~~ 8.10.1.6 ——— **Black Start.**

The ~~ISO~~ CAISO may test the Black Start capability of a Generating Unit by issuing unannounced Dispatch ~~i~~ nstructions requiring the Generating Unit to start on a Black Start basis. The ~~ISO~~ CAISO shall measure the response of the Generating Unit to determine compliance with the terms of the Black Start contract. The Scheduling Coordinator or Black Start Generator as stated in Section ~~8.11.5~~ 11.10.1.5 for the Generating Unit shall be paid the Generating Unit's contract price for the output under the Black Start test.

8.10.6 ——— **RUC Capacity.**

The CAISO may test the capability of a Generating Unit, Load, System Unit or System Resource to provide RUC Capacity by issuing unannounced Dispatch Instructions requiring the Generating Unit, Load, System Unit or System Resource to follow the Dispatch Instruction. The CAISO shall measure the response of the Generating Unit, System Unit or System Resource to determine compliance with requirements. Such tests may not necessarily occur on the hour. The Scheduling Coordinator for the Generating Unit, Participating Load, System Unit or System Resource shall be paid the Energy Bid price of the Generating Unit, Participating Load, System Unit or System Resource for the output under the RUC test.

~~8.10.72~~ Penalties for Failure to Pass Tests and Rescission of Payment for Non-Delivery.

~~8.10.2.1~~ ——— **Penalties for Failure to Pass Tests.**

A Generating Unit, Participating Load~~Curtailable Demand~~, System Unit or System Resource that fails an availability test, as determined under criteria to be established by the CAISO, shall be deemed not to have been available to provide the RUC Capacity or Ancillary Service concerned or the relevant portion of that Service for the entire period the Generating Unit, Participating Load~~Curtailable Demand~~, System Unit or System Resource was committed to provide the Service, unless appropriate documentation (i.e., daily test records) confirming the availability of that service during the committed period(s) is presented to the

~~ISO-CAISO~~. The “committed period” is defined as the total of all the hours/days the Generating Unit, ~~Participating Load~~~~Curtailable Demand~~, System Unit or System Resource was scheduled by the ~~ISO CAISO~~ to provide the RUC Capacity or Ancillary Service beginning from: (i) the last successful availability test; or (ii) the last time the Generating Unit, ~~Participating Load~~~~Curtailable Demand~~, System Unit or System Resource actually provided Energy or reduced Demand to provide RUC Capacity or provided Energy or reduced Demand as part of the Ancillary Service; whichever results in a shorter committed period. The Scheduling Coordinator for a Generating Unit, ~~Participating Load~~~~Curtailable Demand~~, System Unit or System Resource that fails an availability test shall not be entitled to a RUC Availability payment or payment for the Ancillary Service concerned for the committed period and adjustments to reflect this shall be made in the calculation of payments to the Scheduling Coordinator, provided that any such penalty shall be reduced to reflect any adjustment made over the duration of the committed period under Section ~~8.10.2.2 or 8.10.2.3~~8.10.8 or 8.10.8.1.

System Units providing RUC Capacity ~~engaged in self-provision of Ancillary Services,~~ or providing Ancillary Services to the ~~ISO-CAISO~~ are subject to the same testing, compensation, and penalties as are applied to individual Generating Units providing RUC Capacity ~~engaged in self-provision~~ or provision of Ancillary Services. To perform testing, the ~~ISO-CAISO~~ will bias the MSS's MSRE to test the responsiveness of the System Unit.

If payments for RUC Capacity ~~or~~ for a particular Ancillary Service in a particular Settlement Period would be rescinded under more than one provision of this Section 8.10.7~~2~~, the total amount to be rescinded for a particular Ancillary Service in a particular Settlement Period shall not exceed the total payment due in that Settlement Period.

8.10.2-28 _____ **Rescission of Payments for Undispatchable, Unavailable, and Undelivered Ancillary Service or RUC CapacityUnavailability.**

If Awarded Ancillary Services Capacity, Self Provided Ancillary Services Capacity and capacity committed in RUC provided from a Generating Unit, Participating Load, System Unit or System Resource is unavailable during the relevant Settlement Interval, then payments will be rescinded as described in this Section 8.10.8. The rescission of payments for Ancillary Services applies to Ancillary Services provided

in the Day-Ahead, HASP or Real-Time Markets and the rescission will be in proportion to the amount of capacity sold to the CAISO in each market. For Self-Provided Ancillary Service capacity that becomes Undispatchable Capacity, Unavailable Capacity, or Undelivered Capacity, the payment obligation in this Section 8.10.8 shall be equivalent to that which would arise if the Self Provided Ancillary Service had been submitted as a Bid into each market in which it was scheduled. The rescission of payments in this Section 8.10.8 shall not apply to a capacity payment for any particular Ancillary Service or RUC capacity if the Ancillary Service Marginal Price (ASMP) or RUC Availability payment, respectively, is less than or equal to zero. Examples of the rescission of payments for Undispatchable, Unavailable, or Undelivered Ancillary Service Capacity or RUC Capacity are set forth in the BPM on compliance matters. If capacity scheduled into the ISO's Ancillary Services markets from a Generating Unit, Curtailable Demand, System Unit or System Resource is unavailable during the relevant Settlement Interval, then payments will be rescinded as described herein. For self-provided Ancillary Services, the payment obligation shall be equivalent to that which would arise if the Ancillary Services had been bid into each market in which they were scheduled.

8.10.8.18-10.2.2.3 **Rescission of Payments for Undispatchable Ancillary Service Capacity or RUC Capacity.** Undispatchable Capacity is Awarded Ancillary Services capacity, Self Provided Ancillary Service capacity, or capacity committed in RUC, that is not available for use due to a derate or outage of the resource. Undispatchable Capacity includes Awards for Spinning Reserve and Non-Spinning Reserve that are not available for use due to ramp rate constraints, (e.g., operational ramping ability is lower than Operating Reserve ramp rate). The ISO-CAISO shall calculate the real-time ability of each Generating Unit, Participating Load, System Unit or System Resource ~~Generating Unit and System Unit~~ to deliver Energy from Ancillary Services capacity Self Provided Ancillary Services capacity or capacity committed in RUC for each Settlement Interval based on its maximum operating capability, actual telemetered out, and operational ramp rate as described in Section 30.10. System Resources that are awarded Ancillary Services Capacity or RUC Capacity in the Day-Ahead Market are required to electronically tag (E-Tag as prescribed by the WECC) the Ancillary Services Capacity or RUC Capacity. If the amounts of Ancillary Services Capacity or RUC Capacity in an electronic tag differ from the amounts

~~of Ancillary Services Capacity or RUC Capacity for System Resource, the Undispatchable Capacity will equal the amount of the difference. awarded or self-provided for each Settlement Interval based on its operational ramp rate as described in Section 30.4.6, maximum operating capability, and actual telemetered output. If a Scheduling Coordinator has Undispatchable Capacity that it is obligated to supply to the CAISO during a Settlement Interval, the Ancillary Service capacity payment or RUC Availability Payment for the amount of Energy that cannot be delivered from the Generating Unit, Participating Load, System Unit or System Resource for the Settlement Interval shall be rescinded. If the Generating Unit or System Unit cannot deliver the full amount of Energy from the awarded or self-provided Spinning, Non-Spinning or Replacement Reserve for a Settlement Interval then Ancillary Services capacity payments for the amount of Energy that cannot be delivered for the particular Settlement Interval shall be rescinded.~~

~~For capacity committed in RUC from a Resource Adequacy (RA) resource that becomes Undispatchable Capacity, the payment obligation shall be equivalent to payment obligation which would arise if the resource were eligible to receive a RUC Availability Payment. Such payment obligation is in addition to the consequences for non-compliance under a Local Regulatory Authority's Resource Adequacy Program. The CAISO will report instances of non-compliance under this Section 8.10.8 to the appropriate Local Regulatory Authority~~

~~If the Undispatchable Capacity is capacity committed in RUC and is from a Generating Unit, Participating Load, System Unit or System Resource that is a Resource Adequacy resource, there is no payment obligation to the CAISO for the Undispatchable RUC capacity. The CAISO will report the instance of non-compliance by the RA Resource to the appropriate Local Regulatory Authority.~~

~~If a Partial RA Resource is providing RUC capacity from both the non-RA portion of the resource and the RA portion of the resource, the bid-based RUC Availability payment for the non-RA portion of the resource will be rescinded to the extent of any deficiency. The payment rescission will occur for the non-RA portion of the resource prior to eliminating any capacity for the RA portion of the resource.~~

8.10.8.22.2.1 Rescission of Payments for Unavailable Ancillary Service Capacity.

Unavailable Capacity is Awarded Ancillary Services capacity and Self Provided Ancillary Services capacity that was not dispatched by the CAISO but where all or a portion of the capacity is not available for dispatch in Real-Time.

8.10.8.2.1 If the ~~ISO~~ CAISO determines that a Scheduling Coordinator has supplied Uninstructed ~~Imbalance~~ Energy to the ~~ISO~~ CAISO during a Settlement Interval from the capacity of a Generating Unit, Participating Load, System Unit or System Resource that is obligated to supply Spinning Reserve, ~~or~~ or Non-Spinning Reserve, ~~or Replacement Reserve~~ to the ~~ISO~~ CAISO, ~~during such Settlement Interval~~, payments to the Scheduling Coordinator ~~representing the Generating Unit, System Unit or System Resource~~ for the Ancillary Service Capacity used to supply Uninstructed Imbalance Energy shall be eliminated to the extent of the deficiency

8.10.8.2.2 Payments to the Scheduling Coordinator representing the Generating Unit, Participating Load, System Unit or System Resource for the Ancillary Service Capacity used to supply Uninstructed Imbalance Energy shall not be eliminated to the extent of the deficiency if: ~~except to the extent~~ (i) the deficiency in the availability of Ancillary Service capacity from the Generating Unit, Participating Load, System Unit or System Resource is attributable to control exercised by the ~~ISO~~ CAISO in that Settlement Interval through AGC operation, an RMR Dispatch Notice, or dispatch to avoid an intervention in Market operations or to prevent a System Emergency; or (ii) a penalty is imposed under Section ~~8.10.2.18.10.7~~ with respect to the deficiency.

8.10.2.2.2 ~~If a Curtailable Demand is insufficient to deliver the full amount of the Non-Spinning and Replacement Reserve to which that Curtailable Demand is obligated in that Settlement Interval, then the related capacity payments will be rescinded to the extent of that deficiency as explained in Section 8.10.2.2.4 and 8.10.2.2.5, unless a penalty is imposed on that Curtailable Demand for that Settlement Interval under Section 8.10.2.1.~~

8.10.2.2.3 ~~The ISO shall calculate the real-time ability of each Generating Unit and System Unit to deliver Energy from Ancillary Services capacity awarded or self provided for each Settlement Interval based on its operational ramp rate as described in Section 30.4.6, maximum operating capability, and~~

~~actual telemetered output. If the Generating Unit or System Unit cannot deliver the full amount of Energy from the awarded or self-provided Spinning, Non-Spinning or Replacement Reserve for a Settlement Interval then Ancillary Services capacity payments for the amount of Energy that cannot be delivered for the particular Settlement Interval shall be rescinded.~~

8.10.2.2.48.10.8.2.3 In calculating the amount of the payment to be rescinded under Section 8.10.8.2, the CAISO shall reduce the payment for Ancillary Service capacity otherwise payable by one sixth of the product of the applicable prices and the amount of Ancillary Service capacity from which the Generating Unit, Participating Load, System Unit or System Resource has supplied Uninstructed Energy in the Settlement Interval. This Section 8.10.2.2.4 shall not apply to the capacity payment for any particular Ancillary Service if the Zonal Market Clearing Price determined in accordance with Sections 8.5.7, 8.5.8 or 8.5.8A is less than or equal to zero. For those Ancillary Services for which such Zonal Market Clearing Prices are greater than zero, the payment for Ancillary Service capacity otherwise payable under Section 8.11.2, 8.11.3, and/or 8.11.3A shall be reduced by one sixth of the product of the applicable prices and the amount of Ancillary Service capacity from which the Generating Unit, Curtailable Demand, System Unit or System Resource has supplied Uninstructed Imbalance Energy in a Settlement Interval. If a Scheduling Coordinator schedules Ancillary Services through both the Day-Ahead and Hour-Ahead Markets, capacity payments due the Scheduling Coordinator from each market will be rescinded in proportion to the amount of capacity sold to the ISO in each market.

8.10.8.3 **Rescission of Payments for Undelivered Ancillary Service Capacity.**
Undelivered Capacity is Awarded Ancillary Services capacity and Self Provided Ancillary Services capacity that was dispatched by the CAISO but where the Dispatch Instruction was not followed and a certain percentage or more of the scheduled Energy was not provided in Real-Time. For each Settlement Interval in which a Generating Unit, Participating Load, System Unit or System Resource fails to supply Energy from Spinning Reserve, or Non-Spinning Reserve capacity in accordance with a Dispatch Instruction, or supplies only a portion of the Energy specified in the Dispatch Instruction, the capacity payment will be reduced to the extent of the deficiency.

If the total metered output of a Generating Unit, Participating Load, System Unit or System Resource is insufficient to supply the amount of Instructed Energy associated with a Dispatch Instruction issued in accordance with awarded or Self-Provided Spinning Reserves, or Awarded or Self-Provided Non-Spinning Reserves in any Settlement Interval, then the capacity payment associated with the difference between the scheduled amount of each Ancillary Service for which insufficient Energy was delivered and the actual output attributed to the response to the Dispatch Instruction shall be rescinded. However, no capacity payment shall be rescinded if the shortfall in the metered output of the Generating Unit, Participating Load, System Unit, or System Resource is less than a deadband amount published by CAISO on the CAISO Website at least twenty-four hours prior to the Settlement Interval. For any Settlement Interval with respect to which no deadband amount has been published by the CAISO, the deadband amount shall be zero MWH.

8.10.8.4 Order of Payment Rescission for Resources with More Than One Capacity

Obligation in a Settlement Interval.

If the Generating Unit, Participating Load, System Unit or System Resource is scheduled to provide more than one Ancillary Service in a Settlement Interval the order in which the non-compliant Ancillary Service and RUC Capacity will be apportioned to the various services under this Section 8.10.8 as follows. For Undispatchable Capacity the non-compliant capacity is first apportioned to RUC Capacity and then to any Non-Spinning Reserves. If the amount of Undispatchable Capacity exceeds the amount of Non-Spinning Reserves, then the payment shall be eliminated for Spinning Reserves. For Unavailable Capacity or Undelivered Capacity the non-compliant capacity is first apportioned to any Non-Spinning Reserves. If the amount of non-compliant Ancillary Service capacity exceeds the amount of Non-Spinning Reserves, then the payment shall be eliminated for Spinning Reserves. If the same Ancillary Service is scheduled in the Day-Ahead Market, HASP or Real-Time Market then the payments shall be rescinded in proportion to the amount of each Ancillary Service scheduled in each market. If the same Ancillary Service is self-provided and Bid, the order of rescission will be first the amount of Ancillary Service amounts submitted in Bids and then the Self-Provided Ancillary Service.

~~**8.10.2.2.5** — Payment shall be eliminated first for any Replacement Reserve capacity for which the Generating Unit, Curtailable Demand, System Unit or System Resource would otherwise be entitled to payment. If the amount of Ancillary Service capacity from which the Generating Unit, System Unit or System Resource has supplied Uninstructed Imbalance Energy exceeds the amount of Replacement Reserve capacity for which it would otherwise be entitled to receive payment, payment shall be eliminated for Non-Spinning Reserve capacity, and then for Spinning Reserve capacity, until payment has been withheld for the full amount of Ancillary Service capacity from which the Generating Unit, Curtailable Demand, System Unit or System Resource supplied Uninstructed Imbalance Energy.~~

~~**8.10.2.2.6** — For each Settlement Interval in which a Generating Unit, Curtailable Demand, System Unit or System Resource fails to actually supply Energy from Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity in accordance with a Dispatch Instruction, or supplies only a portion of the Energy specified in the Dispatch Instruction, the capacity payment will be pro-rated to reflect the unavailability in that Settlement Interval of the difference between (1) the total MW of the particular Ancillary Service scheduled in that Settlement Period and (2) the amount of Energy, if any, supplied in response to the Dispatch Instruction in that Settlement Interval.~~

~~**8.10.2.3 — Rescission of Payments When Dispatch Instruction is Not Followed.**~~

~~If the total metered output of a Generating Unit, Curtailable Demand, System Unit or System Resource is insufficient to supply the amount of Instructed Imbalance Energy associated with a Dispatch Instruction issued in accordance with a bid on Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve in any Settlement Interval, then the capacity payment associated with the difference between the total scheduled amount of each Ancillary Service for which Insufficient Energy was delivered, and the actual output attributed to the response to the Dispatch Instruction on each Ancillary Service, shall be rescinded. However, no capacity payment shall be rescinded if the shortfall in the metered output of the Generating Unit, Curtailable Demand, System Unit, or System Resource is less than a deadband amount published by ISO on the ISO Home Page at least twenty-four hours prior to the Settlement Interval. For any Settlement Interval with respect to which no deadband amount has been published by the ISO, the deadband amount shall be zero MWH. If the Generating Unit, Curtailable Demand, System Unit or~~

~~System Resource is scheduled to provide more than one Ancillary Service in the Settlement Period, then the actual output will be attributed first to Replacement Reserve, then to Non-Spinning Reserve, and finally to Spinning Reserve, and the capacity payments associated with the balance of each Ancillary Service shall be rescinded. If the same Ancillary Service is scheduled in both the Day-Ahead and Hour-Ahead Markets, then payments shall be rescinded in proportion to the amount of each Ancillary Service scheduled in each market.~~

8.10.8.5 Load Following Metered SubSystems with an Obligation to Provide Ancillary Service Capacity or RUC Capacity in a Settlement Interval.

~~If a Load following MSS is scheduled to provide Ancillary Service capacity, RUC Capacity, or some combination thereof in a Settlement Interval and if the scheduled capacity or a portion thereof is unavailable for some reason during the Settlement Interval, the **non-compliant Ancillary Services and RUC** capacity (i.e., Undispatchable, Unavailable, or Undelivered Capacity) will be not be apportioned to the capacity designated by the MSS Operator as Load following up capacity and Load following down capacity. In determining which of the MSS Operator's capacity obligations were not available in Real-Time, the capacity designated by the MSS Operator as Load following up capacity and Load following down capacity shall be preserved or take precedence over the other capacity obligations.~~

8.10.8.6 Rescission of Payments for Regulation Up and Regulation Down Capacity.

~~Payment for Regulation Up and Regulation Down Capacity will be rescinded if the resource providing Regulation Up and Regulation Down capacity: (i) is off Regulation or off Automatic Generation Control ("AGC"), (ii) is not running, (iii) is not providing sufficient regulating range, (iv) is generating outside the regulating range, (v) **has a regulating range that overlaps with its Forbidden Operating Regions**, (vi) has a regulating range that overlaps with its Forbidden Operating Regions, or (vi) has telemetry equipment that is not available.~~

8.10.2.48.7 Penalties applied pursuant to Section 8.10.2.17, and payments rescinded pursuant to Section 8.10.8.2.2 and 8.10.2.3 shall be redistributed to Scheduling Coordinators in proportion

to ~~ISO~~ CAISO Control Area metered Demand and scheduled exports for the same Trading Day.

Regulation capacity payments rescinded pursuant to Section 8.10.8.6 shall be redistributed to Scheduling Coordinators in proportion to CAISO Control Area metered Demand (excluding exports) for the same Trading Day. RUC capacity payment rescinded due to non-performance shall be allocated to Real-Time load deviation.

8.10.2.58.8 If the ~~ISO~~ CAISO determines that non-compliance of a Participating Load, Generating Unit, System Unit or System Resource, with an operating order or Dispatch Instruction from the ~~CAISO~~ISO, or with any other applicable technical standard under the ~~ISO~~ CAISO Tariff, causes or exacerbates system conditions for which the WECC imposes a penalty on the ~~CAISO~~ISO, then the Scheduling Coordinator of such Participating Load, Generating Unit, System Unit or System Resource shall be assigned that portion of the WECC penalty which the ~~ISO~~ CAISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the ~~ISO~~ CAISO Tariff.

~~8.10.2.6~~ ——— Temporary Exemption from Rescission of Energy Payments.

~~Any Participating Load that has entered into a Participating Load Agreement and has responded to a Dispatch Instruction will be exempt from the requirements of Section 8.10.2.2.3 in the hour of the Dispatch and for the following two (2) hours during the period beginning on June 15, 2000 and ending on the date specified in a notice ("Notice Terminating Temporary Exemption") to be issued by the ISO. Such notice shall be posted on the ISO Home Page and distributed to Market Participants via e-mail at least seven (7) calendar days in advance of the termination of this temporary exemption.~~

~~8.11~~ ——— Settlements For Contracted Ancillary Services.

~~Based on the prices and quantities determined in accordance with this Section, the ISO shall operate a daily Settlement function for Ancillary Services it contracts for with Scheduling Coordinators.~~

~~——— The ISO shall calculate imbalances between scheduled, instructed and actual quantities of Energy provided based upon Meter Data obtained pursuant to Section 10. Schedules between Control Areas shall be deemed as being delivered in accordance with Good Utility Practice. Dynamic schedules~~

~~shall be integrated over time through the operating hour and the MWh quantity obtained by such integration shall be deemed to be the associated scheduled interchange for that operating hour. The difference between actual and scheduled interchange shall then be addressed in accordance with the WECC and NERC inadvertent interchange practices and procedures. Following this practice, all dynamic schedules for Ancillary Services provided to the ISO from System Resources in other Control Areas shall be deemed delivered to the ISO. The difference between the Energy requested by the ISO and that actually delivered by the other Control Area shall then be accounted for and addressed through the WECC and NERC inadvertent interchange practices and procedures.~~

~~Separate payments shall be calculated for each Settlement Period t for each Generating Unit, System Unit, System Resource and Curtailable Demand. The ISO shall then calculate a total daily payment for each Scheduling Coordinator for all the Generating Units, System Units, System Resources and Curtailable Demands that it represents for each Settlement Period t .~~

~~—————The settlements for the Hour Ahead Markets shall be calculated by substituting Hour Ahead prices in the relevant formulae and deducting any amounts due to the ISO from Scheduling Coordinators who buy back in the Hour Ahead Market Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity they sold to the ISO in the Day Ahead Market.~~

~~8.11.1 ————— Regulation.~~

~~Regulation Up and Regulation Down payments shall be calculated separately.~~

~~**Quantities.** The following quantity definitions shall be used for each Scheduling Coordinator in the settlement process:~~

~~$AGCUpQDA_{x,t}$ = the Scheduling Coordinator's total quantity of Regulation Up capacity in Zone X sold through the ISO auction and scheduled Day Ahead j for Settlement Period t .~~

~~$AGCDownQDA_{x,t}$ = the Scheduling Coordinator's total quantity of Regulation Down capacity in Zone X sold through the ISO auction and scheduled Day Ahead j for Settlement Period t .~~

~~$EnQInst_{x,t}$ = Instructed Imbalance Energy increase or decrease in Zone X in real time Dispatch for each Dispatch Interval b of Settlement Period t , determined in accordance with the ISO Protocols.~~

~~**Prices.** The prices in the Settlement process for Regulation Up and Regulation Down shall be those determined in Section 8.5.6.~~

~~*Adjustment:* penalty described in Section 8.10.2.1.~~

~~$PAGCUpDA_{x,t}$ = the Market Clearing Price, PAGC, in Zone X for Regulation Up capacity in the Day Ahead Market for Settlement Period t.~~

~~$PAGCDownDA_{x,t}$ = the Market Clearing Price, PAGC, in Zone X for Regulation Down capacity in the Day Ahead Market for Settlement Period t.~~

~~**Payments.** Scheduling Coordinators for Generating Units providing Regulation Up capacity through the ISO auction shall receive the following payments for Regulation Up:~~

$$\del{AGCUpPay_{x,t} = AGCUpQDA_{x,t} * PAGCUpDA_{x,t} - Adjustment}$$

~~Scheduling Coordinators for Generating Units providing Regulation Down capacity through the ISO auction shall receive the following payments for Regulation Down:~~

$$\del{AGCDownPay_{x,t} = AGCDownQDA_{x,t} * PAGCDownDA_{x,t} - Adjustment}$$

~~Scheduling Coordinators for Generating Units shall receive the following payment for Energy output from Regulation in accordance with the settlement for Instructed Imbalance Energy under Section 11.2.4.1:~~

~~$REPA_{i,x,t}$ = the Regulation Energy Payment Adjustment for Generating Unit i in Zone X for~~

$$\del{\sum_i [(EnQInst_{i,x,t} * Zonal Settlement Interval ExPost Price in Zone X) + REPA_{i,x,t}]}$$

~~Settlement Period t calculated as follows:~~

$$\del{[(R_{UPi,x,t} * C_{UP}) + (R_{DNi,x,t} * C_{DN})] * \max(\$20/MWh, P_{x,t})}$$

~~Where~~

~~$R_{UPi,x,t}$ = the upward range of generating capacity for the provision of Regulation from Generating Unit i in Zone X included in the bid~~

~~accepted by the ISO for Generating Unit i for Settlement Period t, weighted in proportion to the ISO's need for upward Regulation. The weighting factors will be specified within a range from 0-100 percent. The weighting factors will be set at the discretion of the ISO based on system conditions, and will be set at a level that will provide sufficient incentive to the market to supply upward Regulation for the ISO's purposes of satisfying WECC criteria and NERC control performance standards. The ISO shall post the weighting factors consistent with the ISO Weighting Procedure, posted on the ISO website.~~

~~R_{DNixt} = _____ the downward range of generating capacity for the provision of Regulation for Generating Unit i in Zone X included in the bid accepted by the ISO for Generating Unit i for Settlement Period t, weighted in proportion to the ISO's need for downward Regulation. The weighting factors will be specified within a range from 0-100 percent. The weighting factors will be set at the discretion of the ISO based on system conditions, and will be set at a level that will provide sufficient incentive to the market to supply downward Regulation for the ISO's purposes of satisfying WECC criteria and NERC control performance standards. The ISO shall post the weighting factors consistent with the ISO Weighting Procedure, posted on the ISO website.~~

~~_____ C_{UP} = _____ 0 to 1~~

~~_____ C_{DN} = _____ 0 to 1~~

~~_____ P_{xt} = _____ the Hourly Ex Post Price for Zone X in Settlement Period t.~~

~~The ISO may modify the value of the constants C_{UP} or C_{DN} within a range of 0-1 either generally in regard to all hours or specifically in regard to particular times of the day, after the ISO Governing Board approves such modification, by a notice issued by the Chief Executive Officer of the ISO and posted on the ISO Internet "Home Page," at <http://www.ISO.com>, or such other Internet address as the ISO may~~

~~publish from time to time, specifying the date and time from which the modification shall take effect, which shall be not less than seven (7) days after the Notice is issued.~~

~~REPA shall not be payable unless the Generating Unit is available and capable of being controlled and monitored by the ISO Energy Management System over the full range of its Scheduled Regulation capacity for the entire Settlement Period at least the ramp rates (increase and decrease in MW/minute) stated in its bid. In addition, the total Energy available (R_{UP} plus R_{DN}) may be adjusted to be only R_{UP} or only R_{DN} , a percentage of R_{UP} or R_{DN} , or the sum of R_{UP} and R_{DN} , depending on the needs of the ISO for each direction of Regulation service.~~

~~8.11.2 Spinning Reserve.~~

~~**Quantities.** The following quantity definitions shall be used for each Scheduling Coordinator in the Settlement process:~~

~~$SpinQDA_{xt}$ = the Scheduling Coordinator's total quantity of Spinning Reserve capacity in Zone X sold through the ISO auction and scheduled Day Ahead for Settlement Period t.~~

~~$EnQInst_{xt}$ = Instructed Imbalance Energy output in Zone X in real-time Dispatch for Settlement Period t, supplied in accordance with the ISO Protocols.~~

~~**Prices.** The prices in the Settlement process for Spinning Reserve shall be those determined in Section 8.5.7.~~

~~$Adjustment$ = penalty described in Section 8.10.2.1, or rescinded capacity payments described in Section 8.10.2.2 or 8.10.2.3.~~

~~$PspDA_{xt}$ = Market Clearing Price, Psp , in Zone X for Spinning Reserve capacity in the Day Ahead Market for Settlement Period t.~~

~~**Payments.** Scheduling Coordinators for Generating Units, System Units, or System Resources providing Spinning Reserve capacity through the ISO auction shall receive the following payments for Spinning Reserve capacity:~~

$$SpinPay_{xt} = SpinQDA_{xt} * PspDA_{xt} - Adjustment$$

~~Scheduling Coordinators for Generating Units, System Units, or System Resources shall receive the following payments for Energy output from Spinning Reserve capacity:~~

$$\text{EnQInst}_{x,t} * \text{Resource-Specific Settlement Interval Ex Post Price}_{x,t}$$

8.11.3 ~~Non-Spinning Reserve.~~

~~**Quantities.** The following quantity definitions shall be used for each Scheduling Coordinator in the Settlement process:~~

~~$NonSpinQDA_{x,t}$ = the Scheduling Coordinator's total Quantity of Non-Spinning Reserve capacity in Zone X sold through the ISO's auction and scheduled Day Ahead for Settlement Period t.~~

~~$EnQInst_{x,t}$ = Instructed Imbalance Energy output or Demand reduction in Zone X in real-time Dispatch for Settlement Period t, supplied in accordance with the ISO Protocols.~~

~~**Prices.** The prices in the Settlement process for Non-Spinning Reserve shall be those determined in Section 8.5.8.~~

~~$Adjustment$ = penalty described in Section 8.10.2.1, or rescinded capacity payments described in Section 8.10.2.2 or 8.10.2.3.~~

~~$PnonspDA_{x,t}$ = Market Clearing Price, $Pnonsp$, in Zone X for Non-Spinning Reserve capacity in the Day-Ahead Market for Settlement Period t.~~

~~**Payments.** Scheduling Coordinators for Generating Units, System Units, System Resources, or Loads supplying Non-Spinning Reserve capacity through the ISO auction shall be paid the following for the Non-Spinning Reserve capacity:~~

$$\text{NonspPay}_{x,t} = \text{NonSpinQDA}_{x,t} * \text{PnonspDA}_{x,t} - \text{Adjustment}$$

~~Scheduling Coordinators for Generating Units, System Units, System Resources or Loads shall receive the following payments for Energy output from Non-Spinning Reserve capacity:~~

$$\text{EnQInst}_{x,t} * \text{Resource-Specific Settlement Interval Ex Post Price}_{x,t}$$

8.11.3A ~~Replacement Reserve.~~

~~**Quantities.** The following quantity definitions shall be used for each Scheduling Coordinator in the Settlement process:~~

~~$RepResQDA_{xt}$ = the Scheduling Coordinator's total quantity of Replacement Reserve capacity in Zone X sold through the ISO auction scheduled Day Ahead for Settlement Period t, and from which Energy has not been generated.~~

~~$EnQInst_{xt}$ = Instructed Imbalance Energy output or Demand reduction in Zone X in real-time Dispatch for Settlement Period t, supplied in accordance with the ISO Protocols.~~

~~**Prices.** The prices in the Settlement process for Replacement Reserve shall be those determined in Section 8.5.8A.~~

~~$Adjustment$ = penalty described in Section 8.10.2.1, or rescinded capacity payments described in Section 8.10.2.2 or 8.10.2.3.~~

~~$PRepResDA_{xt}$ = Market Clearing Price, $PRepRes$, in Zone X for Replacement Reserve capacity in the Day Ahead Market for Settlement Period t.~~

~~**Payments.** Scheduling Coordinators for Generating Units, System Units, System Resources, or Loads providing Replacement Reserve capacity through the ISO auction shall receive the following payments for the portion of a Scheduling Coordinator's Replacement Reserve capacity from which Energy has not been generated:~~

$$\text{RepResPay}_{ijt} = (\text{RepResQDA}_{xt} -) * PRepResDA_{xt-Adjustment}$$

~~Scheduling Coordinators shall not receive capacity payments for the portion of a Scheduling Coordinator's Replacement Reserve capacity from which Energy has been generated. The payments for Energy output from Replacement Reserve capacity are calculated as follows:~~

$$\text{EnQInst}_{ijt} * \text{Resource-Specific Settlement Interval Ex Post Price}_{xt}$$

8.11.4 Voltage Support.

The total payments for each Scheduling Coordinator shall be the sum of the short-term procurement payments, based on opportunity cost, as described in Section 8.5.9, and the payments under long-term contracts.

8.11.5 Black Start.

Quantities. The following quantities shall be used in the Settlement process:

$EnQBS_{ijt}$ = Energy output from Black Start made by Generating Unit i from Scheduling Coordinator j (or Black Start Generator j , as the case may be) for Settlement Period t , pursuant to the ISO's order to produce.

Prices. The prices used in the Settlement process are those described in the contracts referred to in Section 8.5.10.

$Adjustment$ = penalty described in Section 8.10.2.1.

Payments. Scheduling Coordinators for owners of Reliability Must-Run Units (or Black Start Generators, as the case may be) shall receive the following payments for Energy output from Black Start facilities:

$$BSEN_{ijt} = (EnQBS_{ijt} * EnBid_{ijt}) + BSSUP_{ijt} - Adjustment$$

where $BSSUP_{ijt}$ is the start-up payment for a Black Start successfully made by Generating Unit i of Scheduling Coordinator j (or Black Start Generator j) in Trading Interval t calculated in accordance with the applicable Reliability Must-Run Contract (or the Interim Black Start Agreement as the case may be).

8.12 ~~Settlement for User Charges for Ancillary Services.~~

~~(a) The ISO shall determine a separate hourly user rate for Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve for each Settlement Period purchased in the Day Ahead Market, and in the Hour Ahead Market. Each rate will be charged to Scheduling Coordinators on a volumetric basis applied to each Scheduling Coordinator's obligation for the Ancillary Service concerned which it has not self-provided, as adjusted by any Inter-Scheduling Coordinator Ancillary Service Trades.~~

~~Each Scheduling Coordinator's obligation for Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve for each Zone shall be calculated in accordance with Section 8.6.1, notwithstanding any adjustment to the quantities of each Ancillary Service purchased by the ISO in accordance with Section 8.2.3.6.~~

~~The cost of Voltage Support and Black Start shall be allocated to Scheduling Coordinators as described in Sections 8.12.4 and 8.12.5.~~

~~Quantities and rates for the Hour Ahead Markets shall be calculated by substituting the Hour Ahead quantities and prices in the relevant formulae (including self-provided quantities of the Ancillary Service) except that the user rates for Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve capacity shall be calculated by dividing the net payments made by the ISO for each service by the MW quantity purchased for each service. The net payments are the total payments for each service net of sums payable by Scheduling Coordinators who have bought back in the Hour Ahead Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity, as the case may be, which they had sold to the ISO in the Day Ahead Market.~~

~~Ancillary Services obligations may be negative, and credits for such negative obligations will be in accordance with the rates calculated in Sections 8.12.1, 8.12.2, 8.12.3 and 8.12.3A, except that a Scheduling Coordinator's credit shall be reduced by the greater of: a) the amount of any self-provision scheduled from resources which are deemed to meet the ISO's Ancillary Services standards, and which are not subject to the certification and testing requirements of the ISO Tariff; or b) if the ISO has no~~

~~incremental requirement to be met in the Hour Ahead Market for an Ancillary Service, the incremental amount of such service scheduled by that Scheduling Coordinator in the Hour Ahead Market.~~

~~—————The ISO will allocate the Ancillary Services capacity charges, for both Day Ahead and Hour Ahead Markets, on a Zonal basis if the Day Ahead Ancillary Services market is procured on a Zonal basis. The ISO will allocate the Ancillary Services capacity charges, for both the Day Ahead and Hour Ahead Markets, on an ISO Control Area wide basis if the Day Ahead Ancillary Services market is defined on an ISO Control Area wide basis.~~

~~(b) ——— If, in any Settlement Period, no quantity of Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve is purchased in the Day Ahead Market or the Hour Ahead Market due to the operation of Section 8.2.3.6, then in lieu of the user rate determined in accordance with Section 8.12.1, 8.12.2, 8.12.3, or 8.12.3A, as applicable, the user rate for the affected Ancillary Service for that Settlement Period shall be determined as follows:~~

~~—————(i) ——— If the affected market is a Day Ahead Market, the user rate for the affected Ancillary Service shall be set at the lowest capacity reservation price for an unaccepted qualified capacity bid in the Day Ahead Market for the same Settlement Period for that Ancillary Service or for another Ancillary Service that meets the requirements for the affected Ancillary Service. If there are no such unaccepted bids, the user rate for the affected Ancillary Service shall be the lowest Market Clearing Price for the same Settlement Period established in the Day Ahead Market for another Ancillary Service that meets the requirements for the affected Ancillary Service.~~

~~—————(ii) ——— If the affected market is an Hour Ahead Market, the user rate for the affected Ancillary Service shall be set at the lowest capacity reservation price for an unaccepted qualified capacity bid in the Hour Ahead Market for the same Settlement Period for that Ancillary Service or for another Ancillary Service that meets the requirements for the affected Ancillary Service. If there are no such unaccepted bids, the user rate for the affected Ancillary Service shall be the user rate for the same Ancillary Service in the Day Ahead Market in the same Settlement Period.~~

~~(c) ——— With respect to each Settlement Period, in addition to the user rates determined in accordance with Sections 8.12.1 through 8.12.3A or Section 8.12(b), as applicable, each Scheduling~~

~~Coordinator shall be charged an additional amount equal to its proportionate share, based on total purchases by Scheduling Coordinators of Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve of the amount, if any, by which (i) the total payments to Scheduling Coordinators pursuant to Section 8.11.1 through 8.11.3A, for the Day-Ahead Market and Hour-Ahead Market and all Zones, exceed (ii) the total amounts charged to Scheduling Coordinators pursuant to Section 8.12.1 through 8.12.3A, for the Day-Ahead Market and Hour-Ahead Market and all Zones. If total amounts charged to Scheduling Coordinators exceed the total payments to Scheduling Coordinators, each Scheduling Coordinator will be refunded its proportionate share, based on total purchases by Scheduling Coordinators of Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve.~~

8.12.1 Regulation.

~~Regulation Up and Regulation Down charges shall be calculated separately. The user rate per unit of purchased Regulation service for each Settlement Period in the Day-Ahead Market for each Zone shall be calculated by dividing the total Regulation capacity payments by the ISO's total MW purchases of Regulation for that Settlement Period for that Zone which has not been self-provided by Scheduling Coordinators. The ISO will calculate the user rate for Regulation Up in each Zone for each Settlement Period as:~~

$$~~RegRateUpDA (\$/MW) = AGCUpPayDA / AGCUpPurchDA~~$$

~~where:~~

~~AGCUpPayDA = Total Regulation Up payments for the Settlement Period in the Day-Ahead Market for the Zone.~~

~~AGCUpPurchDA = the total ISO Regulation Up MW purchases in the Day-Ahead Market for the Settlement Period for the Zone, excluding that which has been self-provided by Scheduling Coordinators.~~

~~The ISO will calculate the user rate for Regulation Down in each Zone for each Settlement Period as:~~

$$~~RegRateDownDA (\$/MW) = AGCDownPayDA / AGCDownPurchDA~~$$

~~where:~~

~~$AGCDownPayDA$ = Total Regulation Down payments for the Settlement Period in the Day-Ahead Market for the Zone.~~

~~$AGCDownPurchDA$ = the total ISO Regulation Down MW purchases in the Day-Ahead Market for the Settlement Period for the Zone, excluding that which has been self-provided by Scheduling Coordinators.~~

~~For each Settlement Period, each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone:~~

~~$$RegRateUpDA * AGCUpOblig$$~~

~~where $AGCUpOblig$ is the Scheduling Coordinator's obligation for Regulation Up in the Zone in the Settlement Period for which it has not self-provided.~~

~~$$RegRateDownDA * AGCDownOblig$$~~

~~where $AGCDownOblig$ is the Scheduling Coordinator's obligation for Regulation Down in the Zone in the Settlement Period for which it has not self-provided.~~

~~8.12.2 Spinning Reserve.~~

~~The user rate per unit of purchased Spinning Reserve for each Settlement Period in the Day-Ahead Market for each Zone shall be calculated by dividing the total capacity payments for Spinning Reserve by the ISO's total MW purchases of Spinning Reserve for that Settlement Period for that Zone which has not been self-provided by Scheduling Coordinators. The ISO will calculate the user rate for Spinning Reserve in each Zone for each Settlement Period as:~~

~~$$SpRateDA(\$ / MW) = \frac{SpinPayDA}{SpinPurchDA}$$~~

~~where:~~

~~$SpinPayDA$ = Total Spinning Reserve payments for the Settlement Period in the Market for the Zone Day-Ahead.~~

~~$SpinPurchDA$ = the total ISO Spinning Reserve MW purchases in the Day-Ahead Market for the Settlement Period for the Zone, excluding that which has been self-provided by Scheduling Coordinators.~~

For each Settlement Period, each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone:

$$SPRateDA * SpinOblig$$

where *SpinOblig* is the Scheduling Coordinator's obligation for Spinning Reserve in the Zone in the Settlement Period for which it has not self-provided.

8.12.3 Non-Spinning Reserve.

The user rate per unit of purchased Non-Spinning Reserve for each Settlement Period in the Day-Ahead Market for each Zone shall be calculated by dividing the total capacity payments for Non-Spinning Reserve by the ISO's total MW purchases of Non-Spinning Reserve for that Settlement Period for that Zone which has not been self-provided by Scheduling Coordinators. The ISO will calculate the user rate for Non-Spinning Reserve in each Zone for each Settlement Period as:

$$NonSpRateDA(\$ / MW) = \frac{NonSpinPayDA}{NonSpinPurchDA}$$

where:

NonSpinPayDA = Total Non-Spinning Reserve payments for the Settlement Period in the Day-Ahead Market for the Zone.

NonSpinPurchDA = the total ISO Non-Spinning Reserve MW purchases for the Settlement Period for the Zone, excluding that which has been self-provided by Scheduling Coordinators.

For each Settlement Period, each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone:

$$NonSpRateDA * NonSpinOblig$$

where *NonSpinOblig* is the Scheduling Coordinator's obligation for Non-Spinning Reserve in the Zone in the Settlement Period for which it has not self-provided.

8.12.3A Replacement Reserve.

The user rate per unit of Replacement Reserve obligation for each Settlement Period t for each Zone x shall be as follows:

$$\text{ReplRate}_{xt} = \frac{(P\text{RepResDA}_{xt} * \text{OrigReplReqDA}_{xt}) + (P\text{RepResHA}_{xt} * \text{OrigReplReqHA}_{xt})}{\text{OrigReplReqDA}_{xt} + \text{OrigReplReqHA}_{xt}}$$

where

$\text{OrigReplReqDA}_{xt}$ = Replacement Reserve requirement net of self-provision in the Day-Ahead Market before consideration of any substitutions pursuant to Section 8.2.3.6.

$\text{OrigReplReqHA}_{xt}$ = Incremental change in the Replacement Reserve requirement net of self-provision between the Day-Ahead Market and the Hour-Ahead Market before consideration of any substitutions pursuant to Section 8.2.3.6.

$P\text{RepResDA}_{xt}$ is the Market Clearing Price for Replacement Reserve in the Day-Ahead Market for Zone x in Settlement Period t .

$P\text{RepResHA}_{xt}$ is the Market Clearing Price for Replacement Reserve in the Hour-Ahead Market for Zone x in Settlement Period t .

~~For each Settlement Period t , each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone x :~~

$$\text{ReplRate}_{xt} * \text{ReplOblig}_{jxt}$$

where

$$\text{ReplOblig}_{jxt} = \text{DevReplOblig}_{jxt} + \text{RemRepl}_{jxt} - \text{SelfProv}_{jxt} + \text{NetInterSCTrades}_{jxt}$$

$\text{DevReplOblig}_{jxt}$ is the Scheduling Coordinator's obligation for deviation Replacement Reserve in Zone x in the Settlement Period t and RemRepl_{jxt} is the Scheduling Coordinator's obligation for remaining Replacement Reserve in Zone x for Settlement Period t .

SelfProv_{jxt} is Scheduling Coordinator's Replacement Reserve self-provision in Zone x for Settlement Period t .

~~NetInterSCTrades_{jxt} is the sale of Replacement Reserve less the purchase of Replacement Reserve through Inter-Scheduling Coordinator Trades by Scheduling Coordinator j in Zone x for Settlement Period t.~~

~~Deviation Replacement Reserve for Scheduling Coordinator j in Zone x for Settlement Period t is calculated as follows:~~

~~If $ReplObligTotal_{xt} > TotalDeviations_{xt}$ then:~~

~~$$DevReplOblig_{xjt} = \left[\text{Max} \left(0, \sum_i GenDev_{ijxt} \right) - \text{Min} \left(0, \sum_i LoadDev_{ijxt} \right) \right]$$~~

~~If $ReplObligTotal_{xt} < TotalDeviations_{xt}$ then:~~

~~$$DevReplOblig_{xjt} = \frac{ReplObligTotal_{xt}}{TotalDeviations_{xt}} * \left[\text{Max} \left(0, \sum_i GenDev_{ijxt} \right) - \text{Min} \left(0, \sum_i LoadDev_{ijxt} \right) \right]$$~~

~~where,~~

~~$$TotalDeviations_{xt} = \sum_j \left[\text{Max} \left(0, \sum_i GenDev_{ijxt} \right) - \text{Min} \left(0, \sum_i LoadDev_{ijxt} \right) \right]$$~~

~~GenDev_{ijxt} = The deviation between scheduled and actual Energy Generation for Generator i represented by Scheduling Coordinator j in Zone x during Settlement Period t as referenced in Part D of Appendix N.~~

~~LoadDev_{ijxt} = The deviation between scheduled and actual Load consumption for resource i represented by Scheduling Coordinator j in Zone x during Settlement Period t as referenced in Part D of Appendix N.~~

~~DevReplOblig_{xt} is total deviation Replacement Reserve in Zone x for Settlement Period t.~~

~~ReplObligTotal_{xt} is total Replacement Reserve Obligation in Zone x for Settlement Period t.~~

~~Remaining Replacement Reserve for Scheduling Coordinator j in Zone x for Settlement Period t is calculated as follows:~~

~~$$RemRepl_{xjt} = \frac{MeteredDemand_{jxt}}{TotalMeteredDemand_{xt}} * TotalRemRepl_{xt}$$~~

where:

~~$MeteredDemand_{x,t}$ is the Scheduling Coordinator's total metered Demand excluding exports in Zone x for Settlement Period t.~~

~~$TotalMeteredDemand_{x,t}$ is total metered Demand excluding exports in Zone x for Settlement Period t.~~

~~$TotalRemRepl_{x,t} = \text{Max}[0, \text{ReplObligTotal}_{x,t} + \text{TotalSelfProv}_{x,t} - \text{DevReplOblig}_{x,t}]$~~

8.12.4 Voltage Support.

The short term market Voltage Support user rate for Settlement Period t for Zone x shall be calculated as follows:

$$VSSTRate_{xt} = \frac{\sum_{i,j} VSST_{xijt}}{\sum_j QChargeVS_{xjt}}$$

~~$VSST_{xijt}$ = Voltage Support payment to Scheduling Coordinator j in respect of Generating Unit i in Zone x in the short term market applicable to Settlement Period t.~~

~~$QChargeVS_{xjt}$ = charging quantity for Voltage Support for Scheduling Coordinator j for Settlement Period t in Zone x equal to the total metered Demand in Zone x (including exports to neighboring Control Areas and excluding metered Demand inside an MSS) by Scheduling Coordinator j for Settlement Period t.~~

The monthly long term Voltage Support contract user rate for Settlement Period t for Zone x shall be calculated as follows:

$$VSLTRate_{xm} = \frac{\sum_{i,j} VSLT_{xijm}}{\sum_{jm} QChargeVS_{xjt}}$$

where:

~~$VSLT_{xijm}$ = long term Voltage Support contract payment to Scheduling Coordinator j for owner of Reliability Must Run Unit i in Zone x for month m.~~

~~The short term market Voltage Support charges for Settlement Period t payable by Scheduling Coordinator j will be calculated as follows:~~

$$~~VSSCharge_{jt} = VSSRate_t * QCharge_{jt}~~$$

~~where $VSSCharge_{jt}$ is the amount payable by Scheduling Coordinator j for short term market Voltage Support for Settlement Period t.~~

~~$VSSRate_t$ is the short term market Voltage Support user rate for Settlement Period t. The monthly long term Voltage Support contract charge for month m payable by Scheduling Coordinator j will be calculated as follows:~~

$$~~\frac{VSLTCharge_m}{m} = VSLRate_m * \sum_m QCharge_{jt}~~$$

~~where $VSLTCharge_m$ is the amount payable by Scheduling Coordinator j for long term Voltage Support for month m.~~

~~$VSLRate_m$ is the monthly long term Voltage Support contract user rate charged by the ISO to Scheduling Coordinators for month m.~~

8.12.5 Black Start.

$QChargeBlackstart_{jt}$ = charging quantity for Black Start for Scheduling Coordinator j for Settlement Period t equal to the total metered Demand (excluding exports to neighboring Control Areas and metered Demand of a MSS) by Scheduling Coordinator j for Settlement Period t.

The Black Start Energy payment user rate for Settlement Period t will be calculated as follows:

$$BSRate_t = \frac{\sum_{i,j} BSEn_{ijt}}{\sum_j QChargeBlackstart_{jt}}$$

where $BSEn_{ijt}$ is the ISO payment to Scheduling Coordinator j for owner of Reliability Must Run Unit (or to Black Start Generator j, as the case may be) for Generating Unit i providing Black Start Energy in Settlement Period t.

The Black Start Energy user charge for Settlement Period t for Scheduling Coordinator j will be calculated as follows:

$$BSCharge_{jt} = BSRate_t * QChargeBlackStart_{jt}$$

8.11 8.13 Temporary Changes To Ancillary Services Penalties.

8.11.1 8.13.1 Application and Termination.

The temporary change, respecting Ancillary Services penalties, set out in Section ~~8.13-28.11.2~~ shall continue in effect until such time as the Chief Executive Officer of the ~~ISO~~ CAISO issues a Notice of Full-Scale Operations, posted on the ~~ISO~~ CAISO Internet "~~Home Page Website~~", at [http://www.~~ISO~~CAISO.com](http://www.ISO<u>CAISO</u>.com), or such other Internet address as the ~~ISO~~ CAISO may publish from time to time, specifying the date on which this Section ~~8.118-13~~ shall cease to apply, which date shall be not less than seven (7) days after the Notice of Full-Scale Operations is issued.

8.11.2 8.13.2 For so long as this Section ~~8.13-28.11.2~~ remains in effect, Scheduling Coordinators shall not be liable for the penalties specified in Section 8.10.7 and 8.10.82 of the ~~ISO~~ CAISO Tariff if, as a result of limitations associated with the ~~ISO's~~ CAISO's Congestion Management

software, the scheduled output of the resource from which the Scheduling Coordinator has committed to provide an Ancillary Service is adjusted by the ~~ISO~~ CAISO to a level that conflicts with the Scheduling Coordinator's Ancillary Service capacity commitments, thereby resulting in a failed availability test.

~~8.14~~ **Temporary Rule Limiting Adjustment Bids Applicable To Dispatchable Loads And Exports.**

~~8.14.1~~ **Application and Termination.**

~~The temporary change limiting Adjustment Bids for Dispatchable Loads and exports set out in Section 8.14.2 shall continue in effect until such time as the Chief Executive Officer of the ISO posts a notice ("Notice of Full Scale Operations"), on the ISO Home Page specifying the date on which this Section 8.14 shall cease to apply, which date shall not be less than seven (7) days after the Notice of Full Scale Operations is posted.~~

~~**8.14.2** For so long as this Section 8.14.2 remains in effect, Scheduling Coordinators shall continue to be allowed to specify Adjustment Bids for Dispatchable Loads and exports, conditioned on the rule that the last segment of the Adjustment Bid (i.e., the maximum MW value) must equal the preferred MW operating point specified for the Dispatchable Load or export.~~