**ARTICLE I – GENERAL PROVISIONS**

**1. DEFINITIONS AND INTERPRETATION.**

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

**1.2 Definitions.**

Capitalized terms used in this ISO Tariff shall have the meanings set out in the Master Definitions Supplement set out in Appendix A to this ISO Tariff unless otherwise stated or the context otherwise requires.

**1.3 Rules of Interpretation.**

**1.3.1** In this ISO Tariff "includes" or "including" shall mean "including without limitation".

**1.3.2** In this ISO 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 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 ISO Tariff conflict, the ISO Tariff will prevail to the extent of the inconsistency.

(g) A reference in this ISO Tariff or to a given agreement, ISO Protocol or instrument shall be a reference 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 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.

(j) The Operating Procedures referenced in this ISO Tariff, as may be amended from time to time, shall be posted on the ISO Home Page and such references in this ISO Tariff shall be to the Operating Procedures then posted on the ISO Home Page.

(k) 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.

(l) Titles. The captions and headings in this ISO 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 Tariff.

## 2. ACCESS TO THE ISO CONTROLLED GRID.

### 2.1 Open Access.

The ISO shall, subject to Sections 2.2 and 3, provide to all Eligible Customers open and non-discriminatory access to the ISO Controlled Grid regardless of the locations of their connections to the ISO Controlled Grid in accordance with the terms of this ISO Tariff including, in particular, the procedures for scheduling and Congestion Management. Energy and Ancillary Services may be transmitted on behalf of an Eligible Customer into, out of or through the ISO 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 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 and are owned by a Local Furnishing Participating TO or other Tax Exempt Participating TO. Nothing in this ISO Tariff or the TCA shall compel (and the ISO 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 in developing an ISO Protocol to meet the objectives of Section 3.1 and shall keep the ISO fully informed of any changes necessary to that ISO Protocol from time to time.

**3.3** The ISO shall implement the ISO Protocol referred to in Section 3.1 provided that the Local Furnishing TOs and other Tax Exempt Participating TOs shall bear sole responsibility for the development of that ISO 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 Operating Orders Issued.

With respect to this Section 4.2, all Market Participants, including Scheduling Coordinators, Utility Distribution Companies, Participating Transmission Owners, Participating Generators, Control Area Operators (to the extent the agreement between the Control Area Operator and the ISO so provides), and Metered Subsystem Operators within the ISO 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 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 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 instructions with no more delay than specified in the response times set out in the ISO Tariff and Protocols.

**4.3 Relationship Between ISO and Participating Tos.**

**4.3.1 Nature of Relationship.**

Each Participating TO shall enter into a Transmission Control Agreement with the ISO. In addition to converting Existing Rights in accordance with Section 16.2.1A, 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 Operational Control; (2) satisfy the criteria adopted by the ISO Governing Board identifying transmission facilities for which the ISO should assume Operational Control; and (3) are the subject of mutual agreement between the ISO and the Participating TOs. The ISO 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 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 to become a New Participating TO by January 1 or July 1, and provide the ISO 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 can be effective the following July 1 or January 1.

**4.3.1.2** With respect to its submission of Schedules to the ISO, 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 4.5.1.1, 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 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.

**4.3.1.3** Western Path 15 shall be required to turn over to ISO Operational Control only its rights and interests in the Path 15 Upgrade and shall not be required to turn over to ISO 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 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 under the Transmission Exchange Agreement originally accepted by FERC in Docket No. ER04-688 is deemed to be ISO Controlled Grid facilities and is subject to all terms and conditions of the ISO Tariff.

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

**4.4 Relationship Between ISO And UDCs.**

**4.4.1 General Nature of Relationship Between ISO and UDCs.**

**4.4.1.1** The ISO 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 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 Tariff and the ISO Protocols as these may be amended from time to time.

**4.4.1.2** The ISO shall operate the ISO Controlled Grid, and each UDC shall operate its Distribution System at all times in accordance with Good Utility Practice and in a manner which ensures safe and reliable operation. The ISO shall, in respect of 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 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 Controlled Grid

that is made available to the ISO by the UDC shall also be made available to Scheduling Coordinators upon receipt of reasonable notice.

**4.4.3 UDC Responsibilities.**

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

**4.4.3.1** 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 Controlled Grid;

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

**4.4.3.3** coordinate with the ISO, Participating TOs and Generators to ensure that ISO 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** Each UDC shall coordinate any requests for emergency Outages on point of interconnection equipment directly with the appropriate ISO Control Center as specified in Section 7.1.

**4.4.6 System Emergency Reports: UDC Obligations.**

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

**4.4.6.2** Each UDC shall cooperate with the ISO in the preparation of an Outage review pursuant to Section 7.4.13.

**4.4.7 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 Controlled Grid or the transmission services to be required by the UDC. The Participating TO shall be responsible for coordinating with the ISO.

**4.4.8 Information Sharing.**

**4.4.8.1 System Planning Studies.**

The ISO, 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 Controlled Grid.

**4.4.8.2 System Surveys and Inspections.**

The ISO 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 Controlled Grid.

**4.4.8.3 Reports.**

**4.4.8.3.1** The ISO shall make available to the UDCs any public annual reviews or reports regarding performance standards, measurements and incentives relating to the ISO Controlled Grid and shall also make available, upon reasonable notice, any such reports that the ISO receives from the Participating TOs. Each UDC shall make available to the ISO 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 Controlled Grid.

**4.4.8.3.2** The ISO and UDCs shall develop an operating procedure to record requests received for Maintenance Outages by the ISO 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 are under the Operational Control of the ISO. These records shall be made available to the ISO upon receipt of reasonable notice.

**4.4.8.4 Installation of and Rights of Access to UDC Facilities.**

**4.4.8.4.1 Installation of Facilities.**

**4.4.8.4.1.1 Meeting Service Obligations.** The ISO 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.

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

**4.4.8.4.2 Access to Facilities.**

The UDCs shall grant the ISO reasonable access to UDC facilities free of charge for purposes of inspection, repair, maintenance, or upgrading of facilities installed by the ISO on the UDC's system, provided that the ISO 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.

**4.4.8.4.3 Access During Emergencies.**

Notwithstanding any provision in this Section 4.4 the ISO 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.

**4.4.9 UDC Facilities under ISO Control.**

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

**4.5 Responsibilities of a Scheduling Coordinator.**

**4.5.1 Scheduling Coordinator Certification.**

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

**4.5.1A** Each Scheduling Coordinator shall:

(a) demonstrate to the ISO's reasonable satisfaction that it is capable of performing the functions of a Scheduling Coordinator under this ISO 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 under this ISO 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 reasonable satisfaction that it meets the financial criteria set out in Section 12.1;

(f) enter into an Scheduling Coordinator Agreement with the ISO; 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.**

To become a Scheduling Coordinator, a Scheduling Coordinator Applicant must submit a written application to the ISO by mail, fax, e-mail or in person. A Scheduling Coordinator Applicant may retrieve the application and necessary information from the ISO Home Page.

**4.5.1.1.2 ISO Information.**

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

(a) the Scheduling Coordinator Application Form (including the ISO Application File Template, which is Appendix T);

(b) the ISO Tariff and ISO Protocols;

(c) Interim Black Start Agreement;

(d) historical ISO 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 to assist the Scheduling Coordinator Applicant in determining the Financial Security Amount the Scheduling Coordinator Applicant must provide; and

(e) a completed credit application for Scheduling Coordinator Applicants applying for Unsecured Credit Limits or Financial Security to be provided pursuant to Section 12.1.2.

**4.5.1.1.3 Duplicate Information.**

If two or more Scheduling Coordinators apply simultaneously to register with the ISO for a single meter or Meter Point for an ISO Metered Entity or if an Scheduling Coordinator applies to register with the ISO for a meter or Meter Point for an ISO Metered Entity for which an Scheduling Coordinator has already

registered, the ISO will return the application with an explanation that only one Scheduling Coordinator may register with the ISO 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 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 Governing Board to cover the application processing costs, site visit and the costs of furnishing the ISO Tariffs.

**4.5.1.1.5 Notice of Receipt.**

Within 3 Business Days of receiving the application, the ISO 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 ISO Review of Application.**

Within 14 days after receiving an application, the ISO will notify the Scheduling Coordinator Applicant whether the Scheduling Coordinator Applicant has submitted all necessary information as set forth in ISO Tariff Section 4.5.1, and the ISO 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 application, was filed, unless waived by the ISO;

(b) financial and security information as set forth in ISO 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**

An 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 ISO;

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

(c) represented ISO Metered Entities have entered into Meter Service Agreements as provided in Appendix B.6 with the ISO;

(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 the application is deficient, the ISO will send a written notification of the deficiency to the Scheduling Coordinator Applicant within 14 days of receipt by the ISO 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 requests additional information, the Scheduling Coordinator Applicant has 7 days, or such longer period as the ISO may agree, to provide the additional material requested by the ISO.

**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.

**4.5.1.1.8 ISO Approval Or Rejection Of An Application.**

**4.5.1.1.8.1 Approval or Rejection Letter.**

(a) If the ISO 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 rejects the application, the ISO 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 Tariff requirements.

Upon request, the ISO 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 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 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 accepts the application, the Scheduling Coordinator Applicant must return an executed Scheduling Coordinator Agreement, Meter Service Agreements, Interim Black Start Agreements, completed credit application provided pursuant to Section 12.1.1, and Financial Security provided pursuant to Section 12.1.2, 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. 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 will not certify that an 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 Application File Template, and to comply with ISO Tariff Section 10.3;

**(b) executed software licensing agreement for the software used in conducting business with the ISO in a form approved by the ISO, 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 staff to ensure compliance with the ISO Tariff Section 4.5.4.1; and

(g) bought and installed a computer link account in order to communicate with the ISO.

**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 ISO;

(c) the Scheduling Coordinator Applicant has met the financial requirements of ISO Tariff Section 12.1; and

(d) the Scheduling Coordinator Applicant has fulfilled all technical/operational requirements of ISO Tariff Section 4.5.4.1, Section 4.5.1.1.10.1, and the ISO Application File Template.

The ISO 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 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 of any changes to any of the information submitted by it to the ISO as part of the application process, including any changes to the additional information requested by the ISO and including but not limited to changes in its credit ratings. Appendix T sets forth the procedures for changing the Scheduling Coordinator's information and timing of notifying the ISO of such changes.

**4.5.1.2.1.2 Obligation to Report a Change in Credit Ratings or Material Change in Financial Condition.**

The SC has an ongoing obligation to inform the ISO within 5 Business Days of any change to its credit ratings or any Material Change in Financial Condition.

**4.5.1.2.2 ISO'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 of a material change in its information provided to the ISO, which may affect the reliability or safety of the ISO Controlled Grid, or the financial security of the ISO, the ISO may suspend or terminate the Scheduling Coordinator's rights under the ISO Tariff in accordance with the terms of ISO Tariff Sections 12.3 and 4.5.1 respectively. If the ISO 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 provide the ISO with a list of the Eligible Customers which 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 charges in accordance with this ISO Tariff;

**4.5.3.2 Submit Schedules.** Submitting Schedules for Energy in the Day-Ahead Market and Hour-Ahead Market in relation to Market Participants for which it serves as Scheduling Coordinator, Scheduling Coordinators shall provide the ISO with intertie Interconnection schedules prepared in accordance with all NERC, WECC and ISO 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 in accordance with this ISO 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.** 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 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 the forecasted weekly peak Demand on the ISO 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 ISO Protocols.** Complying with all ISO Protocols and ensuring compliance by each of the Market Participants which it represents with all applicable provisions of the ISO Protocols;

**4.5.3.9 Interruptible Imports.** Identifying any Interruptible Imports included in its Schedules;

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

**4.5.3.11 Compliance with Environmental Constraints, Operating Permits and Applicable Law.** Submitting Ancillary Services bids, Adjustment Bids and Supplemental Energy bids so that any service provided in accordance with such bids does not violate environmental constraints, operating permits or applicable law. All submitted bids must reflect resource limitations and other constraints as such are required to be reported to the ISO 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 and who shall have sufficient authority to commit and bind the Scheduling Coordinator.

**4.5.4.2 Submitting Balanced Schedules.**

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.

**4.5.4.2.1 Submission of Schedules Sufficient to Meet Forecasted Demand**

**4.5.4.2.1.1** Each Scheduling Coordinator shall submit to the ISO, for each hour of each Trading Day, a Day-Ahead Schedule that includes at least ninety-five percent (95%) of that Scheduling Coordinator's forecast Demand for each hour, for each UDC Service Area, with respect to all entities for which the Scheduling Coordinator schedules in the applicable UDC Service Areas. The requirements of this section do not apply to the portion of a Scheduling Coordinator's Demand associated with Station Power.

**4.5.4.3 Dynamic Scheduling.**

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

**4.5.4.4 Termination of Service Agreement.**

(a) A Scheduling Coordinator's Scheduling Coordinator Agreement may be terminated by the ISO 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 has given written notice of the default;

(ii) if the Scheduling Coordinator fails to pay any sum under this ISO Tariff and fails to remedy the default within a period of seven (7) days after the ISO has given written notice of the default; or

(iii) if the Scheduling Coordinator commits any other default under this ISO Tariff or any of the ISO Protocols which, if capable of being remedied, is not remedied within thirty (30) days after the ISO has given it written notice of the default; or

(b) by the Scheduling Coordinator on sixty (60) days written notice to the ISO, 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 shall, following termination of an Scheduling Coordinator Agreement and within thirty (30) days of being satisfied that no sums remain owing by the Scheduling Coordinator under the ISO Tariff, return or release to the Scheduling Coordinator, as appropriate, any money or credit support provided by such Scheduling Coordinator to the ISO 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 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 to the ISO.

**4.5.4.5 Notification of Termination.**

The ISO 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 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 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 Home Page. 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 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 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 will post notice of any suspension on the ISO Home Page. Until the ISO 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 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 their desire to be on such list shall be placed thereon by the ISO in random order.

(a) When the ISO 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 Section 4.5.4.6.2 in a non-discriminatory manner to be established by the ISO, 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 subsection (b).

(b) Unless the ISO 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 Home Page, 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-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 and Generators.**

The ISO shall not Schedule Energy or Ancillary Services generated by any Generating Unit interconnected to the ISO Controlled Grid, or to the Distribution System of a Participating TO or of a UDC otherwise than through a Scheduling Coordinator. The ISO shall not be obligated to accept Schedules or Adjustment Bids or bids for Ancillary Services relating to Generation from any Generating Unit interconnected to the ISO Controlled Grid unless the relevant Generator undertakes in writing to the ISO to comply with all applicable provisions of this ISO Tariff as they may be amended from time to time, including, without limitation, the applicable provisions of this Section 4.6 and Section 7.4.

**4.6.1 General Responsibilities.**

**4.6.1.1 Operate Pursuant to Relevant Provisions of ISO Tariff.**

Participating Generators shall operate, or cause their facilities to be operated, in accordance with the relevant provisions of this ISO 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 ISO, 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. 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 ISO, 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 Controlled Grid.

(ii) In the event that a Participating Generator cannot meet its Generation schedule, 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 ISO, 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 ISO, through its Scheduling Coordinator at once.

**4.6.1.2 Operate Pursuant to Relevant Operating Protocols.**

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

**4.6.3 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

and the UDC will coordinate to develop procedures to avoid conflicting ISO 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 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 Tariff.

**4.6.3.2 Existing Contracts for Regulatory Must-Take Generation.**

Notwithstanding any other provision of this ISO Tariff, the ISO shall discharge its responsibilities in a manner which 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 from time to time and on reasonable notice.

**4.6.4 Identification of Generating Units.**

Each 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.

**4.6.5 WECC Requirements.**

**4.6.5.1 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 ISO,

a Generating Unit must be capable of operating at capacity registered in the ISO Controlled Grid interconnection data, and shall follow the voltage schedules issued by the ISO 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 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.

**4.6.6.2 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 such information and maintain such records as are reasonably required by the ISO to plan the efficient use and maintain the reliability of the ISO Controlled Grid.

**4.6.7.2 Providing Information to Generators.**

The ISO shall provide to any Participating Generator, upon its request, copies of any operational assessments, studies or reports prepared by or for the ISO (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 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 Controlled Grid.**

The ISO 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 Controlled Grid or the integrity of the Participating Generator's facilities. The ISO 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 Controlled Grid or, in the case of the ISO, 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 and upon reasonable notice, provide access to its facilities and records (including those relating to communications, telemetry and direct control requirements) as necessary to permit the ISO or an ISO 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 Tariff, (iii) to obtain information relative to a Forced Outage, or (iv) for Participating Intermittent Resources, to ensure compliance with provisions relating to the Participating Intermittent Resource Export Fee.

**4.7 Relationship Between ISO and Participating Loads.**

The ISO shall only accept bids for 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 and published on the ISO Home Page. The ISO shall not schedule Energy or Ancillary Services from a Participating Load other than through a Scheduling Coordinator.

**4.8 Relationship Between ISO and Eligible Intermittent Resources and Between the ISO and Participating Intermittent Resources.**

The ISO shall not schedule Energy from 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 and settled as a Generating Unit for the associated Settlement Periods (except that the Forecasting Fee shall apply in such Settlement Periods).

**4.8A Compliance with Scheduling and Data Provision Requirements.** Pursuant to its obligation to notify FERC of any potential violations of Section 37.7 of this ISO Tariff, the ISO will routinely report any underscheduling behavior that it observes to FERC, for investigation as a potential violation of Section 37.7 of this ISO Tariff and/or FERC's Market Behavior Rule 2.

**4.9 Metered Subsystems**

**4.9.1 General Nature of Relationship Between ISO and MSS.**

**4.9.1.1** An entity that is determined by the ISO to qualify as a Metered Subsystem and that undertakes in writing to the ISO to comply with all applicable provisions of the ISO 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 shall not be obligated to accept Schedules, Adjustment Bids or bids for Ancillary Services which 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 Control Area that is made available to the ISO by the MSS Operator shall also be made available to Scheduling Coordinators, provided that the ISO shall provide reasonable notice to the MSS Operator. The ISO 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 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 shall obligate the MSS Operator to comply with all provisions of the ISO Tariff, as amended from time to time, applicable to the UDCs, including, without limitation, the applicable provisions of Section 4.4 and Section 7.4. In addition, recognizing the ISO's responsibility to promote the efficient use and reliable operation of the ISO 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 Controlled Grid, it being understood that, if the MSS Operator does not so operate and maintain its facilities and the ISO concludes, after notice is provided to the MSS Operator, that such failure impairs or threatens to impair the reliability of the ISO Controlled Grid,

the ISO 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 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 Controlled Grid in accordance with Section 9.3.6;

**4.9.4.3** coordinate with the ISO, Participating TOs and Generators to ensure that ISO 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 as soon as is reasonably possible of any condition of which it becomes aware that may compromise the ISO 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 8.12.5; 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 and not responsible for Intra-Zonal Congestion Management elsewhere in the Zone except to the extent that a Scheduling Coordinator is delivering Energy to or from the MSS.

**4.9.5 Scheduling by or on behalf of a MSS Operator.** All 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 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 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 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 in Day-Ahead and Hour-Ahead Energy markets (including Schedules for internal Generation and internal Demand within the MSS), (2) bids or self-provided Schedules for Regulation, Spinning Reserve, Non-Spinning Reserve, and Replacement

Reserve capacity and associated bid Energy, (3) Adjustment Bids, (4) Supplemental Energy bids, or (5) any feasible combination thereof.

**4.9.6 System Emergencies.**

**4.9.6.1** The ISO 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 Controlled Grid reliability.

**4.9.6.2** If a Load curtailment is required to manage System Emergencies, the ISO will determine the amount and location of Load to be reduced pursuant to Section 7.4.6 and 7.4.6.1. 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 in the preparation of an Outage review pursuant to Section 7.4.13.

**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 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.

**4.9.8 Ancillary Service Obligations for MSS.**

**4.9.8.1** Ancillary Service obligations will be allocated to the Scheduling Coordinator scheduling Load within a MSS in accordance with the ISO Tariff. The ISO shall have the right to call upon Ancillary Service capacity self-provided by a Scheduling Coordinator for an MSS or procured by the ISO from such Scheduling Coordinator in accordance with the ISO Tariff. The Scheduling Coordinator representing the MSS Operator may bid or 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 or third parties to meet all or part of its Ancillary Service obligations in accordance with the ISO 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 ISO, the MSS must provide adequate telemetry consistent with the ISO Tariff and all applicable standards to allow performance in response to ISO AGC signals to be measured at the interconnection of the MSS to the ISO Controlled Grid.

**4.9.9 Load Following.**

**4.9.9.1** The MSS Operator may operate a System Unit 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 Tariff if the MSS Operator does not operate its System Unit or Generating Units and schedule imports into the MSS, to match the 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 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 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 an MSS Operator shall pay amounts 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 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 the metered Demand and exports from the MSS, and Energy expected to be delivered by the Scheduling Coordinator for the MSS in response to the ISO's Dispatch instructions and/or Regulation set-point signals issued by the ISO's AGC by more than the Deviation Band, then the Scheduling Coordinator for the MSS Operator will pay the ISO an amount equal to one hundred percent (100%) of the product of the 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 the metered Demand and exports from the MSS, and Energy expected to be delivered by the Scheduling Coordinator for the MSS in response to the ISO's Dispatch instructions and/or Regulation set-point signals issued by the ISO's AGC by more than the Deviation Band, then the Scheduling Coordinator for the MSS Operator shall pay the ISO an amount equal to the product of the Deviation Price and two hundred percent (200%) of the shortfall that is outside of the Deviation Band, in addition to the Imbalance Energy charges that may be applicable under the ISO Tariff.

**4.9.9.3** If the ISO is charging Grid Management Charges for uninstructed deviations, and the Scheduling Coordinator for the MSS has uninstructed deviations associated with Load following from the MSS's resources, then the ISO 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 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 ISO's Imbalance Energy market, then the Scheduling Coordinator for the MSS will be charged GMC associated with uninstructed 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 market, then such Scheduling Coordinator will be charged GMC associated with uninstructed deviations for this quantity.

**4.9.9.3.3** Only GMC associated with uninstructed 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 11.2.2.3. Ancillary Service bids accepted by the ISO and Instructed Energy will be assessed the GMC ASREO.

**4.9.10 Information Sharing.**

**4.9.10.1 System Planning Studies and Forecasts.**

The ISO, 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 Control Area. Each MSS Operator shall provide to the ISO 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 Controlled Grid. Such forecasts shall be provided on the date that UDCs are required to submit forecasts to the ISO under Section 4.4.8.1.

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 protocols.

**4.9.10.2 System Surveys and Inspections.**

The ISO 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 Control Area.

**4.9.10.3 Reports.**

**4.9.10.3.1** The ISO shall make available to each MSS Operator any public annual reviews or reports regarding performance standards, measurements and incentives relating to the ISO Controlled Grid and shall also make available, upon reasonable notice, any such reports that the ISO receives from Participating TOs. Each MSS Operator shall make available to the ISO 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 Controlled Grid.

**4.9.10.3.2** The ISO and the MSS Operators shall develop an operating procedure to record requests received for Maintenance Outages by the ISO 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 may reasonably request concerning the MSS Operator's operation of the MSS to enable the ISO to meet its responsibility under the ISO Tariff to conduct reviews and prepare reports following major Outages. Where appropriate, the ISO will provide appropriate assurances that the confidentiality of commercially sensitive information shall be protected. The ISO 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 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 ISO, and the ISO 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 Controlled Grid or the integrity of the MSS respectively. Each MSS Operator and the ISO 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 Controlled Grid, or, in the case of the ISO, 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 ISO, not unduly discriminatory with respect to the ISO's provision of similar information to other entities.

**4.9.10.3.5 Forms.** The ISO 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.

**4.9.14 Installation of and Rights of Access to MSS Facilities.**

**4.9.14.1 Installation of Facilities.**

**4.9.14.1.1 Meeting Service Obligations.**

The ISO 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.

**4.9.14.1.2 Governing Agreements for Installations.**

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

**4.9.14.2 Access to Facilities.**

Each MSS Operator shall grant the ISO reasonable access to MSS facilities free of charge for purposes of inspection, repair, maintenance, or upgrading of facilities installed by the ISO on the MSS's system, provided that the ISO 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.

**4.9.14.3 Access During Emergencies.**

Notwithstanding any provision in this Section 4.9, the ISO 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.

**4.9.15 MSS System Unit.**

**4.9.15.1** A MSS Operator may aggregate one or more Generating Units and/or Participating Loads as a System Unit. Except as specifically provided in the agreement referred to in Section 4.9.1.1, all provisions of the ISO 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 in accordance with Section 4.9.1.1 shall obligate the MSS Operator to comply with all provisions of the ISO 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 7.4. In accordance with Section 7.3.1, the ISO will obtain control over the System Unit, not the individual Generating Unit, except for Regulation, to comply with Section 4.6.

**4.9.15.2** Without limiting the generality of Section 4.9.15.1, a MSS Operator that owns or has an entitlement to a System Unit:

**4.9.15.2.1** is required to have a direct communication link to the ISO'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;

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

**4.9.15.2.3** shall obtain ISO certification of the System Unit's Ancillary Service capabilities in accordance with Section 8.4 and 8.10 before the Scheduling Coordinator representing the MSS may self-provide its Ancillary Service obligations or bid into the ISO's markets from that System Unit;

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

**4.9.15.2.5** shall install ISO certified meters on each individual resource or facility that is aggregated to a System Unit.

**4.9.15.3** Subject to Section 4.9.15.5, the ISO shall have the authority to exercise control over the System Unit to the same extent that it may exercise control pursuant to the ISO Tariff over any other Participating Generator, Generating Unit or, if applicable, Participating Load, but the ISO 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.

**4.9.15.5** 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 to the ISO's Ancillary Service or Supplemental Energy markets, the ISO shall have the authority to dispatch the System Unit only to avert or respond to a circumstance described in the third sentence of Section 7.3.1 or, pursuant to Section 7.4.2.3, to a System Emergency.

**4.9.16 MSS Settlements.**

**4.9.16.1** The ISO will assess the Scheduling Coordinator for the MSS the neutrality adjustments and Existing Contracts cash neutrality charges pursuant to Section 11.2.9 (or collect refunds therefore) based on the net metered Demand and exports of the MSS.

**4.9.16.2** If the ISO is charging Scheduling Coordinators for summer reliability or demand programs, the MSS Operator may petition the ISO for an exemption of these charges. If the MSS

Operator provides documentation to the ISO 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 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 4.9.16.2 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 4.9.16.2., the Scheduling Coordinator for the MSS Operator shall not be obligated to bear any share of the ISO's costs for any summer Demand reduction program or for any summer reliability Generation procurement program pursuant to ISO Tariff Section 42.1.8 for the calendar year for which the demonstration is made.

**4.9.16.3** If the ISO is compensating Generating Units for Emissions Costs, Start-Up Fuel Costs and Minimum Load Costs, and if MSS Operator charges the ISO 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 based on the MSS gross metered Demand and exports and the Generating Units shall be made available to the ISO through the submittal of Supplemental Energy bids. If the MSS

Operator chooses not to charge the ISO 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 based on the MSS's net metered Demand and exports. The MSS Operator shall make the election whether to charge the ISO 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 recovery 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.

## 5 RELATIONSHIP BETWEEN ISO AND SUDCS.

### 5.1 General Nature of Relationship Between ISO and SUDCs.

**5.1.1** The ISO 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 SUDC directly connected to the ISO Controlled Grid unless the relevant SUDC has entered into a SUDC Operating Agreement. The SUDC Operating Agreement shall require SUDCs to comply with the applicable provisions of this Section 5 and any other expressly applicable Sections of this ISO Tariff, as they may be amended from time to time. The ISO shall maintain a pro forma SUDC Operating Agreement available for SUDCs to enter into with the ISO.

**5.1.2** The ISO shall operate the ISO Control Area and the ISO Controlled Grid and each SUDC shall operate its Distribution System at all times in accordance with Good Utility Practice and in a manner

which ensures safe and reliable operation. The ISO shall, in respect of its obligations set forth in this Section 5, have the right by mutual agreement to delegate certain operational responsibilities to the relevant Participating TO or SUDC pursuant to this Section 5. All information made available to SUDCs by the ISO shall also be made available to Scheduling Coordinators. Any information, pertaining to the physical state, operation, maintenance or failure of the SUDC Distribution System that may cause a material adverse affect to the operation of the ISO Controlled Grid, that is made available to the ISO by the SUDC shall also be made available to Scheduling Coordinators upon receipt of reasonable notice.

**5.2 Coordinating Maintenance Outages of SUDC Facilities.**

Each SUDC and the Participating TO with which it is interconnected shall coordinate their Outage requirements with respect to their transmission interconnection facilities prior to the submission by that Participating TO of its maintenance Outage requirements under Section 9.3.

**5.3 SUDC Responsibilities.**

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

**5.3.1** operate and maintain its Distribution System in accordance with applicable reliability standards, statutes and regulations, and Good Utility Practice so as to avoid any material adverse impact on the reliability of the ISO Control Area and the ISO Controlled Grid;

**5.3.2** provide the ISO Outage Coordination Office each year with a schedule of upcoming maintenance on its transmission interconnection facilities with the ISO Controlled Grid that has a reasonable potential of causing a material adverse impact to the reliability of the ISO Controlled Grid.

**5.4 System Emergencies.**

**5.4.1** In the event of a System Emergency, SUDCs shall comply with all directions from the ISO concerning the management and alleviation of the System Emergency and shall comply with all procedures concerning SUDCs for System Emergencies set out in the individual SUDC Operating Agreements.

**5.4.2** During a System Emergency, the ISO and SUDCs shall communicate in accordance with procedures established in individual SUDC operating agreements.

**5.5 Load Reduction.**

**5.5.1** If the ISO declares a Stage 1 System Emergency, the SUDC shall use any reasonably available local communication infrastructure to request that its customers curtail their electricity usage. The SUDC shall not be called separately in Stage 3 System Emergencies to manually shed Load. Load restoration of any voluntary Load reduction will occur once the ISO declares that a System Emergency no longer exists.

**5.5.2** If the Participating TO sheds the SUDC Load associated with the Participating TO's transmission facilities, the Participating TO will provide timely information and work with the SUDC regarding SUDC Load restoration.

**5.6 System Emergency Reports: SUDC Obligations.**

**5.6.1** Each SUDC shall maintain all appropriate records pertaining to a System Emergency in accordance with the SUDC's then-existing record retention practice or policy, provided the records are kept for a minimum of six (6) years.

**5.6.2** In accordance with its SUDC Operating Agreement, each SUDC shall provide available information to the ISO regarding the ISO's preparation of an Outage review.

**5.7 Coordination of Expansion or Modifications to SUDC Facilities.**

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

**5.8 Information Sharing.**

**5.8.1 System Planning Studies.**

The ISO, Participating TOs and SUDCs shall share available information such as projected SUDC Load growth and SUDC system expansions necessary for the ISO or the Participating TOs to conduct necessary system planning studies to the extent that such SUDC Load growth or SUDC system expansions will materially impact the operation of the ISO Control Area and the ISO Controlled Grid.

**5.8.2 System Surveys and Inspections.**

The ISO, each UDC and each SUDC shall cooperate, to the extent economically feasible for the SUDC, in performing system surveys and inspections regarding the operation of the ISO Control Area and the ISO Controlled Grid.

**5.8.3 Reports.**

**5.8.3.1** The ISO shall make available to the SUDCs any public annual reviews or reports regarding performance standards, measurements and incentives relating to the ISO Control Area and the ISO Controlled Grid and shall also make available, upon reasonable notice, any such reports that the ISO receives from the Participating TOs. Each SUDC shall make available to the ISO upon request any public annual reviews or reports regarding performance standards, measurements and incentives relating to the SUDC's Distribution System to the extent these relate to the operation of the ISO Control Area and the ISO Controlled Grid.

**5.8.3.2** The ISO and SUDCs shall develop an operating procedure for the ISO to record requests received from the SUDC for Maintenance Outages and the completion of the requested maintenance and turnaround times.

**5.9 Installation of Equipment on and Rights of Access to SUDC Facilities.**

**5.9.1 Installation of Facilities.**

The ISO and the SUDC 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. The

ISO and the SUDC shall enter into agreements governing the installation of such equipment or other facilities containing customary, reasonable terms and conditions.

**5.9.2 Access to Facilities.**

The SUDCs shall grant, free of charge, the ISO reasonable access to SUDC facilities for purposes of inspection, repair, maintenance, or upgrading of facilities installed by the ISO on the SUDC's system, provided that the ISO must provide reasonable advance notice of its intent to access SUDC facilities and opportunity for SUDC 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.

**5.9.3 Access During Emergencies.**

Notwithstanding any provision in this Section 5 the ISO may have access, without giving prior notice, to any SUDC's equipment or other facilities during times of a System Emergency.

**5.9.4 Access For Audit Functions.**

Notwithstanding any provision in this Section 5 the ISO may have access, without giving prior notice, to any SUDC's equipment or other facilities where the ISO has a reasonable basis to believe the SUDC has failed to comply with the SUDC Operating Agreement, applicable ISO Tariff or ISO Protocol provisions and access is required to conduct an audit to gather relevant facts.

**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 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.

**6.1.2 Recording of Dispatch Instructions.**

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

**6.1.3 Contents of Dispatch Instructions.**

Dispatch Instructions shall include 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 considers relevant.

**6.2 Communications.**

**6.2.1** Communications between the ISO and Scheduling Coordinators shall take place via direct computer link to a dedicated terminal at the Scheduling Coordinator's scheduling center. If there is a failure of communications with a Scheduling Coordinator, then, at the ISO’s discretion, the Scheduling Coordinator may communicate by facsimile, but only if the ISO and the Scheduling Coordinator have communicated by telephone in advance.

**6.2.1A** Normal verbal and electronic communication of Dispatch Instructions between the ISO and Generators will be via the relevant Scheduling Coordinator. Each Scheduling Coordinator must immediately pass on to the Generator concerned any communication for the Generator which it receives from the ISO. 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 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 reserves the right to communicate directly with the Generator(s) as required to ensure System Reliability.

### 6.3 Communication Protocols.

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

### 6.3.1 Information Transfer from Scheduling Coordinator to ISO.

Unless otherwise agreed by the ISO, Scheduling Coordinators who wish to schedule or bid Ancillary Services to the ISO must submit the information by direct computer link. Scheduling Coordinators that wish to submit dynamic schedules or bids for Ancillary Services to the ISO must also comply with the applicable requirements of Sections 4.5.4.3, 8.4.5 and 8.4.7.3.2.

### 6.3.2 Submitting Information By Direct Computer Link.

For Scheduling Coordinators submitting information by direct computer link, each such Scheduling Coordinator shall establish a network connection with the ISO through the WEnet network. This shall be a permanent link with the ISO. Link initialization procedures shall be necessary to establish the connection 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 furnish the ISO with user ID and password.

**6.3.3 Information Transfer from ISO to Scheduling Coordinator.**

Unless otherwise agreed between a Scheduling Coordinator and the ISO, the ISO 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.

**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).

**6.4.1A.2** Details of the technical aspects of 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 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.

**6.4.1A.3** The ISO Data Templates and Validation Rules document provides a description of the templates which will be utilized to enter data into the ISO's 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.

**6.4.1B** 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.

**6.4.1B.1** WEnet will provide an interface for data exchange between the ISO and Scheduling Coordinators who shall each have individually assigned login accounts on WEnet.

**6.4.1B.2** Through the use of the security provisions of WEnet, some data will be provided on a confidential basis (such as individual Scheduling Coordinator Schedules and bids) and other ISO data (such as ISO forecasts of Demand) will be published on the public section of WEnet and be available to anyone. The public information that the ISO provides over WEnet shall include, at a minimum, but not be limited to:

**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.

**6.4.1.3C** 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.

**6.4.1.3D** 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.**

**6.4.1.4.1** Market Participants shall arrange access to WEnet through the Internet Service Provider.

**6.4.1.4.2** The ISO shall arrange 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. 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.

**6.5 Information to be Provided By Connected Entities to the ISO.**

**6.5.1** Each Participating TO and Connected Entity shall provide to the ISO:

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

**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.

**6.5.2** Each representative specified pursuant to Section 6.5.1 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 in the event of a System Emergency.

**6.5.3** The details required under this Section 6.5 shall at all times be maintained up to date and the Participating TO and the Connected Entity shall notify the ISO of any changes promptly and as far in advance as possible.

**6.6 Failure or Corruption of the WEnet.**

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

**6.7 Confidentiality.**

All information posted on WEnet shall be subject to the confidentiality obligations contained in Section 20 of this ISO Tariff.

**6.8 Standards of Conduct.**

The ISO 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.

**6.9 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 ISO Control Center Operations.

#### 7.1.1 ISO Control Center.

##### 7.1.1.1 Establish ISO Control Center.

The ISO shall establish a WECC approved Control Area and control center to direct the operation of all facilities forming part of the ISO Controlled Grid, Reliability Must-Run Units and Generating Units providing Ancillary Services.

#### 7.1.2 Establish Back-up Control Facility.

The ISO shall establish back-up control facilities remote from the ISO Control Center sufficient to enable the ISO to continue to direct the operation of the ISO Controlled Grid, Reliability Must-Run Units, System Resources and Generating Units providing Ancillary Services in the event of the ISO Control Center becoming inoperable.

#### 7.1.3 ISO Control Center Authorities.

The ISO shall have full authority, subject to Section 4.2, to direct the operation of the facilities referred to in Section 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 ISO, 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 shall only commit Reliability Must-Run Generation for Ancillary Services capacity according to Section 30.6.1 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 Curtailable Demand which has been scheduled to provide Non-Spinning Reserve or Replacement Reserve;

(g) procure Supplemental Energy; and

(h) require the operation of resources which are at the ISO's disposal in a System Emergency, as described in Section 7.4

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

**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.**

**7.2.1 Reliability Coordinator.**

The ISO shall be the WECC reliability coordinator for the ISO Controlled Grid. As Reliability Coordinator, the ISO, 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 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.

**7.2.1.2 Authority of WECC Reliability Coordinators.**

(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 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]**

**7.2.2.1** The ISO shall exercise Operational Control over the ISO 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 Operations Date and have been submitted to the ISO by each Participating TO pursuant to Section 2.2.1(v) of the TCA. All Market Participants and the ISO shall comply with the ISO Reliability Criteria, standards, and procedures.

**7.2.2.2** The ISO 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 Controlled Grid. The ISO may revise the Local Reliability Criteria subject to and in accordance with section 5 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.

**7.2.2.4 NAESB Standards.** The following standards of the Wholesale Electric Quadrant (WEQ) of the North American Energy Standards Board (NAESB) are incorporated by reference:

- Coordinate Interchange (WEQ-004, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Purpose, Applicability, and Standards 004-0 through 004-13, and 004-A through 004-D;
- Area Control Error (ACE) Equation Special Cases Standards (WEQ-005, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Purpose, Applicability, and Standards 005-0 through 005-3.1.3, and 005-A;
- Inadvertent Interchange Payback (WEQ-007, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Purpose, Applicability, and Standards 007-0 through 007-2, and 007-A; and
- Manual Time Error Correction – Time Error Initiation (WEQ-006-4, Version 000, with minor corrections applied on October 17, 2006).

The ISO has obtained a waiver of the following NAESB WEQ standards:

- Business Practices for Open Access Same-Time Information Systems (OASIS) (WEQ-001, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Standards 001-0.2 through 001-0.8, 001-2.0 through 001-9.6.2, 001-9.8 through 001-10.8.6, and Examples 001-8.3-A, 001-9.2-A, 001-10.2-A, 001-9.3-A, 001-10.3-A, 001-9.4.1-A, 001-10.4.1-A, 001-9.4.2-A, 001-10.4.2-A, 001-9.5-A, 001-10.5-A, 001-9.5.1-A, and 001-10.5.1-A;

- Business Practices for Open Access Same-Time Information Systems (OASIS) Standards & Communication Protocols (WEQ-002, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Standards 002-1 through 002-5.10; and

- Open Access Same-Time Information Systems (OASIS) Data Dictionary (WEQ-003, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Standard 003-0.

WECC has obtained a waiver of the following NAESB WEQ standard on its own behalf and on behalf of the Control Areas in the Western Interconnection, including the ISO:

- Manual Time Error Correction (WEQ-006, Version 000, January 15, 2005, with minor corrections applied on March 25, 2005, and additional numbering added October 3, 2005) including Purpose, Applicability, and Standards 006-0 through 006-12.

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

**7.2.4 Routine Operation of the ISO Controlled Grid.** The ISO shall operate the ISO Controlled Grid in accordance with the standards described in Section 7.2.2.3 and within the limit of all applicable Nomograms and established operating limits and procedures.

**7.2.4.1 ISO Controlled Facilities.**

**7.2.4.1.1 General.**

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

**7.2.4.2 Clearing Equipment for Work.**

The clearance procedures of the ISO and the relevant UDC and PTO must be adhered to by all parties, to ensure the safety of all personnel working on ISO 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 unless final approval has first been obtained from the appropriate ISO Control Center. Prior to starting the switching to return any line or equipment to service the ISO shall confirm that all formal requests to work on the cleared line or equipment have been released.

**7.2.4.3 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 deenergized for work, the ISO shall confirm that all formal requests to work on the de-energized line or equipment have been released.

**7.2.4.4 Hot-Line Work.**

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

**7.2.4.5 Intertie Switching.**

The ISO 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.

**7.2.4.6 Operating Voltage Control Equipment.**

**7.2.4.6.1 Operating Voltage Control Equipment Under ISO Control.**

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

**7.2.4.6.2 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.

**7.2.4.6.3 Special ISO Voltage Control Requirements.**

The ISO 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.

**7.3 Normal System Operations.**

**7.3.1 Actions for Maintaining Reliability of ISO Controlled Grid.**

The ISO plans to obtain the control over Generating Units that it needs to control the ISO Controlled Grid and maintain reliability by purchasing Ancillary Services from the market auction for these services. When the ISO responds to events or circumstances, it shall first use the generation control it is able to obtain from the Ancillary Services bids it has received to respond to the operating event and maintain reliability. Only when the ISO has used the Ancillary Services that are available to it under such Ancillary Services bids which prove to be effective in responding to the problem and the ISO is still in need of additional control over Generating Units, shall the ISO 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 ISO, such actions affecting such Generator as the ISO determines to be necessary to maintain the reliability of the ISO Controlled Grid. Such actions shall include (but are not limited to):

(a) compliance with the ISO's Dispatch instructions including instructions to deliver Ancillary Services in real time pursuant to the Final Day-Ahead Schedules and Final Hour-Ahead Schedules;

(b) compliance with the system operation requirements set out in Section 7 of this ISO Tariff;

(c) notification to the ISO of the persons to whom an instruction of the ISO 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 in a manner that ensures that the ISO will have the ability, consistent with this ISO Tariff and the ISO Protocols, to direct the operations of the Generator as necessary to maintain the reliability of the ISO Controlled Grid, except that a Participating Generator will be exempt from ISO 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 to participate in the ISO's Ancillary Services and/or to submit Supplemental Energy bids.

**7.4 Management of System Emergencies.**

**7.4.1 Declaration of System Emergencies.**

The ISO 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 of a System Emergency shall be binding on all Market Participants until the ISO announces that the System Emergency no longer exists.

**7.4.2 Emergency Procedures.**

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

The ISO 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.

**7.4.2.1** In the event of a System Emergency, UDCs shall comply with all directions from the ISO concerning the management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set out in this Tariff and the ISO Protocols, and each MSS Operator shall comply with all directions from the ISO concerning the avoidance, management and alleviation of the System Emergency and shall comply with all procedures concerning System Emergencies set forth in the ISO Tariff.

**7.4.2.2** During a System Emergency, the ISO and UDCs shall communicate through their respective control centers and in accordance with procedures established in individual UDC operating agreements, and the ISO 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 to comply with the provisions of the ISO Tariff.

**7.4.2.3 System Emergencies.**

**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 ISO's other rights under this ISO Tariff) subject to control by the ISO during a System Emergency and in circumstances in which the ISO considers that a System Emergency is imminent or threatened. The ISO 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 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 Controlled Grid during an actual System Emergency. The ISO 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 has reasonably used all other available and effective resources to prevent a threatened System Emergency

without declaring that a System Emergency exists. It the ISO so instructs a Condition 2 RMR Unit, it shall compensate that unit in accordance with Section 11.2.4.2 and allocate the costs in accordance with Section 11.2.4.2.1.1.

**7.4.3.1 Notifications by ISO of System Conditions.**

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

**7.4.3.2 System Alert.**

ISO will give a system Alert Notice when the operating requirements of the ISO 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 Control Area, or if the Hour-Ahead Market is short on scheduled Energy and Ancillary Services for the ISO Control Area.

**7.4.3.3 System Warning.**

The ISO will give a system warning notice when the operating requirements for the ISO Controlled Grid are not being met in the Hour-Ahead Market, or the quantity of Regulation, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve and Supplemental Energy available to the ISO is not acceptable for the Applicable Reliability Criteria. This system warning notice will notify Participants that the ISO 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.

**7.4.3.4 System Emergency.**

When, in the judgment of the ISO, the System Reliability of the ISO Controlled Grid is in danger of instability, voltage collapse or under-frequency caused by transmission or Generation trouble in the ISO Control Area, or events outside of the ISO Control Area that could result in a cascade of events throughout the WECC grid, the ISO 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 ISO 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.

**7.4.4 Intervention in Market Operations.**

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

**7.4.4.1** The ISO will not intervene in the operation of the Day-Ahead Market unless there has been a total or major collapse of the ISO Controlled Grid and the ISO is in the process of restoring it. The ISO 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.

**7.4.4.2** Before any such intervention the ISO must (in the following order): (a) dispatch all scheduled Generation and all other Generation offered or available to it regardless of price (including all Adjustment Bids, Supplemental Energy bids, Ancillary Services and reserves); (b) dispatch all interruptible Loads made available by UDCs to the ISO 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 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 considers necessary.

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

**7.4.5 Emergency Guidelines.**

The ISO shall issue protocols 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, 7.4.11, 7.4.2, 7.4.2.4 and 7.4.4.1 of this tariff. All Participants shall respond to ISO Dispatch Instructions with an immediate response during System Emergencies.

**7.4.6** The ISO shall in accordance with Section 7.4.5 hereof implement the Electrical Emergency Plan in consultation with the UDCs, the MSS Operator, or other entities, at the ISO's discretion, when Energy reserve margins are forecast to be at the levels specified in the plan.

**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 pursuant to the provisions of the EEP.

**7.4.7 Periodic Tests of Emergency Procedures.**

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

**7.4.8 Prioritization Schedule for Shedding and Restoring Load.**

Prior to the ISO Operations Date, and annually thereafter, the ISO 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 7.4.11.4.2, the prioritization schedule will only include those UDCs or MSS Operators that have Scheduling Coordinators that are scheduling insufficient resources to meet the Load in the UDC or MSS Service Area. For Load shed in accordance with Section 7.4.11.4.3, the prioritization schedule will include all UDCs and MSS Operators.

**7.4.9 Under Frequency Load Shedding (UFLS).**

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

**7.4.9.2** The ISO 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.

**7.4.9.** The ISO 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 ISO's UFLS program.

**7.4.9.4** In compiling its UFLS program, the ISO, at its discretion, may also coordinate with other entities, review and audit their UFLS programs and systems as described in Section Sections 7.4.9.1 to 7.4.9.3.

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

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

**7.4.11 Use of Load Curtailment Programs.**

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

As an additional resource for managing System Emergencies, the ISO 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 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 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 as much notice as reasonably practicable of any change to such programs.

**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 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 ISO, 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 ISO'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 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.

**7.4.11.3** The ISO shall have the authority to direct a UDC or an MSS Operator to disconnect Load from the ISO Controlled Grid if necessary to avoid an anticipated System Emergency or to regain operational control over the ISO Controlled Grid during an actual System Emergency. The ISO shall direct the UDCs or the MSS Operator to shed Load in accordance with the prioritization schedule developed pursuant to Section 7.4.8. When ISO Controlled Grid conditions permit restoration of Load, the ISO shall restore Load according to the prioritization schedule developed pursuant to Section 7.4.8 hereof. The MSS Operator shall restore Load internal to the MSS.

**7.4.11.4 Load Shedding.**

**7.4.11.4.1** A portion of the ISO forecast of Control Area Load for each Trading Day will be allocated to each UDC or MSS Service Area. The ISO 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 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.

**7.4.11.4.2** If the ISO forecasts in advance of the Hour-Ahead Market that Load curtailment will be necessary due to a resource deficiency, the ISO will identify any UDC or MSS Service Area that is resource deficient. The ISO 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 Schedules of resources, the ISO 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 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.

**7.4.11.4.3** If a Load curtailment is required to manage System Emergencies, in any circumstances other than those described in Section 7.4.11.4.2, the ISO 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.

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

**7.4.12.1 Emergency Conditions.**

To the extent practicable, the ISO 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 compliance with

such instructions, the ISO shall allocate such curtailments in a non-discriminatory manner consistent with Good Utility Practice.

**7.4.12.2 Non-Emergency Conditions.**

Unless otherwise specified by the Responsible PTO in the instructions that it submits to the ISO under Section 16.2.4A.1, the ISO 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 contract usage templates, as described in Section 30.2.7.

**7.4.13 System Emergency Reports and Sanctions.**

**7.4.13.1 Review of Major Outages.**

The ISO 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 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 ISO, any Participating TOs, Eligible Customers, UDCs or Participating Generators enhanced or undermined the ability of the ISO to maintain or restore service efficiently and in a timely manner.

**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 to review Outages pursuant to Section 7.4.13.1 and to prepare Outage reports. The ISO 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 review shall be shared with Participating TOs, Participating Generators, Eligible Customers and UDCs.

**7.4.13.3 Imposing Sanctions.**

If the ISO 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 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 ISO's instructions or pursuant to a Remedial Action Scheme. The ISO 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 ADR Procedures. The schedule of sanctions filed with FERC (including categories and levels of sanctions) shall not be subject to the ISO ADR Procedures. The ISO shall publish on the ISO Home Page details of all instances in which a sanction has been imposed.

**7.4.14 ISO Facilities and Equipment.**

**7.4.14.1 ISO Facility and Equipment Outages.**

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

**7.4.14.2 WEnet Unavailable.**

**7.4.14.2.1 Unavailable Critical Functions of WEnet.**

During a total disruption of the WEnet several critical functions of the ISO 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 will not be able to communicate general information, including emergency information, to any Participants.

**7.4.14.2.2 Communications during WEnet Unavailability.**

During any period of WEnet unavailability, the ISO shall:

(a) make all reasonable efforts to keep Participants aware of current ISO Controlled Grid status using voice communications;

(b) use the most recent set of Balanced Schedules for each Scheduling Coordinator for the current and all future Settlement Periods and/or Trading Days until the WEnet is restored; and

(c) attempt to take critical Schedule changes from Scheduling Coordinators via voice communications as time and manpower allows.

**7.4.14.2.3 Primary ISO Control Center – Loss of all Voice Communications.**

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

**7.4.14.2.4 Primary ISO Control Center – Control Center Completely Unavailable.**

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

The Backup ISO Control Center will post confirmation on the WEnet that all computer systems are functioning normally (if such is the case) and take complete control of the ISO Controlled Grid. The Backup ISO Control Center will notify the TOC by direct voice communication of the situation.

Once the Primary ISO Control Center is again available, all functions will be transferred back, and the Primary ISO Control Center will notify all Participants via the WEnet.

**7.4.14.2.5 Primary ISO Control Center - ISO Energy Management System (EMS) Unavailable.**

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

When the Primary ISO Control Center EMS computer is restored, the Backup ISO Control Center will initiate a transfer back of the EMS system to the Primary ISO Control Center. The Primary ISO Control Center will post information on the restored EMS computer system status on the WEnet.

**7.4.14.2.6 Backup ISO Control Center – Loss of all Voice Communications.**

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

Once voice communications have been restored to the Backup ISO Control Center, the Primary ISO Control Center will post this information on the WEnet.

**7.4.14.2.7 Backup ISO Control Center – Control Center Completely Unavailable.**

In the event that the Backup ISO Control Center becomes completely unavailable, the Backup ISO Control Center will use alternate communications to notify the Primary ISO Control Center that the

Backup ISO Control Center is unavailable. The Primary ISO Control Center will post information on the situation on the WEnet. Additional voice notifications will be made as time permits.

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

Once the Backup ISO Control Center is again available all functions will be transferred back, and the Backup ISO Control Center will notify all Participants via the WEnet.

**7.4.14.2.8 Use of IOUs' Energy Control Center Computers.**

The ISO and the IOUs will comply with the procedures for the utilization by the ISO of the IOUs' Energy control center computers when developed. The ISO will post such procedures on the WEnet when agreed.

**7.5 Management of Overgeneration Conditions.**

The ISO's management of Overgeneration relates only to real time. In the event that Overgeneration conditions occur during real time, the ISO will direct the Scheduling Coordinators to take the steps described in this Section 7.5 of the ISO Tariff and Scheduling Coordinators shall implement ISO directions without delay. Overgeneration in real time will be mitigated by the ISO as follows; provided that the ISO Operator will have the discretion, if necessary to avoid a System Emergency, to eliminate one or more of the following steps.

**7.5.1** Commencing one hour prior to the start of the Settlement Period, the ISO will, based on available Adjustment Bids, Supplemental Energy bids and Ancillary Service Energy bids, issue Dispatch instructions to Scheduling Coordinators to reduce Generation and imports for the next operating hour.

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

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

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

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

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

## 8. ANCILLARY SERVICES.

### 8.1 Scope.

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

by longer-term contracts. The ISO will manage both ISO procured and self-provided Ancillary Services as part of the real-time Dispatch. The ISO will calculate payments for Ancillary Services to Scheduling Coordinators and charge the cost to Scheduling Coordinators.

For purposes of this ISO Tariff, Ancillary Services are: (i) Regulation, (ii) Spinning Reserve, (iii) Non-Spinning Reserve, (iv) Replacement Reserve, (v) Voltage Support, and (vi) Black Start capability. Bids for Non-Spinning Reserve and Replacement Reserve may be submitted by the Demand-side as well as by owners of Generation. Identification of specific services in this ISO Tariff shall not preclude development of additional interconnected operation services over time. The ISO and Market Participants will seek to develop additional categories of these unbundled services over time as the operation of the ISO Controlled Grid matures.

**8.2 Ancillary Services Standards.**

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

**8.2.1 Determination of Ancillary Service Standards.**

The ISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the ISO Controlled Grid. Ancillary Services standards shall be based on WECC Minimum Operating Reliability Criteria (MORC), NERC and ISO Controlled Grid reliability requirements. The ISO 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 shall be used as a basis for determining the quantity and type of each Ancillary Service which the ISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the ISO.

**8.2.2 Time-frame For Revising Ancillary Service Standards.**

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

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

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

**8.2.3.1 Regulation Service.**

The ISO shall maintain sufficient Generating Units immediately responsive to AGC in order to provide sufficient Regulation service to allow the ISO Control Area to meet 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 capacity needed for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined as a percentage of the aggregate scheduled Demand for that Settlement Period.

(a) Regulation Percentage Determination. The exact percentage required for each Settlement Period of the Day-Ahead Market and the Hour-Ahead Markets shall be determined by the ISO based upon its need to meet 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 will publish on WEnet its estimate of the percentage it will use for determining the quantity of Regulation it requires for each Settlement Period of the Day-Ahead Market for that Trading Day.

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

(d) Additional Regulation Requirement. Additional Regulation capacity may be procured by the ISO for the real-time operating period if needed to meet the WECC and NERC control performance criteria.

**8.2.3.2 Spinning And Non-Spinning Reserves.**

The ISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with 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 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, or (b) the single largest Contingency, if this is greater or (c) by reference to such more stringent criteria as the ISO may determine from time to time. 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, the Hour-Ahead Market and the Real Time Market. When the level of Operating Reserve is determined by Demand, the ISO shall not maintain Operating Reserve with respect to Demand covered by firm purchases from outside the ISO Control Area. In addition, the ISO shall maintain Operating Reserve equal to the total amount of: (i) 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 Controlled Grid). Such additional Operating Reserve is the responsibility of the Scheduling Coordinator either scheduling

interruptible imports or with on demand obligations and such additional Operating Reserve must either be self-provided or purchased from the ISO by Scheduling Coordinators. 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.

**8.2.3.4 Voltage Support.**

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

or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC.

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

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

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

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

The power factor for both the Generating Units and Loads shall be measured at the interconnection point with the ISO Controlled Grid. The ISO will develop and will be authorized to levy penalties against Participating Generators, UDCs or Loads whose Voltage Support does not comply with the ISO's requirements. The ISO will establish voltage control standards with UDCs and the operators of other Control Areas and will enter into operational agreements providing for the coordination of actions in the event of a voltage problem occurring.

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

**8.2.3.5 Black Start Capability.**

The ISO shall determine the amount and location of Black Start Generation it requires through contingency studies that are used as the basis of the ISO'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 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 ISO) which are expected to fail to start, and;

(d) expected transmission system damage.

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

(i) Black Start unit startup and connection times;

(ii) ISO Controlled Grid restoration times; and

(iii) load restoration times.

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

**8.2.3.6** The ISO, 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 ISO will make such adjustments in accordance with the following principles:

(a) The Regulation requirement must be satisfied by Regulation bids from Resources qualified to provide Regulation;

(b) Additional Regulation capacity can be used to satisfy requirements for any type of reserves (Spinning Reserve, Non-Spinning Reserve or Replacement Reserve);

(c) Regulation and Spinning Reserve requirements must be satisfied by the combination of Regulation and Spinning Reserve 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 provided is not greater than the maximum ramp rate of the Generating Unit (MW/minute) times ten;

(d) Additional Regulation 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, Spinning Reserve, Non-Spinning Reserve requirements must be satisfied by the combination of Regulation, Spinning Reserve and Non-Spinning Reserve bids;

(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, Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve markets will not be changed by this Section 8.2.3.6; 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.

**8.2.5.1 Black Start Services.**

(a) All Participating Generators with Black Start Generating Units must satisfy technical requirements specified by the ISO.

(b) The ISO shall from time to time undertake performance tests, with or without prior notification.

(c) The ISO shall have the sole right to determine when the operation of Black Start Generating Units is required to respond to conditions on the ISO Controlled Grid.

(d) If the ISO has intervened in the market for Energy and/or Ancillary Services pursuant to Section 7.4.4, the price paid by the ISO 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.

(e) If a Black Start Generating Unit fails to achieve a Black Start when called upon by the ISO, or fails to pass a performance test administered by the ISO, the Market Participant that has contracted to supply Black Start service from the Generating Unit shall re-pay to the ISO 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 ISO, whichever is the shorter period.

**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, Operating Reserve, and Replacement Reserve necessary to meet ISO requirements not met by self-provision will be procured by the ISO as described in this ISO Tariff. As of the ISO Operations Date, the ISO 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 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.

**8.3.2 Procurement Not Limited to ISO Control Area.**

The ISO will procure Spinning Reserves, Non-Spinning Reserves and Replacement Reserves from Generating Units operating within the ISO 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 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.

**8.3.3 Certification and Testing Requirements.**

Each Generating Unit, System Unit, Load, or System Resource that is allowed to bid or self-provide Ancillary Services under this Tariff must comply with the ISO's certification and testing requirements. 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 using the process defined in Part A of Appendix K, Each System Resource used to bid 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 from external imports, or System Units, which have been certified and tested by the ISO using the process defined in Appendix K, 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 from external imports, or System Units, which have been certified and tested by the ISO using the process defined in – Parts C & D of Appendix K, respectively, Voltage Support may only be provided from resources including Loads, Generating Units and System Units which have been certified and tested by the ISO using the process defined in Part E of Appendix K, Black Start capability may only be provided from Generating Units which have been certified and tested by the ISO using the process defined in Part F of Appendix K. ISO certification to provide ancillary services may be revoked by the ISO under the provisions of this Tariff and Parts A-F of Appendix K.

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

**8.4 Technical Requirements for Providing Ancillary Services.**

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

**8.4.1 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 to provide Ancillary Services must comply with the requirements for the specific Ancillary Service in regard to the following:

(a) ramp rate increase and decrease (MW/minute);

(b) power factor (leading and lagging) as required by Section 8.2.3.4;

(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.

The ISO 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 Energy Management System (EMS) by means of the installation and use of a standard ISO direct communication and direct control system, a description of which and criteria for any temporary exemption from which, the ISO shall publish on the ISO internet “Home Page;”

(b) it must be capable of achieving at least the ramp rates (increase and decrease in MW/minute) stated in its 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 and published on the ISO's internet "Home Page;"

(d) the Generating Unit to ISO Control Center telemetry must in a manner meeting ISO 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 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 under this Tariff must comply with the following control standards:

(a) Regulation. The ACE will be calculated by the ISO EMS. Control signals will be sent from the ISO EMS to raise or lower the output of Generating Units or System Resources providing Regulation when ACE exceeds the allowable ISO 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 within one minute from the time the ISO 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;

(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;

(d) 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

(e) 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 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 has confirmed that the need for such service has passed.

**8.4.3 Ancillary Service Capability Standards**. The providers of 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 by the ISO, 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.

(c) 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 by the ISO 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 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 ISO, all Scheduling Coordinators wishing to submit an Ancillary Service schedule or bid must have the capability to submit and receive information by direct computer link. In addition, they must be capable of receiving Dispatch instructions electronically and they must provide the ISO with a telephone number, or fax number through which Dispatch instructions for each Generating Unit, System Unit, Load and System Resource may be given if necessary. The ISO will determine which method of communication is appropriate; provided that the ISO 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 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 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 Control Center. Each Participating Generator must also provide an alternate method of voice communications with the ISO from the control room in addition to the direct communication link required above. Operators of System Resources from which dynamic schedules or bids are submitted to the ISO shall provide communications links meeting ISO standards for dynamic imports from System Resources. Participating Generators and operators of System Units providing Regulation shall also provide communication links meeting ISO standards for direct digital control. Operators of System Resources providing Regulation shall provide communications links meeting ISO 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 shall take immediate action to identify the cause of the interruption and to restore the communication system. A Scheduling Coordinator that has scheduled or 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 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 under this ISO 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 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 Market-Based Prices.**

Public utilities under the FPA must submit 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 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 and market-based 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 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 for the Ancillary Service concerned even if the relevant Market Clearing Price is higher.

**8.4.7.3 Bidding and Self-Provision of Ancillary Services.**

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

**8.4.7.3.1 Content of Ancillary Services Schedules and Bids.**

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

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

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

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

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

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

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

**8.5 The Bidding Process.**

The ISO shall operate a competitive Day-Ahead and Hour-Ahead Market to procure Ancillary Services. 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 bid into the ISO's Ancillary Services market 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 shall make available to Scheduling Coordinators general system information including those items of information set forth in Section 6.9.1. This information shall be provided at the same time as the ISO provides general system information to all Scheduling Coordinators wishing to schedule power on the ISO Controlled Grid.

**8.5.2 Time Frame for Submitting And Evaluating Bids.**

**8.5.2.1 Day-Ahead Auction.**

Bids for the ISO's Day-Ahead Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve service market must be received by 10:00 am on the day prior to the Trading Day. The 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 being declared invalid by the ISO.

**8.5.2.2 Hour-Ahead Auction.** The ISO will require Scheduling Coordinators to honor their Day-Ahead Ancillary Services schedules and/or bids when submitting their Hour-Ahead Ancillary Services schedules and/or bids. Bids for the ISO's Hour-Ahead Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve service market for each Settlement Period must be received at least two hours prior to the commencement of that Settlement Period. The 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 being declared invalid by the ISO. 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 and Hour-Ahead Market.**

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

**8.5.4 Bid Evaluation Rules.**

Bid evaluation shall be based on the following principles:

(a) the ISO shall not differentiate between bidders other than through price and capability to provide the service, and the required locational mix of services;

(b) to minimize the costs to users of the ISO Controlled Grid, the ISO shall select the bidders with lowest bids for capacity which meet its technical requirements, including location and operating capability;

(c) for the Day-Ahead Market, the Day-Ahead bids shall be evaluated independently for each of the 24 Settlement Periods of the following Trading Day;

(d) for the Hour-Ahead Market, the ISO shall evaluate bids in the two hours preceding the hour of operation;

(e) the ISO will procure sufficient Ancillary Services in the Day-Ahead Market 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 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, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve markets, they may bid the same capacity into as many of these markets as desired at the same time by providing the appropriate bid information to the ISO. The ISO shall evaluate 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 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 information, bid evaluation and price determination rules set forth below shall be used in the Day-Ahead, Hour-Ahead and real-time procurement of Regulation, Spinning Reserve, Non- Spinning Reserve, and Replacement Reserve.

A Scheduling Coordinator providing one or more Regulation, Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve services may not change the identification of the Generating Units or

Loads offered in the Day-Ahead Market, the Hour-Ahead Market or in real time for such services unless specifically approved by the ISO (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 into the ISO's Day-Ahead Market and Hour-Ahead Market as required in SP 3.3.2(e) in Appendix Y).

**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:

$$\underset{i,j}{Min} \sum TotalBidi\,jt$$

Subject to

$$\sum_{i,j} Cap_{ijt} \geq Requirement_t \; and \; Cap_{ijt} \leq Cap_{ijtmax}$$

Where

$TotalBid_{ijt} = CapRes_{ijt} * Cap_{ijt}$

$Requirement_t$ = 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:

$PAGC_x = MCP_{xt}$

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.

$MCP_{xt}$ = *Max (*$CapRes_{ijt}$*) in Zone x 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:

$$Min \sum_{i,j} Totalbid_{ijt}$$

Subject to

$$\sum_{i,j} Cap_{ijt} \geq Requirement_t$$

*and* $Cap_{ijt} \leq Cap_{ijt}max$

Where

$TotalBid_{ijt} = Cap_{ijt} * CapRes_{ijt}$

$Requirement_t$ = 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:

$Psp_{xt} = MCP_{xt}$

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.:

$MCP_{xt} = Max(CapRes_{ijt})$ in Zone *x* 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:

$$Min \sum_{i,j} Totalbid_{ijt}$$

Subject to

$$\sum_{i,j} Cap_{ijt} \geq Requirement_t$$

$$Cap_{ijt} \leq Cap_{ijt}max$$

Where

$TotalBid_{ijt} = Cap_{ijt} * CapRes_{ijt}$

$Requirement_t$ = 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:

$Pnonsp_{xt} = MCP_{xt}$

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.:

$MCP_{xt} = Max(CapRes_{ijt})$ in Zone *x* 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 ($Cap_{ijt}max$);

(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;

(o) 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:

$$Min \sum_{i,j} Totalbid_{ijt}$$

Subject to

$$\sum_{i,j} Cap_{ijt} \geq Requirement_t$$

$$Cap_{ijt} \leq Cap_{ijt}max$$

Where

$TotalBid_{ijt} = Cap_{ijt} * CapRes_{ijt}$

$Requirement_t$ = 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:

$PRepRes_{xt} = MCP_{xt}$

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.:

$MCP_{xt} = Max(CapRes_{ijt})$ in Zone *x* 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 ($CapRes_{ijt}$(*$/MW*)).

**8.5.9 Voltage Support.**

As of the ISO Operations Date, the ISO 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 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 specific request, provide reactive energy output outside the Participating Generator's Voltage Support obligation defined in Section 8.2.3.4.

The ISO 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 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 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 - Generating Unit bid price } x reduction in Energy output (MW).

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

**8.5.10 Black Start Capability and Energy Output.**

As of the ISO Operations Date, the ISO 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 shall pay owners of Reliability Must-Run Units for Black Start Energy output through their Scheduling Coordinators. The ISO 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, Spinning Reserve, Non-Spinning and Replacement Reserve requirements by the ISO. Any references in this 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 Control Area) met by Generation from hydroelectric resources plus 7% of its Demand (except the Demand covered by firm purchases from outside the ISO 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, Operating Reserve, and Replacement Reserve obligation in each Zone. The ISO shall schedule self-provided Ancillary Services, Day-Ahead and Hour-Ahead, and Dispatch self-provided Ancillary Services in real time. To the extent that a Scheduling Coordinator self-provides, the ISO shall correspondingly reduce the quantity of the Ancillary Services concerned, which it procures as described in Sections 8.5.6 to 8.5.8A. 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 shall permit Scheduling Coordinators to self-provide the following Ancillary Services:

(a) Regulation;

(b) Spinning Reserve;

(c) Non-Spinning Reserve; and

(d) Replacement Reserve.

The ISO may from time to time add other Ancillary Services to this list as it considers appropriate.

**8.6.4 Time Frame for Informing ISO of Self-Provision.**

**8.6.4.1 Day-Ahead Schedule.**

At the Day-Ahead scheduling process, Scheduling Coordinators shall be required to submit information on 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 ISO, 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 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 Hour-Ahead scheduling process, Scheduling Coordinators shall be required to submit information on self-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 ISO, 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 self-provided Ancillary Service as described in Sections 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 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.**

The ISO will refuse to accept self-provided Ancillary Service Schedules only to the extent that they fail to meet requirements contained in this ISO 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 to dispatch the offered Ancillary Services and verify that the services have been provided;

(c) the scheduling information provided by the Scheduling Coordinator is deemed to be valid in accordance with Appendix E and the ISO Protocols; and

(d) the Generating Units, System Units, Loads or System Resources meet the ISO's locational requirements for the Ancillary Services.

**8.7 Scheduling of Units to Provide Ancillary Services.**

The ISO shall prepare supplier schedules for Ancillary Services (both self-provided and purchased by the ISO) for the Day-Ahead and the Hour-Ahead Markets. The ISO shall notify each Scheduling Coordinator no later than 1:00 p.m. of the day prior to the Trading Day of their Ancillary Services schedules for the Day-Ahead and no later than one hour prior to the operating hour of their Ancillary Services schedules for 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 has given Scheduling Coordinators notice of the Day-Ahead and Hour-Ahead Schedules, these schedules represent binding commitments made in the markets between the ISO 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 40.7, 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 40.7, 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 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 self-provided Ancillary Services shall be verified by the ISO by unannounced testing of Generating Units, Loads and System Resources, by auditing of response to ISO

Dispatch instructions, and by analysis of the appropriate Meter Data, or interchange schedules. The ISO may test the capability of any Generating Unit, System Unit, System Resource, external import of a System Resource, Load providing Curtailable Demand, or reactive device providing ancillary services. Participating Generators, owners or operators of Loads, operators of System Units or System Resources, owners or operators of reactive devices and Scheduling Coordinators shall notify the ISO immediately whenever they become aware that an Ancillary Service 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. These requirements apply whether the Ancillary Services are contracted or self-provided. For a duration specified by the ISO, the ISO 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 shall develop measures to discourage repeated non-performance on the part of both bidders and self-providers.

**8.10A Compliance Testing for Regulation.** The ISO may test the capability of any Generating Unit or System Resource providing Regulation by using the ISO 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 [Not Used]**

**8.10C Compliance Testing for Non-Spinning Reserve.**

(a) Compliance Testing of a Generating Unit, System Unit or System Resource. The ISO 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 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 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 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 may test the Non-Spinning 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 the test.

**8.10D Compliance Testing for Replacement Reserve.**

(a) Compliance Testing of a Generating Unit, System Unit or System Resource. The ISO 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 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 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 Compliance Testing for Voltage Support.**

(a) Compliance Testing of a Generating Unit. The ISO may test the Voltage Support capability of a Generating Unit by issuing unannounced Dispatch 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 may test the Voltage Support capability of other reactive devices (shunt capacitors, static var compensators, synchronous condensers) by issuing unannounced Dispatch instructions requiring operation of such devices.

**8.10F Compliance Testing for Black Start**. The ISO may test the Black Start capability of a Generating Unit by unannounced tests, which may include issuing Dispatch 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.

**8.10F.1 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 shall notify the Scheduling Coordinator whose resource was the subject of the test and the Ancillary Service Provider or owner or operator of 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 shall provide the Scheduling Coordinator whose resource was subject to a compliance test written notice of the results of such test. The ISO shall at the same time send a copy of the notice to the Ancillary Service Provider or owner or operator of a System Resource providing Ancillary Services.

(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 Tariff. In addition, the ISO shall institute the sanctions described in Section 8.10N.

**8.10G Performance Audits for Standard Compliance**. In addition to testing under Section 8.10.1, the ISO will periodically audit the performance of resources providing Ancillary Services to confirm the ability of such resources to meet the applicable Ancillary Service standard for performance and control.

**8.10G.1 Performance Audit for Regulation**. The ISO will audit the performance of a Generating Unit providing Regulation by monitoring its response to ISO EMS control or, in the case of an external import of a System Resource providing Regulation, by monitoring the dynamic interchange response to ISO EMS control around its Set Point within its rated MW/minute capability over the range of Regulation capacity scheduled for the current Settlement Period.

**8.10H Performance Audit for Spinning Reserve**. The ISO 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, move at the MW/minute capability stated in its bid, reach the amount of Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch instruction by the ISO, 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, move at the MW/minute capability stated in its bid, reach the amount of Spinning Reserve capacity scheduled for the current Settlement Period within ten minutes of issue of the Dispatch instruction by the ISO.

**8.10I Performance Audit for Non-Spinning Reserve**. The ISO will audit the performance of a Generating Unit, Load, or System Resource providing Non-Spinning 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 Non-Spinning Reserve shall be evaluated on its ability to respond to a Dispatch instruction, move in accordance with the time delay and MW/minute capability stated in its bid, and reach the amount of Non-Spinning Reserve capacity under the control of the ISO scheduled for the current Settlement Period within ten minutes of issue of the Dispatch instruction

by the ISO. An external import of a System Resource providing Non-Spinning Reserve shall be evaluated on its ability to respond to a Dispatch instruction, move in accordance with the time delay and MW/minute capability stated in its 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 by the ISO. A Load providing Non-Spinning Reserve from Curtailable Demand shall be evaluated on its ability to respond to a Dispatch instruction, move in accordance with the time delay and MW/minute capability stated in its 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 by the ISO.

**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.

**8.10K Performance Audit for Voltage Support.** The ISO will audit the performance of a resource providing Voltage Support by auditing of its response to Dispatch 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 for the current Settlement Period.

**8.10L Performance Audit for Black Start**. The ISO 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.

**8.10M Consequences of Failure to Pass Performance Audits.**

(a) Notification of Performance Audit Results. The ISO shall give the Scheduling Coordinator for an Ancillary Service Provider whose resource was subject to a performance audit written notice of the results of such audit. The ISO will at the same time send a copy of the notice to the Ancillary Service Provider.

(b) Penalties for Failure to Pass Performance Audit. The Scheduling Coordinator for an Ancillary Service Provider whose resource fails a performance audit shall be subject to the financial penalties provided for in the ISO Tariff. In addition the sanctions described in Section 8.10 shall come into effect.

**8.10N Sanctions for Poor Performance.**

**8.10N.1 Warning Notice**. If an Ancillary Service resource fails a compliance test or a performance audit, the ISO 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.2 Scheduling Coordinator's Option to Test**. On receipt of a warning notice the Ancillary Service Provider for the resource concerned may request the ISO, through its Scheduling Coordinator, to test the capability of the Ancillary Service resource concerned. The ISO 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.3 Duration of Warning Notice.** A warning notice shall continue in effect until:

(a) the Ancillary Service resource is next tested by the ISO whether such a test is called for by the Scheduling Coordinator under Section 8.10N.2 or carried out by the ISO under Section 8.10; or

(b) the expiration of a period of six calendar months from the date upon which the ISO notified the Scheduling Coordinator that the Ancillary Service resource failed the test or the performance audit which gave rise to the issue of the warning notice, whichever is the earlier.

**8.10P Second failure**. An 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 Ancillary Service concerned whether as part of the ISO's auction or as part of a self-provision arrangement, and shall not be permitted to submit a bid to the ISO or be part of a 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.

**8.10.1 Periodic Testing of Units.**

The ISO shall periodically conduct unannounced tests of resources providing Ancillary Services to confirm the ability of such resources to meet the applicable Ancillary Service standard for performance and control. The ISO 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 scheduled. If a Generating Unit, System Unit, Load, or System Resource fails to meet requirements in a test under this section, the ISO 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 2.5.26.

**8.10.1.1 Regulation.** The ISO shall continuously monitor the response of a Generating Unit, System Unit, or System Resource to the ISO's Regulation instructions in order to determine compliance with Dispatch instructions.

**8.10.1.2 Spinning Reserve.** The ISO shall test the Spinning Reserve capability of a Generating Unit, System Unit or System Resource by issuing unannounced Dispatch instructions requiring the Generating Unit, System Unit or System Resource to ramp up to its ten minute capability. The ISO 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 the Energy Bid price of the Generating Unit or System Unit for the output under the Spinning Reserve test.

**8.10.1.3 Non-Spinning Reserve.** The ISO may test the Non-Spinning 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 to reduce Demand to its ten minute capability. The ISO 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 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.

**8.10.1.5 Voltage Support.** The ISO shall monitor a Generating Unit's response to Voltage Support instructions in order to determine compliance with Dispatch instructions.

**8.10.1.6 Black Start.** The ISO may test the Black Start capability of a Generating Unit by issuing unannounced dispatch instructions requiring the Generating Unit to start on a Black Start basis. The ISO 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 for the Generating Unit shall be paid the Generating Unit's contract price for the output under the Black Start test.

**8.10.2 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, Curtailable Demand, System Unit or System Resource that fails an availability test, as determined under criteria to be established by the ISO, shall be deemed not to have been available to provide the Ancillary Service concerned or the relevant portion of that Service for the entire period the Generating Unit, 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. The "committed period" is defined as the total of all the hours/days the Generating Unit, Curtailable Demand, System Unit or System Resource was scheduled by the ISO to provide the Ancillary Service beginning from: (i) the last successful availability test; or (ii) the last time the Generating Unit, Curtailable Demand, System Unit or System Resource actually 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, Curtailable Demand, System Unit or System Resource that fails an availability test shall not be entitled to 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.

System Units engaged in self-provision of Ancillary Services, or providing Ancillary Services to the ISO are subject to the same testing, compensation, and penalties as are applied to individual Generating Units engaged in self-provision or provision of Ancillary Services. To perform testing, the ISO will bias the MSS's MSRE to test the responsiveness of the System Unit.

If payments for capacity for a particular Ancillary Service in a particular Settlement Period would be rescinded under more than one provision of this Section 8.10.2, 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.

**8.10.2.2 Rescission of Payments for Unavailability.**

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.

**8.10.2.2.1** If the ISO determines that a Scheduling Coordinator has supplied Uninstructed Imbalance Energy to the ISO during a Settlement Interval from the capacity of a Generating Unit, System Unit or System Resource that is obligated to supply Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve to the ISO 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, except to the extent (i) the deficiency in the availability of Ancillary Service capacity from the Generating Unit, System Unit or System Resource is attributable to control exercised by the ISO 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 8.10.2.1 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.

**8.10.2.2.4** 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.

**8.10.2.2.5** 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.

**8.10.2.4** Penalties applied pursuant to Section 8.10.2.1, and payments rescinded pursuant to Section 8.10.2.2 and 8.10.2.3 shall be redistributed to Scheduling Coordinators in proportion to ISO Control Area metered Demand and scheduled exports for the same Trading Day.

**8.10.2.5** If the ISO determines that non-compliance of a Load, Generating Unit, System Unit or System Resource, with an operating order or Dispatch Instruction from the ISO, or with any other applicable technical standard under the ISO Tariff, causes or exacerbates system conditions for which the WECC imposes a penalty on the ISO, then the Scheduling Coordinator of such Load, Generating Unit, System Unit or System Resource shall be assigned that portion of the WECC penalty which the ISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the ISO 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:

$AGCUpQDA_{xt}$ = 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.

$AGCDownQDA_{xt}$ = 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*$_{xt}$ = 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*$_{xt}$ = the Market Clearing Price, PAGC, in Zone X for Regulation Up capacity in the Day-Ahead Market for Settlement Period t.

*PAGCDownDA*$_{xt}$ = 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:

$AGCUpPay_{xt} = AGCUpQDA_{xt} * PAGCUpDA_{xt} - Adjustment$

Scheduling Coordinators for Generating Units providing Regulation Down capacity through the ISO auction shall receive the following payments for Regulation Down:

$AGCDownPay_{xt} = AGCDownQDA_{xt} * PAGCDownDA_{xt} - Adjustment$

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:

$REPA_{ixt}$ = the Regulation Energy Payment Adjustment for Generating Unit i in Zone X for

$$\sum_i [(EnQInst_{ixt} * Zonal\ Settlement\ IntervalExPostPriceinZoneX) + REPAi_{xt}]$$

Settlement Period t calculated as follows:

$$[(R_{UPixt} * C_{UP}) + (R_{DNixt} * C_{DN})] * \max(\$20/MWh, P_{xt})$$

Where

$R_{UPixt}$ = 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:

$EnQInst_{xt} * Resource\text{-}Specific\ Settlement\ Interval\ Ex\ Post\ Price_{xt}$

**8.11.3 Non-Spinning Reserve.**

**Quantities**. The following quantity definitions shall be used for each Scheduling Coordinator in the Settlement process:

$NonSpinQDA_{xt}$ = 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.

$EnQInst_{xt}$ = 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 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.

$PnonspDA_{xt}$ = 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:

$NonspPay_{xt} = NonSpinQDA_{xt} * PnonspDAxt - Adjustment$

Scheduling Coordinators for Generating Units, System Units, System Resources or Loads shall receive the following payments for Energy output from Non-Spinning Reserve capacity:

$EnQInst_{xt}$ * *Resource-Specific Settlement Interval Ex Post Price*$_{xt}$

**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:

$RepResPay_{ijt} = (RepResQDA_{xt}$ -) * $PRepResDA_{xt\text{-}Adjustment}$

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:

$EnQInst_{ijt}$ * *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:

$$BSEN_{ijt}=(EnQBS_{ijt}*EnBid_{ijt})+BSSUP_{ijt\text{-}Adjustment}$$

where BSSUPijt 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:

$$ReplRate_{xt} = \frac{(PRepResDA_{xt} * OrigReplReqDA_{xt}) + (PRepResHA_{xt} * OrigReplReqHA_{xt})}{OrigReplReqDA_{xt} + OrigReplReqHA_{xt}}$$

where

$OrigReplReqDA_{xt}$ = Replacement Reserve requirement net of self-provision in the Day-Ahead Market before consideration of any substitutions pursuant to Section 8.2.3.6.

$OrigReplReqHA_{xt}$ = 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.

$PRepResDA_{xt}$ is the Market Clearing Price for Replacement Reserve in the Day-Ahead Market for Zone *x* in Settlement Period *t*.

$PRepResHA_{xt}$ 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 $Zone_x$:

$ReplRate_{xt}$*$ReplOblig_{jxt}$

where

$ReplOblig_{jxt} = DevReplOblig_{jxt} + RemRepl_{jxt} – SelfProv_{jxt} + NetInterSCTrades_{jxt}$

$DevReplOblig_{jxt}$ 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:

$$DevReplOblig_{xjt} = \left[ Max\left(0, \sum_i GenDev_{ijxt}\right) - Min\left(0, \sum_i LoadDev_{ijxt}\right)\right]$$

If *ReplObligTotal*$_{xt}$ < *TotalDeviations*$_{xt}$ then:

$$DevReplOblig_{xjt} = \frac{ReplObligTotal_{xt}}{TotalDeviations_{xt}} * \left[ Max\left(0, \sum_i GenDev_{ijxt}\right) - Min\left(0, \sum_i LoadDev_{ijxt}\right)\right]$$

where,

$$TotalDeviations_{xt} = \sum_j \left[ Max\left(0, \sum_i GenDev_{ijxt}\right) - Min\left(0, \sum_i LoadDev_{ijxt}\right)\right]$$

*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:

$$RemRepl_{xjt} = \frac{MeteredDemand_{jxt}}{TotalMeteredDemand_{xt}} * Total\ Re\ m\ Re\ pl_{xt}$$

where:

*MeteredDemand$_{jxt}$* is the Scheduling Coordinator's total metered Demand excluding exports in Zone x for Settlement Period t.

*TotalMeteredDemand$_{xt}$* is total metered Demand excluding exports in Zone x for Settlement Period t.

*TotalRemRepl$_{xt}$ = Max[0,ReplObligTotal$_{xt}$ + TotalSelfProv$_{xt}$ - DevReplOblig$_{xt}$]*

**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:

$$VSSTCharge_{jt} = VSSTRate_t * QCharge VS_{jt}$$

where $VSSTCharge_{jt}$ is the amount payable by Scheduling Coordinator j for short-term market Voltage Support for Settlement Period t.

$VSSTRate_t$ 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:

$$VSLTCharge_m = VSLTRate_m * \sum_m QCharge VS_{jt}$$

where $VSLTCharge_m$ is the amount payable by Scheduling Coordinator j for long-term Voltage Support for month m.

$VSLTRate_m$ 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:

$$BSCharge_{jt} = BSRate_t * QChargeBlackStart_{jt}$$

**8.13 Temporary Changes To Ancillary Services Penalties.**

**8.13.1 Application and Termination.**

The temporary change, respecting Ancillary Services penalties, set out in Section 8.13.2 shall continue in effect until such time as the Chief Executive Officer of the ISO issues a Notice of Full-Scale Operations, 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 on which this Section 8.13 shall cease to apply, which date shall be not less than seven (7) days after the Notice of Full-Scale Operations is issued.

**8.13.2** For so long as this Section 8.13.2 remains in effect, Scheduling Coordinators shall not be liable for the penalties specified in Section 8.10.2 of the ISO Tariff if, as a result of limitations associated with the ISO'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 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.

**9. OUTAGES.**

**9.1 Coordination and Approval for Outages.**

The ISO shall have authority to coordinate and approve Outages and returns to service of all facilities comprised in the ISO Controlled Grid and Reliability Must-Run Units in accordance with Section 9.3. The ISO will coordinate and approve Maintenance Outages and coordinate responses to Forced Outages of all transmission facilities in the ISO Controlled Grid and Reliability Must-Run Units in accordance with this Section 9. Any scheduled Outages that are cancelled by ISO real-time operations due to system requirements must be rescheduled with the ISO Outage Coordination Department in accordance with Section 9.3.

**9.2 Responsibility for Authorized Work on Facilities.**

The ISO shall have authority to approve requests by Participating TOs to work on all energized transmission equipment under the Operational Control of the ISO.

**9.3 Coordination of Outages and Maintenance.**

**9.3.1 ISO Outage Coordination Office.**

The ISO Outage Coordination Office shall be established by the ISO and shall coordinate and approve Maintenance Outages of: (i) all facilities that comprise the ISO Controlled Grid and (ii) Participating Generators. The ISO shall additionally coordinate and approve Outages required for new construction and for work on de-energized and live transmission facilities (e.g., relay maintenance or insulator washing) and associated equipment. The ISO Outage Coordination Office will be operational Monday through Friday, except holidays. The Outage Coordination Office is located in Folsom. Each office and the areas of responsibility of that office are detailed in the most recent version of the applicable ISO Operating Procedures, which are posted on the ISO Home Page.

**9.3.1A Coordinating Maintenance Outages of UDC Facilities.**

Each UDC and the Participating TO with which it is interconnected shall coordinate their Outage requirements that will have an effect on their transmission interconnection prior to the submission by that Participating TO of its Maintenance Outage requirements under Section 9.3.

**9.3.1.1 Coordinating Maintenance Outages of CDWR-SWP Participating Generating Units.**

The provisions of Section 9.3 shall apply to CDWR-SWP Participating Generating Units. The submission by CDWR-SWP of an Outage schedule, Outage request, or request to change or cancel an Approved Maintenance Outage, and the ISO's treatment of Outage schedules and requests relating to CDWR-SWP Participating Generating Units, shall be in accordance with Section 9.3, except as otherwise provided in Section 9.3.1.1.1.

**9.3.1.1.1 Coordinating Maintenance Outages of CDWR-SWP**

a. In each Outage schedule, Outage request, and request to change or cancel an Approved Maintenance Outage that CDWR-SWP submits to the ISO for a CDWR-SWP Participating Generating Unit, CDWR-SWP will state whether CDWR-SWP has determined that the proposed maintenance work, and/or the timing of the Outage, is necessary in order for CDWR-SWP to:

i. Comply with various federal and state legal and regulatory requirements that govern stream flow, water temperature, water quality and quantity, flood control space, after-bay, reservoir, or lake elevation, and other environmental and wildlife constraints ("CDWR-SWP Statutory Compliance Outage"); or

ii. Maintain reliable operations of critical water infrastructure and not impair its ability to satisfy water delivery or conservation requirements ("CDWR-SWP Water System Reliability Outage").

b. CDWR-SWP will identify each CDWR-SWP Statutory Compliance or Water System Reliability Outage by designating the Outage with an appropriate cause code in the Outage schedule, Outage request, or request to change or cancel an Approved Maintenance Outage and will provide a description of the requirement or constraint. If the designation of an Outage changes, or the Outage no longer meets the criteria of Section 9.3.1.1.1(a)(i) or (ii), CDWR-SWP will notify the ISO about this change in status as soon as practical but no more than one business day after it occurs.

c. The ISO will not deny, cancel, or reschedule a CDWR-SWP Statutory Compliance or Water System Reliability Outage that CDWR-SWP submits to the ISO in an Outage schedule, Outage request, or request to change or cancel an Approved Maintenance Outage, provided that the Outage request is timely, designates the Outage as a CDWR-SWP Statutory Compliance or Water System Reliability Outage by an appropriate cause code and includes a description of the requirement or constraint.

d. The ISO may contact CDWR-SWP to inquire whether the timing of a CDWR-SWP Statutory Compliance or Water System Reliability Outage can be changed. CDWR-SWP may agree to the change or, after making best efforts to accommodate the change, may notify the ISO that the change is not feasible as determined by CDWR-SWP in its sole discretion due to the described requirement or constraint. In the event that CDWR-SWP determines that changing the timing of the Outage is not feasible due to the described requirement or constraint, the ISO will not deny, cancel, or reschedule that CDWR-SWP Statutory Compliance or Water System Reliability Outage.

e. The ISO will process any Outage that CDWR-SWP submits in an Outage schedule, Outage request, or request to change or cancel an Approved Maintenance Outage, that is not timely, does not contain a cause code identifying the Outage as a CDWR-SWP Statutory Compliance or Water System Reliability Outage or does not include a description of the requirement or constraint, under the otherwise applicable provisions of ISO Tariff Section 9.3 and ISO Operating Procedures.

**9.3.2 Requirement for Approval.**

An Operator shall not take: (i) facilities that comprise the ISO Controlled Grid or (ii) Participating Generators out of service for the purposes of planned maintenance or for new construction or other work except as approved by the ISO Outage Coordination Office. The information relating to each Maintenance Outage submitted by a Participating Generator in accordance with Section 9.3.5 or by a Participating TO in accordance with Section 9.3.5 constitutes a request for a long-range Maintenance Outage and is not considered an Approved Maintenance Outage until the ISO has notified the Participating Generator of such approval pursuant to Section 9.3.6 or the Participating TO pursuant to Section 9.3.6.

**9.3.3 Requests for Outages in Real-Time Operation.**

Requests for Outages of: (i) facilities that comprise the ISO Controlled Grid or (ii) Participating Generators in real-time operation shall be made by the Operator to the ISO Control Center. The ISO will not approve any Outage request made within seventy-two (72) hours of the requested Outage start time unless: (i) the requested Outage could not have been reasonably foreseen and scheduled through the Outage coordination process provided in Section 9.3; and (ii) the requested Outage will not compromise ISO Controlled Grid reliability.

**9.3.4 Single Point of Contact.**

Requests for approvals and coordination of all Maintenance Outages (consistent with Section 9.3.1) will be through a single point of contact between the ISO Outage Coordination Office and each Operator. The Operator shall provide in its initial request and specify from time to time the identification of the single point of contact along with primary and alternate means of communication pursuant to the detailed procedures referred to in Section 9.3.6.

**9.3.5 Method of Communications.**

The primary method of communication from an Operator to the ISO with regard to maintenance and outage planning will be as described in the Operating Procedure on the ISO Home Page. Emergency capabilities, to be used only as a back-up if the primary communication method is unavailable, will include:

(a) voice;

(b) fax; and

(c) electronic (E-mail, FTP file, etc.).

**9.3.5.1 Confirmation.**

When fax or electronic communication is utilized, confirmation from the ISO must be received by the Operator to validate the receipt of the request.

**9.3.5.2 Communication of Approval or Rejection.**

The ISO shall use the same methods in communicating the approval or rejection of an Outage request or approval of a request to change an Approved Maintenance Outage to the relevant Operator.

**9.3.5.2A** Information regarding planned outages for resources providing Regulatory Must-Take Generation shall be provided to the ISO Outage Coordination Office by the Participating TO or UDC having an existing contract with such resource or by a Participating Generator. Information provided will be that obtained by the Participating TO, UDC or a Participating Generator pursuant to the terms of the existing agreement with the Regulatory Must-Take Generation resource or as requested by the ISO. Scheduling and approvals of Maintenance Outages for resources providing Regulatory Must-Take Generation shall continue to be coordinated as detailed in the applicable contract with the Participating TO or UDC, provided the Regulatory Must-Take Generator has not executed a Participating Generator Agreement. If the Regulatory Must-Take Generator has executed a Participating Generator Agreement, it shall comply with Section 9.3.5 and other provisions applicable to Participating Generators.

**9.3.6 Maintenance Outage Planning.**

Each Operator shall, by not later than October 15 each year, provide the ISO with a proposed schedule of all Maintenance Outages it wishes to undertake in the following year. The proposed schedule shall include all of the Operator's transmission facilities that comprise the ISO Controlled Grid and Participating Generators (including its Reliability Must-Run Units). In the case of a Participating TO's transmission facilities, that proposed schedule shall be developed in consultation with the UDCs interconnected with that Participating TO's system and shall take account of each UDC's planned maintenance requirements. The nature of the information to be provided and the detailed Maintenance Outage Planning Procedure shall be established by the ISO. This information shall include:

The following information is required for each Generating Unit of a Participating Generator:

(a) the Generating Unit name and Location Code;

(b) the MW capacity unavailable;

(c) the scheduled start and finish date for each Outage; and

(d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

The following information is required for each transmission facility:

(a) the identification of the facility and location;

(b) the nature of the proposed Maintenance Outage;

(c) the preferred start and finish date for each Maintenance Outage; and

(d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

Either the ISO, pursuant to Section 9.3.7, or an Operator, subject to Section 9.3.6.10, may at any time request a change to an Approved Maintenance Outage. An Operator may, upon seventy-two (72) hours

advance notice, schedule with the ISO Outage Coordination Office a Maintenance Outage on its system, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7, and 9.3.6.8.

**9.3.6.1 Quarterly Updates.**

**9.3.6.1A** Each Participating Generator will provide the ISO with quarterly updates of its long-range Outage schedule referred to in Section 9.3.6 for Generating Units and System Units by the close of business on the fifteenth (15th) day of each January, April, and July. These updates must identify known changes to any previously planned Generating Unit Outages and any additional Outages anticipated over the next twelve months from the time of this report. In this report, each Participating Generator must include all known planned Outages for the following twelve months.

**9.3.6.1B** Each Participating TO will provide the ISO with quarterly updates of the data provided under 9.3.6 by close of business on the fifteenth (15th) day of each January, April, and July. These updates must identify known changes to any previously planned ISO Controlled Grid facility Maintenance Outages and any additional Outages anticipated over the next twelve months from the time of the report. As part of this update, each Participating TO must include all known planned Outages for the following twelve months.

**9.3.6.2 90 Day Look Ahead.**

In addition to changes made at quarterly Outage submittals, each Participating Generator shall notify the ISO in writing of any known changes to a Generating Unit or System Unit Outage scheduled to occur within the next 90 days and may submit changes to its planned Maintenance Outage schedule at any time. Participating Generators must obtain the approval of the ISO Outage Coordination Office in accordance with Section 9 of this ISO Tariff. Such approval may be withheld only for reasons of System Reliability or security.

**9.3.6.3 72 Hour Ahead.**

An Operator may, upon seventy-two (72) hours advance notice (or within the notice period in the Operating Procedures posted on the ISO Home Page), schedule with the ISO Outage Coordination Office a Maintenance Outage on its system, subject to the conditions of Sections 9.3.6.4A, 9.3.6.7 and 9.3.6.8.

**9.3.6.4 Changes to Planned Maintenance Outages.**

A Participating TO may submit changes to its planned Maintenance Outage information at any time, provided, however, that if the Participating TO cancels an Approved Maintenance Outage after 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence and the ISO determines that the change was not required to preserve System Reliability, the ISO may disregard the availability of the affected facilities in determining the availability of transmission capacity in the Day-Ahead Market. The ISO will, however, notify Market Participants and reflect the availability of transmission capacity in the Hour-Ahead Market as promptly as practicable.

**9.3.6.4A** The ISO Outage Coordination Office shall evaluate whether the requested Maintenance Outage or change to an Approved Maintenance Outage is likely to have a detrimental effect on the efficient use and reliable operation of the ISO Controlled Grid or the facilities of a Connected Entity. The ISO may request additional information or seek clarification from Participating Generators or Participating TOs of the information submitted in relation to a planned Generating Unit and System Unit Outage or a planned Maintenance Outage. This information may be used to assist the ISO in prioritizing conflicting requests for Outages.

**9.3.6.4B ISO Analysis of Generating Unit Outage Plans**

**9.3.6.4B.1 Calculation of Aggregate Generating Capacity**

The ISO will use the long-range Generating Unit or System Unit Outage schedule referenced in 9.3.6 and, as appropriate, additional approved Outage requests scheduled to start within 90 days, to calculate the aggregate Generation capacity projected to be available in the following time frames:

(a) on an annual and quarterly basis, the ISO will calculate the aggregate weekly peak Generation capacity projected to be available during each week of the following year and quarter, respectively; and

(b) on a monthly basis, the ISO will calculate the aggregate daily peak Generation capacity projected to be available during the month.

**9.3.6.5 Withdrawal or Modification of Request.**

The Operator of a Participating Generator or a Participating TO's Operator may withdraw a request at any time prior to actual commencement of the Outage. The Operator of a Participating Generator or Participating TO's Operator may modify a request at any time prior to receipt of any acceptance or rejection notice from the ISO Outage Coordination Office or pursuant to Sections 9.3.8.1, 9.3.8.2 and 9.3.8.3, but the ISO Outage Coordination Office shall have the right to reject such modified request for reasons of System Reliability, system security or market impact, because of the complexity of the modifications proposed, or due to insufficient time to assess the impact of such modifications.

**9.3.6.6** Each Participating Generator or Participating TO which has scheduled a planned Maintenance Outage pursuant to Section 9.3.4 must schedule and receive approval of the Outage from the ISO Outage Coordination Office prior to initiating the Approved Maintenance Outage. The ISO Outage Coordination Office will review the Maintenance Outages to determine if any one or a combination of Maintenance Outage requests relating to ISO Controlled Grid facilities, Generating Units or System Units may cause the ISO to violate the Applicable Reliability Criteria. This review will take consideration of factors including, but not limited to, the following:

(a) forecast peak Demand conditions;

(b) other Maintenance Outages, previously Approved Maintenance Outages, and anticipated Generating Unit Outages;

(c) potential to cause Congestion;

(d) impacts on the transfer capability of Interconnections; and

(e) impacts on the market.

**9.3.6.7** The ISO Outage Coordinator Office shall acknowledge receipt of each request to confirm or approve a Maintenance Outage for a Generation Unit, System Unit, or Aggregated Unit. Where the ISO Outage Coordination Office reasonably determines that the requested Maintenance Outage or the requested change to an Approved Maintenance Outage, when evaluated together with existing Approved Maintenance Outages, is not likely to have a detrimental effect on the efficient use and reliable operation of the ISO Controlled Grid, the ISO shall authorize the Maintenance Outage or change to the Approved Maintenance Outage, and shall so notify the requesting Operator and other entities who may be directly affected.

**9.3.6.8** Where, in the reasonable opinion of the ISO Outage Coordination Office, the requested Maintenance Outage or requested change to an Approved Maintenance Outage is likely to have a detrimental effect on the efficient use and reliable operation of the ISO Controlled Grid, the ISO Outage Coordination Office may reject the requested Maintenance Outage or requested change to Approved Maintenance Outage. If in the ISO's determination, any of the Maintenance Outages would cause the ISO to violate the Applicable Reliability Criteria, the ISO will notify the relevant Operator, and the Operator will then revise the proposed Maintenance Outage and inform the ISO of the proposed changes The ISO Outage Coordination Office shall, in a rejection notice, identify the ISO’s reliability, security and market concerns which prompt the rejection and suggest possible remedies or schedule revisions which might mitigate any such concerns. The ISO Outage Coordination Office may provide each Operator in writing with any suggested amendments to those Maintenance Outage requests rejected by the ISO Outage Coordination Office. Any such suggested amendments will be considered as an ISO maintenance request and will be approved in accordance with the process set forth in Section 9.3.7 of the ISO Tariff. The determination of the ISO Outage Coordination Office shall be final and binding on the Operator. If, within fourteen (14) days of having made its determination, the Operator requests the ISO Outage Coordination Office to provide reasons for its determination, it shall do so as soon as is reasonably practicable. The ISO will give reasons for informational purposes only and without affecting in any way the finality or validity of the determination.

**9.3.6.9 Failure to Meet Requirements.**

Any request to consider maintenance that does not meet the notification requirements contained in Sections 9.3.8.2 and 9.3.8.3 will be rejected without further consideration, unless Section 9.3.10 applies.

**9.3.6.10** In the event an Operator of facilities forming part of the ISO Controlled Grid cancels an Approved Maintenance Outage after 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence and the ISO determines that the change was not required to preserve System Reliability, the ISO may disregard the availability of the affected facilities in determining the availability of transmission capacity in the Day-Ahead Market, provided, however, that the ISO will, as promptly as practicable, notify Market Participants and reflect the availability of the affected facilities in determining the availability of transmission capacity in the Hour-Ahead Market.

**9.3.7 Maintenance Outage Requests by the ISO.**

The ISO Outage Coordination Office may at any time request a Maintenance Outage or a change to an Approved Maintenance Outage from an Operator if, in the opinion of the ISO Outage Coordination Office, the requested Maintenance Outage or change is required to secure the efficient use and reliable operation of the ISO Controlled Grid. In addition, the ISO Outage Coordination Office may, by providing notice no later than 5:00 a.m. of the day prior to the day upon which the Outage is scheduled to commence, direct the Operator to cancel an Approved Maintenance Outage, when necessary to preserve or maintain System Reliability or, with respect to Reliability Must-Run Units or facilities that form part of the ISO Controlled Grid, to avoid unduly significant market impacts that would arise of the Outage were to proceed as scheduled. The Operator, acting in accordance with Good Utility Practice, shall comply with the ISO's direction and the provisions of Sections 9.3.7.1 and 9.3.7.2 shall apply. The ISO shall give notice of any such direction to Market Participants prior to the deadline for submission of initial Preferred Day-Ahead Schedules for the day on which the Outage was to have commenced. For purposes of this section and Section 9.3.3, an "unduly significant market impact" means an unplanned event or circumstance (e.g., unseasonable weather, a Forced Outage of a facility, or other occurrence) that adversely affects the competitive nature and efficient workings of the ISO Markets, and is of such severity

that a prudent Operator would not have scheduled a Maintenance Outage of its facility if the unplanned event or circumstance could have been anticipated.

**9.3.7.1** The Operator may: (1) refuse the request; (2) agree to the request; or (3) agree to the request subject to specific conditions. The Operator, acting in accordance with Good Utility Practice, shall make every effort to comply with requests by the ISO Outage Coordination Office. In the event that the Operator refuses the ISO's request, it shall provide to the ISO Outage Coordination Office written justification for its position within seventy-two (72) hours.

**9.3.7.2** In response the ISO Outage Coordination Office may: (1) overrule any refusal of a Maintenance Outage or a change to an Approved Maintenance Outage by an Operator, in which case the ISO Outage Coordination Office determination shall be final; (2) accept any changes or conditions proposed by the Operator, in which case the Maintenance Outage request or the request to change an Approved Maintenance Outage shall be deemed to be amended accordingly; or (3) reject the change or condition, in which case the ISO Outage Coordination Office and the Operator shall determine if acceptable alternative conditions or changes can be agreed. If the Operator and the ISO Outage Coordination Office cannot agree on acceptable alternative conditions or changes to the ISO Outage Coordination Office's request for a Maintenance Outage or change to an Approved Maintenance Outage, the ISO Outage Coordination Office determination shall be final. If the Operator and the ISO Outage Coordination Office cannot agree on acceptable alternative conditions or changes to the ISO Outage Coordination Office's request for a Maintenance Outage or change to an Approved Maintenance Outage, the ISO may notify the FERC of the dispute and take any other steps that are within its authority to maintain the reliability of the ISO Controlled Grid.

**9.3.7.3** The ISO will compensate the applicable Participating TO or Participating Generator for any direct and verifiable costs that such Participating TO or Participating Generator incurs as a result of the ISO's cancellation of an Approved Maintenance Outage pursuant to this Section 9.3.7. For purposes of this section, direct costs include verifiable labor and equipment rental costs that have been incurred by the applicable Participating TO or Participating Generator solely as a result of the ISO's cancellation of the Approved Maintenance Outage. Each Participating TO or Participating Generator must make a

reasonable effort to avoid incurring any such direct costs through such measures as, but not limited to, the prompt cancellation of all contractual arrangements with third parties related to the Approved Maintenance Outage.

**9.3.7.4** The amount used to compensate each applicable Participating TO and Participating Generator, as described in Section 9.3.7.3, shall be charged to the Scheduling Coordinators in proportion to their metered Demand (including exports) during the Settlement Period(s) of the originally scheduled Outage.

**9.3.8** The ISO Outage Coordination Office shall provide notice to the Operator of the approval or disapproval of any requested Maintenance Outage. Additionally, the ISO Outage Coordination Office shall notify any Connected Entity that may in the reasonable opinion of the ISO Outage Coordination Office be directly affected by an Approved Maintenance Outage. The content of and procedures for such notice shall be established by the ISO.

**9.3.8.1 Data Required.**

The Operator of a Participating Generator owned or controlled by a Participating Generator shall submit to the ISO pursuant to Sections 9.3.4 and 9.3.5.2A its request to confirm the schedule of a planned Maintenance Outage or to change the schedule of a planned Maintenance Outage. Such request must be made to the ISO Outage Coordination Office by no later than 11:30 am three (3) working days prior to the starting date of the proposed Outage (or as specified on the ISO Home Page). Likewise, all Participating TOs shall submit a formal request to confirm or change an Approved Maintenance Outage with respect to any ISO Controlled Grid facility to the ISO Outage Coordination Office in accordance with Sections 9.3.8.2 and 9.3.8.3.

Such schedule confirmation request shall specify the following:

(a) the Generating Unit or System Unit name and Location Code, or the identification of the transmission system element(s) to be maintained including location;

(b) the nature of the maintenance to be performed;

(c) the date and time the Outage is to begin;

(d) the date and time the Outage is to be completed;

(e) the time required to terminate the Outage and restore the Generating Unit to normal capacity or the transmission system to normal operation;

(f) identification of primary and alternate telephone numbers for the Operator's single point of contact; and

(g) in the case of a request for a change to an Approved Maintenance Outage, the date and time of the original Approved Maintenance Outage.

**9.3.8.2 Three (3) Day Prior Notification.**

Any request to confirm an Approved Maintenance Outage that may affect the transfer capability of any part of the ISO Controlled Grid must be submitted no later than 11:30 am at least three (3) working days prior to the starting date of the Approved Maintenance Outage (or as posted on the ISO Home Page). This Section applies to facilities as described on the ISO Home Page.

Failure to submit a request for an Outage by the proper time may mean a delay in approval from the ISO or may cause that Outage to be designated as a Forced Outage based on the nearness of the request to the requested Outage date.

**9.3.8.3 One (1) Day Prior Notification.**

Any request to confirm or change the Schedule for an Approved Maintenance Outage requiring only one day notice (as detailed on the ISO Home Page) must be submitted no later than 11:30 am at least one (1) day prior to the starting date of the Outage (or as specified on the ISO Home Page). Failure to submit a request for an Outage by the proper time may mean a delay in approval from the ISO or may cause that Outage to be designated as a Forced Outage.

**9.3.8.4 Priority of Outage Requests**. Outage requests which are listed in the long-range maintenance schedules submitted to and approved by the ISO will be given a priority in the scheduling and approval of Outage requests over those which have not been listed.

**9.3.8.5 Delay**. The ISO Outage Coordination Office may delay its approval of an Approved Maintenance Outage schedule if sufficient or complete information is not received by the ISO Outage Coordination Office within the time frames provided in Sections 9.3.8.2 and 9.3.8.3.

**9.3.9 Final Approval, Delay and Withholding.**

On the day on which an Approved Maintenance Outage is scheduled to commence, the Operator shall contact the ISO Control Center for final approval of the Maintenance Outage. No Maintenance Outage shall commence without such final approval (including the time of release, in hours and minutes) being obtained from the ISO Control Center whose decision shall be final. The ISO Outage Coordination Office may delay its approval of a scheduled Maintenance Outage for a Participating Generator if sufficient or complete information is not received by the ISO Outage Coordination Office within the time frames set forth in Section 9.3.8.1. The ISO Control Center shall have the authority to withhold a Final Approval for an Approved Maintenance Outage for reasons of System Reliability, security or system status of the ISO Controlled Grid or market impact. The ISO Control Center shall immediately notify the relevant Operator of its intention to withhold the Final Approval. The Generator Maintenance Outage or ISO Controlled Grid facility Maintenance Outage will then be rescheduled pursuant to this ISO Tariff.

**9.3.10 Forced Outages.**

**9.3.10.1** Coordination of all Forced Outages (consistent with Sections 9.3.4 and 9.3.5.2A) will be through the single point of contact between the Operator and the ISO Control Center.

**9.3.10.1A** Each Participating TO shall report any change or potential change in equipment status of the Participating TO's transmission assets turned over to the control of the ISO or in equipment that affects transmission assets turned over to the control of the ISO immediately upon discovery to the ISO (this will include line and station equipment, line protection, Remedial Action Schemes and communication problems, etc.). Each Participating TO shall also keep the ISO immediately informed upon discovery as to any change or potential change in the Participating TO's transmission system that could affect the reliability of the ISO Controlled Grid. This would include, but is not limited to, adverse weather conditions, fires, bomb threats, system failures, etc.

**9.3.10.2** Any Operator, upon identification of a situation likely to result in a Forced Outage within the next twenty-four (24) hours unless immediate corrective action is taken, where such action requires the removing from service or reducing the maximum output capability of a Generating Unit by 10 MW or more from the value most recently recorded in SLIC, or removing a transmission facility from service, shall communicate directly with the ISO Control Center. All such notifications of Forced Outages shall be communicated to the ISO Control Center with as much notice as possible in order that the necessary security analysis and ISO Controlled Grid assessments may be performed. Any Operator, upon identification of a situation likely to result in a Forced Outage but of a nature not requiring a removal from service until some time more than twenty-four (24) hours in the future will be subject to the provisions of Section 9 of this ISO Tariff with respect to any necessary Outage except the requirements imposing time limits for notification will be waived and the request will be expedited by the ISO provided notice is given as soon as possible.

**9.3.10.2.1** If prior notice of a Forced Outage cannot be given, the Operator of a Generating Unit is required to notify the ISO within 30 minutes after discovering any change in the maximum output capability of at least 10 MW or 5% of the value registered in the Master File, whichever is greater, from the value registered in SLIC that lasts for 15 minutes or longer.

**9.3.10.3** The ISO Control Center shall coordinate any operational changes necessary to accommodate a Forced Outage and Market Participants shall comply with the ISO's instructions given for that purpose.

**9.3.10.4** All Forced Outages shall be communicated by the ISO Control Center to Operators likely to be affected by the Outage using the same procedures adopted for Maintenance Outage coordination procedures.

**9.3.10.5** With Respect to Forced Outages of Generating Units that result in a reduction in maximum output capability that lasts 15 minutes or longer of 40 MW or more below the value registered in the Master File and 10% of the value registered in the Master File, or which result in the unit being separated from the ISO Controlled grid, the Operator shall provide to the ISO an explanation of the Forced Outage, including a description of the equipment failure or other cause and a description of all remedial actions taken by the Operator, and the estimated return time, within two (2) Business Days from discovery of the Forced Outage. Upon request of the ISO, Operators, and where applicable, Eligible Customers, Scheduling Coordinators, UDCs and MSSs promptly shall provide information requested by the ISO to enable the ISO to review the changes made to the maximum output capability or to provide further information relative to the explanation of the Forced Outages submitted by the Operator and to prepare reports on Forced Outages. If the ISO determines that any Forced Outage may have been the result of gaming or other questionable behavior by the Operator, the ISO shall submit a report describing the basis for its determination to the FERC. The ISO shall consider the following factors when evaluating the Forced Outage to determine if the Forced Outage

was the result of gaming or other questionable behavior by the Operator: 1) if the Forced Outage coincided with certain market conditions such that the Forced Outage may have influenced market prices or the cost of payments associated with out-of-sequence dispatches, out-of-market dispatches, or Real Time Market dispatches above the Marginal Proxy Clearing Price or Non-Emergency Clearing Price Limit, as applicable; 2) if the Forced Outage coincided with a change in the bids submitted for any units or resources controlled by the Operator or the Operator's Scheduling Coordinator; 3) if the ISO had recently rejected a request for an Outage for, or to shut down, the Generating Unit experiencing the Forced Outage; 4) if the timing or content of the notice of the Forced Outage provided to the ISO was inconsistent with subsequent reports of or the actual cause of the Outage; 5) if the Forced Outage or the duration of the Forced Outage was inconsistent with the history or past performance of that Generating Unit or similar Generating Units; 6) if the Forced Outage created or exacerbated Congestion; 7) if the Forced Outage was extended with little or no notice; 8) if the Operator had other alternatives to resolve the problems leading to the Forced Outage; 9) if the Operator took reasonable action to minimize the duration of the Forced Outage; or 10) if the Operator failed to provide the ISO an explanation of the Forced Outage within two (2) Business Days or failed to provide any additional information or access to the generating facility requested by the ISO within a reasonable time.

**9.3.10.6 Other Control Areas.**

The ISO Outage Coordination Office shall make all reasonable efforts to coordinate Outages involving other Control Areas or affecting an intertie, import or export capability not under the Operational Control of the ISO to the extent that they may affect the reliability of the ISO Controlled Grid.

**9.4 Outage Coordination For New Facilities.**

**9.4.1 Coordination by ISO.** The procedure to energize and place in service any new or relocated piece of equipment, connected to the ISO Controlled Grid, must be set out by the Operator or Connected Entity in a written procedure and coordinated by the ISO Outage Coordination Office.

**9.4.2 Types of Work Requiring Coordination.**

The types of work which the ISO will coordinate includes any new addition, replacement or modification to the ISO Controlled Grid, including:

(a) transmission lines forming part of the ISO Controlled Grid;

(b) equipment including circuit breakers, transformers, disconnects, reactive devices, wave traps, forming part of the ISO Controlled Grid;

(c) Generating Unit interconnections; and

(d) protection and control schemes, including RAS, SCADA, EMS, or AGC.

**9.4.3 Uncomplicated Work.**

When line rearrangements and/or station equipment work is uncomplicated and easily understood, the ISO Outage Coordination Office may determine that the work can be accomplished using Outages approved in accordance with Section 9.3.6. The ISO Outage Coordination Office will make this determination in coordination with the respective requesting Operator or Connected Entity.

**9.4.4 Special Procedures for More Complex Work.**

**9.4.4.1 Responsibility for Preparation.**

In cases to which 9.4.3 does not apply, it is the responsibility of the requesting Operator or Connected Entity to prepare a written procedure to enable the ISO to approve Outages in a manner that enables the necessary work to proceed. The ISO Outage Coordination Office must approve the procedure.

**9.4.4.2 Information to be Provided to the ISO.**

The written procedure must be received by the ISO Outage Coordination Office a minimum of four (4) weeks prior to the start of procedure. Adequate drawings will be attached to the procedure to help clarify the work being performed and the Outages that will be required to complete the work must be specified. The procedure shall include all of the information referred to on the ISO Home Page.

**9.4.4.3 Approval of the Procedure.**

Upon receipt of the procedure and drawings referred to in Section 9.4.4.2, the ISO Outage Coordination Office will review the procedure and notify the Operator or Connected Entity of any required modifications. The ISO Outage Coordination Office may, at its discretion, require changes to and more detail to be inserted in the procedure. The requesting Operator or Connected Entity will consult with other entities likely to be affected and will revise the procedure, following any necessary or appropriate discussions with the ISO to reflect the requirements of the ISO. Following the ISO approval, an approved copy of the procedure will then be transmitted to the Operator or Connected Entity and the other entities likely to be affected.

**9.4.4.4 Changes to Procedure.**

Once the procedure is approved by the ISO Outage Coordination Office any modifications to the procedure will require the requesting Operator or Connected Entity to notify the ISO Outage Coordination Office with as much lead time as possible of the recommended changes. The modified procedure will then have to be approved by the ISO Outage Coordination Office in accordance with Section 9.4.4.2 and 9.4.4.3.

**9.4.4.5 Approval of Work Requiring Coordination.**

No work can begin pursuant to any approved procedure unless approved by the ISO Outage Coordination Office.

**9.5 Records.**

The ISO and all Operators shall develop procedures to keep a record of approved Maintenance Outages as they are implemented and to report the completion of approved Maintenance Outages. Such records are available for inspection by Operators and Connected Entities at the ISO Outage Coordination Office. Only those records pertaining to the equipment or facilities owned by the relevant Operator or Connected Entity will be made available for inspection at the ISO Outage Coordination Office, and such records will only be made available provided notice is given in writing to the ISO fifteen (15) days in advance of the requested inspection date.

**9.6 Facility Owner.**

The Facility Owner shall remain solely and directly responsible for the performance of all maintenance work, whether on energized or de-energized facilities, including all activities related to providing a safe working environment.

**10 METERING.**

**10.1 Applicability.**

Unless otherwise expressly stated to the contrary, the requirements set forth in these Sections 10.1 to 10.5 inclusive apply only to ISO Metered Entities. If an ISO Metered Entity is also a Scheduling Coordinator, it shall be treated as an ISO Metered Entity for the purposes of Section 10 of the ISO Tariff. Such an ISO Metered Entity will not be required to enter into a Scheduling Coordinator Meter Service Agreement unless it represents any metered entities other than itself. A Scheduling Coordinator Meter Service Agreement entered into by an ISO Metered Entity shall only apply to those metered entities that the ISO Metered Entity represents; the Scheduling Coordinator Meter Service Agreement shall not apply to the ISO Metered Entity other than in its capacity as Scheduling Coordinator for those metered entities.

**10.1.1 Role of the ISO.**

The ISO is responsible for establishing and maintaining the revenue meter data acquisition and processing system (MDAS). MDAS will acquire revenue quality meter data for use in the ISO's Settlement and billing process. The ISO is also responsible for:

(a) setting standards and procedures for the registration, certification, auditing, testing and maintenance of revenue quality meters and meter data servers; and

(b) for establishing procedures for the collection, security, validation and estimation of Meter Data for metered entities that are subject to the ISO Tariff.

**10.1.3 Netting.**

**10.1.3.1 Permitted Netting.**

ISO Metered Entities may, when providing Meter Data to the ISO, net values for Generating Unit output and auxiliary Load equipment electrically connected to that Generating Unit at the same point provided that the Generating Unit is on-line and is producing sufficient output to serve all of that auxiliary Load equipment. For example, where a Generating Unit's auxiliary load equipment is served via a distribution line that is separate from the switchyard to which the Generating Unit is connected, that Generating Unit and auxiliary load equipment will not be considered to be electrically connected at the same point.

**10.1.3.2 Prohibited Netting.**

ISO Metered Entities may not net values for Generating Unit output and Load. ISO Metered Entities that serve third party Load connected to a Generating Unit's auxiliary system must add that third party Load to the Generating Unit's output. The ISO Metered Entity may add that third party Load to the Generating Unit's output either by means of a hard wire local meter connection between the metering systems of the third party Load and the Generating Unit or by requesting the ISO to use MDAS to perform the addition. The ISO Metered Entity must ensure that the third party Load has Metering Facilities that meet the standards referred to in the ISO Tariff.

**10.1.5 Access to Meter Data.**

The ISO has complete authority over all rights of access to (and has authority to deny access to) the ISO's revenue meter data acquisition and processing system including servers (where used), interface equipment, and software needed to collect the relevant information for Settlement, billing and related purposes. Each Market Participant acknowledges this ISO authority as a condition of ISO Controlled Grid service and participation. For ISO Metered Entities, authority over the sealing of meters, and all related metering facilities, shall reside solely with the ISO for all ISO designated Meter Points, regardless of any remote electronic access that an ISO Metered Entity or its Scheduling Coordinator may have provided to third parties, except as otherwise may be required by law, FERC, any Local Regulatory Authority or other provision of this ISO Tariff. Meter Data supplied by an ISO Metered Entity shall be

made available by the ISO to the Scheduling Coordinator representing such ISO Metered Entity and the other authorized users identified in its Meter Service agreement, but shall not be disclosed to any other third party except as may otherwise be required by law, FERC, any Local Regulatory Authority or other provision of this ISO Tariff. Access by third parties other than authorized users to Meter Data held by the ISO shall be coordinated through the Scheduling Coordinator representing the relevant ISO Metered Entity that supplied the data and shall not be obtained directly from the ISO on any basis including, without limitation, by the polling of the ISO's revenue meter data acquisition and processing system via WEnet.

**10.1.6 Data Retention by the ISO.**

The ISO will maintain a record of all:

(a) Meter Data provided to it;

(b) Settlement Quality Meter Data provided to it; and

(c) Settlement Quality Meter Data produced by it,

for a period of 18 months on site at the ISO's facilities and for a period of 10 years in the ISO's archive storage facilities. The ISO will, on reasonable notice, provide an Scheduling Coordinator with access to Meter Data or Settlement Quality Meter Data provided that the Scheduling Coordinator requesting access represented the entity that submitted that data at the time the data was submitted to the ISO.

**10.2.1 Responsibilities of ISO Metered Entities.**

**10.2.1.1 Duty to Provide Meter Data.**

ISO Metered Entities shall ensure that Meter Data from their meters directly connected to the ISO Controlled Grid or at interconnections thereto, including interconnections between utility Service Areas which have separate UFE calculations, is made available to the ISO revenue Meter Data acquisition and processing system in accordance with the requirements of these Sections 10.1 to 10.5 and Appendix O. Pursuant to this obligation, the ISO shall establish revenue metering protocols for such ISO Metered Entities.

**10.2.1.2 Format for Data Submission.**

**10.2.1.2.1 Data Provided Directly From ISO Metered Entities.**

ISO Metered Entities must ensure that the Meter Data obtained by MDAS directly from their revenue quality meters is raw, unedited and unaggregated Meter Data in kWh and kVarh values. The ISO will be responsible for the validation, editing and estimation of that Meter Data in order to produce Settlement Quality Meter Data.

**10.2.1.2.2 Data Provided From Meter Data Servers.**

ISO Metered Entities or Scheduling Coordinators representing ISO Metered Entities must ensure that the Meter Data provided to MDAS from a Compatible Meter Data Server identifies the relevant ISO Metered Entity and is raw, unedited and unaggregated Meter Data in kWh and kVarh values. The ISO will be responsible for the validation, editing and estimation of that Meter Data in order to produce Settlement Quality Meter Data.

**10.2.1.3 Format for Data Requests.**

Scheduling Coordinators may obtain Settlement Quality Meter Data relating to the ISO Metered Entities they represent by directly polling MDAS using the Meter Data Request Format. The ISO will use its best efforts to ensure that such data is made available to Scheduling Coordinators within 5 Business Days of the relevant Trading Day.

**10.2.2 Duty to Install and Maintain Meters.**

The ISO may require ISO Metered Entities to install, at their cost, additional meters and relevant metering system components, including real-time metering, at ISO specified Meter Points or other locations as deemed necessary by the ISO, in addition to those connected to or existing on the ISO Controlled Grid at the ISO Operations Date, including requiring the metering of transmission interfaces connecting Zones. In directing the addition of meters and metering system components that would impose increased costs on an ISO Metered Entity, the ISO shall give due consideration to whether the expected benefits of such equipment are sufficient to justify such increased costs. ISO Metered Entities, at their cost, shall install

and maintain, or cause to be installed and maintained, metering equipment and associated communication devices at ISO designated Meter Points to meet the requirements of this Section 10 and Appendix O. Nothing in this Section 10 shall preclude ISO Metered Entities from installing additional meters, instrument transformers and associated communications facilities at their own cost.

**10.2.3 Metering Standards.**

Each ISO Metered Entity shall ensure that each of its meters used to provide Meter Data to the ISO complies with the meter standards and accuracy requirements for meters set forth in Appendix J. In relation to revenue quality meters, the ISO will publish on the ISO Home Page, for information purposes and without liability on the part of the ISO, a list of the types and manufacturers of revenue quality meters that have been independently certified as meeting the standards for revenue quality meters referred to in the ISO Tariff.

**10.2.4 Certification of Meters.**

Each ISO Metered Entity that makes Meter Data available to the ISO shall ensure that metering facilities used to produce such Meter Data have been certified by the ISO as meeting the requirements of Sections 10.1 to 10.5 and Appendix O. Certification of the relevant metering facilities shall only be provided upon the production of such evidence as the ISO may reasonably require to demonstrate that the facilities in question have been documented, inspected and successfully tested by the ISO or an ISO Authorized Inspector for conformance to the standards and accuracy requirements referred to in Appendix J and Appendix O. Meters of End-Use ISO Metered Entities in place as of the ISO Operations Date are deemed to be certified as in compliance with Appendix J and such End-Users shall not be required to enter into meter service agreements with the ISO provided that their Scheduling Coordinators have entered into a meter service agreement with the ISO. ISO certification pursuant to this Section 10.2.4 shall not relieve the ISO Metered Entity from the obligation to ensure that its metering facilities continue to remain in compliance with the requirements of Sections 10.1 to 10.5 and Appendix O.

**10.2.4.1 Requesting Certification.**

An ISO Metered Entity seeking certification of its Metering Facilities shall independently engage an ISO Authorized Inspector to perform certification of its Metering Facilities. An ISO Metered Entity may request the ISO to perform the certification of its Metering Facilities if it would be impractical or impossible for that ISO Metered Entity to engage an ISO Authorized Inspector to perform the certification. The ISO may refuse any such request by an ISO Metered Entity if it is of the opinion that it is not impractical or impossible for that ISO Metered Entity to engage an ISO Authorized Inspector.

**10.2.4.2 Certification by the ISO.**

All requests made to the ISO to perform the certification of Metering Facilities must be made in accordance with the Technical Specifications and be accompanied by the documents referred to in the Technical Specifications. If the ISO agrees to perform the certification of Metering Facilities, the ISO and that ISO Metered Entity will agree the terms and conditions on which the ISO will undertake the certification including the assistance to be provided by the ISO Metered Entity, the responsibility for costs and the indemnities to be provided.

**10.2.4.3 Criteria for Certification.**

Subject to any exemption granted by the ISO under this ISO Tariff, the criteria for certifying the Metering Facilities of ISO Metered Entities pursuant to the ISO Tariff are the criteria set forth in the Technical Specifications.

**10.2.4.4 Certificate of Compliance.**

If the Metering Facilities satisfy the certification criteria (after taking into account any exemptions to the certification criteria granted by the ISO), the ISO will:

(a) issue a Certificate of Compliance in respect of those Metering Facilities; and

(b) provide the original Certificate of Compliance to the ISO Metered Entity that requested the certification of those Metering Facilities.

**10.2.4.5 Obligation to Maintain Certification.**

ISO Metered Entities must ensure that their Metering Facilities continue to comply with the certification criteria referred to in the ISO Tariff.

**10.2.4.6 Revocation of Certification.**

The ISO may revoke in full or in part any Certificate of Compliance if:

(a) it has reasonable grounds to believe that all or some of the Metering Facilities covered by that Certificate of Compliance no longer meet the certification criteria for Metering Facilities contained in the ISO Tariff; and

(b) it has given written notice to the relevant ISO Metered Entity stating that it does not believe that the identified Metering Facilities meet the certification criteria (including the reasons for that belief) and that ISO Metered Entity fails to satisfy the ISO, within the time period specified in the ISO's notice, that the Metering Facilities meet the certification criteria.

If the ISO revokes in full or part a Certificate of Compliance, the relevant ISO Metered Entity may seek recertification of the relevant Metering Facilities by requesting certification in accordance with Section 10.2.4.6. Such request must indicate that it relates to Metering Facilities in respect of which the ISO has previously revoked a Certificate of Compliance.

**10.2.4.7 Changes to Certified Metering Facilities.**

The ISO's approval must be obtained before any modifications or changes are made to any Metering Facilities of an ISO Metered Entity which have been certified pursuant to the ISO Tariff. The ISO may, at its discretion, require those Metering Facilities to be recertified.

**10.2.5 ISO Authorized Inspectors.**

**10.2.5.1 Published List of Inspectors.**

The ISO will publish on the ISO Home Page, for informational purposes only, a list of the ISO Authorized Inspectors and details of the procedure for applying to become an ISO Authorized Inspector. The ISO will, on request, provide a copy of that list to entities that do not have access to the ISO Home Page.

**10.2.5.2 Current Certificates.**

It is the responsibility of the relevant ISO Metered Entity to ensure that any inspector it engages to undertake the certification of its Metering Facilities holds a current certificate of approval issued by the ISO which authorizes that inspector to carry out the duties of an ISO Authorized Inspector.

**10.2.6 Metering Communications.**

The ISO's revenue meter data acquisition and processing system shall collect and process Meter Data made available by ISO Metered Entities pursuant to meter service agreements. Meter Data for ISO Metered Entities shall be made available to the ISO's revenue meter data acquisition and processing system either directly by the ISO Metered Entity or via a central data server which collects Meter Data for various ISO Metered Entities provided that the central data server does not aggregate or adjust that Meter Data. Meter Data on the ISO's revenue meter data acquisition and processing system may be accessed from the system's database by the ISO Settlement system, other ISO application programs, relevant Scheduling Coordinators and other authorized users as identified in the relevant meter service agreement ("other authorized users") subject to the ISO being satisfied that access by such authorized users will not adversely effect the security of data held by the ISO. ISO Metered Entities shall ensure that their metering facilities are compatible with the ISO revenue meter data acquisition and processing system for these purposes. The ISO may, at its discretion, exempt an ISO Metered Entity from the requirement to make Meter Data directly available to the ISO's revenue meter data acquisition and processing system, for example, where the installation of communication links is unnecessary, impracticable or uneconomic. The ISO shall maintain the revenue meter data acquisition and processing system and remedy any faults occurring in such system. Scheduling Coordinators and other authorized

users requiring Settlement Quality Meter Data for ISO Metered Entities they schedule or supply may obtain such data by polling the revenue meter data acquisition and processing system via WEnet in accordance with Appendix O. Scheduling Coordinators and other authorized users shall not poll the ISO revenue meter data acquisition and processing system for any other purpose, unless specifically authorized in their meter service agreement. During the period in which a Scheduling Coordinator is unable to poll directly the ISO revenue meter data acquisition and processing system, that Scheduling Coordinator will be responsible for providing the ISO with Settlement Quality Meter Data in accordance with Appendix O.

**10.2.7 Meter Service Agreements for ISO Metered Entities.**

**10.2.7.1 Requirement for Meter Service Agreements.**

The ISO shall establish meter service agreements with ISO Metered Entities for the collection of Meter Data. Such agreements shall specify that ISO Metered Entities shall make available to the ISO's revenue meter data acquisition and processing system, Meter Data meeting the requirements of these Sections 10.1 to 10.5 inclusive and Appendix O. The meter service agreement and the ISO Tariff Appendix O shall specify the format of Meter Data to be submitted, which shall be identified by TO, Distribution System, Zone, ISO Controlled Grid interface point and other information reasonably required by the ISO. Meter service agreements will identify other authorized users which are allowed to access the Settlement Quality Meter Data held by the ISO. The ISO will ensure that the relevant UDCs and TOs are included as other authorized users.

**10.2.7.2 ISO Metered Entities.**

ISO Metered Entities will either submit Meter Data directly to MDAS via Compatible Meter Data Servers or their revenue quality meters will be directly polled by MDAS.

**10.2.7.3 Scheduling Coordinator Metered Entities.**

Scheduling Coordinators must use Compatible Meter Data Servers to submit Settlement Quality Meter Data to the ISO for those Scheduling Coordinator Metered Entities that they represent. Scheduling Coordinators shall provide the ISO with the current password and any other information it needs to

access, at all times, the Compatible Meter Data Servers of those Scheduling Coordinators so as to ensure the security of those servers. Each Scheduling Coordinator must also provide the ISO with the WEnet protocol address of the Scheduling Coordinator's file server with which MDAS will interface to obtain or provide Settlement Quality Meter Data.

**10.2.8 Security and Meter Data Validation Procedures.**

The meter service agreement for each ISO Metered Entity and the ISO metering protocols shall set out, in such detail as the ISO may deem necessary, the Meter Data security and validation procedures that the ISO shall apply to the Meter Data made available by each ISO Metered Entity. The ISO may base the security and validation procedures on historical data or an appropriate alternative data source. The ISO shall correct or replace or cause to be corrected or replaced inaccurate or missing data. The procedure may include data correction and substitution algorithms which shall estimate, substitute and flag such inaccurate or missing data. Any necessary correction or replacement shall be approved by the ISO prior to the data being sent to the ISO Settlement system. Security and validation measures for existing Tie Point Meters shall be consistent with existing arrangements with the operators in adjacent Control Areas. Any additional measures or changes to the existing arrangements shall only be implemented upon mutual agreement of the ISO and the operator in the adjacent Control Area.

**10.2.8.1 Meter Site Security.**

Metering Facilities of ISO Metered Entities must meet the following requirements:

(a) secondary devices that could have any impact on the performance of the Metering Facilities must be sealed; and

(b) all Metering Facilities (including terminal servers and multiport devices) must be sealed.

**10.2.8.2 Third Party Access to Meters.**

(a) Local Access.

If an ISO Metered Entity desires to grant a third party local access to its revenue quality meters, those meters must be equipped with ISO certified RS-232 or optical ports and software. The ISO may set the password and any other security requirements for locally accessing the revenue quality meters of ISO Metered Entities so as to ensure the security of those meters and their Meter Data. The ISO may alter the password and other requirements for locally accessing those meters from time to time as it determines necessary. The ISO must provide ISO Metered Entities with the current password and other requirements for locally accessing their revenue quality meters. ISO Metered Entities must not give a third party local access to its revenue quality meters or disclose to that third party the password to its revenue quality meters without the ISO's prior approval which shall not unreasonably be withheld. ISO Metered Entities will be responsible for ensuring that a third party approved by the ISO to access its revenue quality meters only accesses the data it is approved to access and that the data are only accessed for the purposes for which the access was approved.

(b) Remote Access.

The ISO may set the password and any other security requirements for remotely accessing the revenue quality meters of ISO Metered Entities so as to ensure the security of those meters and their Meter Data. The ISO will alter the password and other requirements for remotely accessing those meters from time to time as it determines necessary. The ISO must provide ISO Metered Entities with the current password and other requirements for remotely accessing their revenue quality meters. ISO Metered Entities must not give a third party remote access to its revenue quality meters or disclose to that third party the password to its revenue quality meters without the ISO's prior approval which shall not unreasonably be withheld. ISO Metered Entities will be responsible for ensuring that a third party approved by the ISO to access its revenue quality meters only accesses the data it is approved to access and that the data are only accessed for the purposes for which the access was approved.

**10.2.8.3 Third Party Access Withdrawn.**

If, in the reasonable opinion of the ISO, access granted to a third party by an ISO Metered Entity in any way interferes or impedes with the ISO's ability to poll any revenue quality meter, the ISO may require that ISO Metered Entity to immediately withdraw any access granted to a third party.

**10.2.8.4 MDAS Security.**

The ISO will provide to entities that are permitted to access MDAS, the access password and any other requirements needed to access MDAS. The ISO must maintain the security and integrity of Meter Data and Settlement Quality Meter Data received by MDAS.

**10.2.9 Validation, Editing and Estimating of Meter Data.**

**10.2.9.1 ISO Metered Entities.**

Subject to any exemption granted by the ISO under Section 10.3.18, the raw Meter Data which ISO Metered Entities submit to the ISO will be processed by MDAS using the validation, editing and estimation procedures published on the ISO Home Page from time to time in order to produce Settlement Quality Meter Data.

**10.2.9.2 Obligation to Assist.**

At the request of the ISO, ISO Metered Entities shall assist the ISO in correcting or replacing defective data and in detecting and correcting underlying causes for such defects. Such assistance shall be rendered in a timely manner so that the Settlement process is not delayed.

**10.2.9.3 Availability of Meter Data.**

Subject to any exemption granted by the ISO under this ISO tariff, Meter Data must be recorded:

(a) at 5-minute intervals by Loads and Generators providing Ancillary Services and/or Supplemental Energy; and

(b) at 1-hour intervals by other ISO Metered Entities.

Meter Data will be collected regularly by MDAS in accordance with the frequency for collection determined by the ISO from time to time. The ISO may also collect Meter Data on demand. The ISO will issue such demands using voice communications. If the ISO issues a demand for Meter Data, the ISO Metered Entity from which the ISO demands that Meter Data must provide that Meter Data to the ISO within 10 minutes of receiving the demand from the ISO or, if that ISO Metered Entity has been granted an exemption from directly interfacing with MDAS pursuant to Section 10.3.18 within the time period specified in that exemption.

**10.2.9.4 Failure to Achieve Required Standards.**

Meter service agreements shall set out appropriate measures and rights the ISO may exercise upon any failure by the other party to meet the requirements for meter standards and accuracy set out in these Sections 10.1 to 10.5 inclusive.

**10.2.9.5 ISO Imposed Penalties and Sanctions.**

The ISO shall have the authority to impose penalties and sanctions, including but not limited to suspension of trading rights, if an ISO Metered Entity provides fraudulent metering data to the ISO. Such penalties shall be approved by FERC.

**10.2.10.1 Requirement for ISO Approval.**

After the ISO Operations Date, ISO Metered Entities may only install revenue quality meters on the low voltage side of step-up transformers if they have obtained the prior approval of the ISO in accordance with Section 10.2.10 of the ISO Tariff. ISO Metered Entities that have installed low voltage side metering, whether such installation was before or after the ISO Operations Date, shall apply the Transformer Loss Correction Factor in accordance with Section 10.2.10.4.

**10.2.10.2 Request for Approval.**

If an ISO Metered Entity wishes to install low voltage side metering, it shall submit a written request to the ISO. That ISO Metered Entity must:

(a) request approval to apply the Transformer and/or Line Loss Correction Factor to its revenue quality meter or request approval to have MDAS apply the Transformer and/or Line Loss Correction Factor;

(b) provide detailed reasons to support the request for low side metering;

(c) provide all of the information in relation to the Transformer and/or Line Loss Correction Factor required by the Technical Specifications; and

(d) any other information reasonably requested by the ISO.

**10.2.10.3 ISO's Grounds for Approval.**

The ISO shall approve a request made under Section 10.2.10.2 only if the ISO is satisfied that adequate accuracy and security of Meter Data obtained can be assured in accordance with Section 10.2.10 of the ISO Tariff. The ISO's rejection of such a request may be referred to the ISO ADR Procedures if, after using all reasonable good faith efforts, the ISO and an ISO Metered Entity are unable to reach agreement.

**10.2.10.4 Application of Transformer and/or Line Loss Correction Factor.**

ISO Metered Entities will apply the Transformer and/or Line Loss Correction Factor as set forth in the Technical Specifications. If the ISO has approved a request from an ISO Metered Entity for MDAS to apply the Transformer and/or Line Loss Correction Factor, MDAS will apply the Transformer and/or Line Loss Correction Factor set forth in the Technical Specifications. If MDAS is used to apply the Transformer and/or Line Loss Correction Factor, the ISO may require the ISO Metered Entity to pay the reasonable costs incurred by it in applying the Transformer and/or Line Loss Correction Factor

**10.2.11 Audit, Testing Inspection and Certification Requirements.**

ISO Metered Entities are subject to ISO audit, testing and certification requirements for their entire metering system(s), including all relevant communication facilities and instrument transformers. The ISO will have the right to either conduct any audit or test it considers necessary or to witness such audit or test carried out by the ISO Metered Entity or an ISO Authorized Inspector engaged by the ISO Metered Entity or the ISO to carry out those audits or tests.

**10.2.12 Exemptions from ISO Metering Standards.**

The ISO has the authority to grant exemptions from certain ISO metering standards for an ISO Metered Entity provided the ISO annually publishes details of the criteria the ISO will use when considering an application for an exemption and details of specific exemptions which are available. An ISO Metered Entity with an interim exemption shall provide site specific Settlement Quality Meter Data to the ISO in accordance with its meter service agreement and the Appendix O. A Generator connected directly to a UDC Distribution System and that sells its entire output to the UDC in which the Generator is located is not subject to the audit, testing or certification requirements of the ISO.

**10.2.13 Maintenance of Metering Facilities.**

**10.2.13.1 Duty to Maintain Metering Facilities.**

ISO Metered Entities must maintain their Metering Facilities so that those Metering Facilities continue to meet the standards prescribed by the ISO Tariff (including Appendix J).

If the Metering Facilities of an ISO Metered Entity require maintenance in order to ensure that they operate in accordance with the requirements of the ISO Tariff the ISO Metered Entity shall notify the ISO by telephone or other means specified by the ISO of the need for such maintenance. The ISO Metered Entity must also inform the ISO of the time period during which such maintenance is expected to occur. During that period, the ISO Metered Entity or its authorized representative shall be entitled to access those sealed Metering Facilities to which access is required in order to undertake the required maintenance.

During periods for which no Meter Data is available from a meter which has a current Certificate of Compliance, the ISO will substitute estimated meter data for that ISO Metered Entity using the estimation procedures referred to in Section 10.2.9. That estimated meter data will be used by the ISO in its Settlement and billing process.

**10.2.13.2 Repairs.**

If a revenue quality meter of an ISO Metered Entity requires repairs to ensure that it operates in accordance with the requirements of the ISO Tariff, the ISO Metered Entity must immediately notify the ISO of the need for repairing that meter and must ensure that those repairs are completed:

(a) where there is no Check Meter installed, within 12 hours of the notification to the ISO; or

(b) where there is a Check Meter installed, within 5 Business Days of the notification to the ISO.

During periods for which no Meter Data is available from a meter which has a current Certificate of Compliance, the ISO will substitute estimated meter data for that ISO Metered Entity using the estimation procedures referred to in Section 10.2.9. That estimated meter data will be used by the ISO in its Settlement and billing process.

In respect of Metering Facilities (other than a revenue quality meter) of an ISO Metered Entity that need repair, the ISO Metered Entity shall notify the ISO of that need and, after consultation with the ISO Metered Entity, the ISO will set the time period in which such repairs must be completed.

**10.2.14 Installation of Additional Metering Facilities.**

**10.2.14.1 ISO Requirement to Install Additional Metering.**

**10.2.14.1.1 ISO Authority to Require Additional Metering Facilities.**

The ISO has authority under Section 10.2.2 the ISO Tariff to require an ISO Metered Entity to install Metering Facilities in addition to those Metering Facilities on the ISO Controlled Grid at the ISO Operations Date. In directing the addition of meters and metering system components that would impose increased costs on an ISO Metered Entity, the ISO shall give due consideration to whether the expected benefits of such equipment are sufficient to justify such increased costs. An ISO Metered Entity may not commence installing those additional Metering Facilities until the ISO has approved its Proposal for Installation.

**10.2.14.1.2 Requirement to Install.**

If the ISO determines that there is a need to install additional Metering Facilities on the ISO Controlled Grid, it will notify the relevant ISO Metered Entity of that need. The ISO's notice to that ISO Metered Entity will include the following information:

(a) the location of the Meter Point at which the additional Metering Facilities are required;

(b) the date by which the ISO Metered Entity must install the relevant Metering Facilities;

(c) the reason for the need to install the additional metering Facilities; and

(d) any other information that the ISO considers relevant.

**10.2.14.1.3 Obligations of ISO Metered Entity.**

An ISO Metered Entity that is notified by the ISO that it is required to install additional Metering Facilities must:

(a) give the ISO written confirmation of receipt of that notice within 3 Business Days of receiving that notice;

(b) submit a Proposal for Installation to the ISO within 45 Business Days of receiving that notice. The Proposal for Installation must set out the following information:

i. a description of the proposed Metering Facilities to be installed (which shall include all relevant schematic drawings and one-line drawings);

ii. a proposed timetable for the installation; and

iii. any other information requested by the ISO in the notice referred to in Section 10.2.14.1.2.

**10.2.14.1.4 Approval or Rejection of a Proposal for Installation.**

The ISO may either:

(a) unconditionally approve;

(b) conditionally approve; or

(c) reject, a Proposal for Installation.

**10.2.14.1.5 Unconditional Approval.**

If the ISO unconditionally approves a Proposal for Installation, it will promptly notify the ISO Metered Entity that the Proposal for Installation has been approved. The ISO Metered Entity shall then commence installation of the Metering Facilities in accordance with the Proposal for Installation.

**10.2.14.1.6 Conditional Approval.**

(a) Notification of Conditional Approval.

If the ISO conditionally approves a Proposal for Installation, it will promptly notify the ISO Metered Entity that the Proposal for Installation has been conditionally approved and set out in that notice the conditions on which approval is granted and the time period in which each such condition must be satisfied by the ISO Metered Entity.

(b) Ability to Satisfy Conditions.

If the ISO Metered Entity disputes any condition imposed by the ISO, the ISO Metered Entity must immediately notify the ISO of its concerns and provide the ISO with the reasons for its concerns. If the ISO Metered Entity gives the ISO such a notice, the ISO may amend or waive any of the conditions on which it granted its approval or it may require the ISO Metered Entity to satisfy other conditions. The ISO and the ISO Metered Entity will use all reasonable good faith efforts to reach agreement, and in the absence of agreement either entity may refer the dispute to the ISO ADR Procedures.

(c) Notification of Satisfaction of Conditions.

The ISO Metered Entity must promptly notify the ISO when each condition in the approval has been satisfied and provide to the ISO any information reasonably requested by the ISO as evidence that such condition has been satisfied.

(d) Confirmation of Satisfaction of Conditions.

If the ISO determines that a condition in the approval of the Proposal for Installation has been satisfied, it will give the ISO Metered Entity written confirmation that the condition has been satisfied.

(e) Unsatisfied Conditions.

If the ISO determines that a condition has not been satisfied after having received notice from an ISO Metered Entity, the ISO will notify the ISO Metered Entity that it does not consider the condition satisfied and shall set out in that notice the reason(s) that it does not consider the condition satisfied. If, after using all reasonable good faith efforts, the ISO and the ISO Metered Entity are unable to agree on whether that condition is satisfied, either entity may refer the dispute to the ISO ADR Procedures.

**10.2.14.1.7 Rejection.**

If the ISO rejects a Proposal for Installation, it will promptly notify the ISO Metered Entity that the Proposal for Installation has been rejected and set out in that notice the reason for its rejection. The ISO Metered Entity must submit to the ISO a revised Proposal for Installation within 14 Business Days of receiving such notice of rejection. If the ISO rejects for a second time a Proposal for Installation submitted by an ISO Metered Entity in respect of the same or similar notice issued by the ISO under Section 10.2.14.1.2, the ISO and the ISO Metered Entity will use all reasonable good faith efforts to reach agreement on the requirements and disputed items and in the absence of agreement either entity may refer the dispute to the ISO ADR Procedures.

**10.2.14.1.8 ISO Metered Entities' Election to Install Additional Metering.**

In accordance with Section 10.2.2 of the ISO Tariff, an ISO Metered Entity may choose to install additional metering, including Check Meters. If an ISO Metered Entity installs such additional metering, such metering must, unless the ISO agrees otherwise:

(a) be installed and maintained at the ISO Metered Entity's cost;

(b) be located on the ISO Metered Entity's side of any primary meter; and

(c) not interfere with the accuracy of any primary meter and, if that primary meter is directly polled by the ISO, the ISO's ability to directly poll that meter.

Any Meter Data produced by any such additional metering may be used by the ISO for Settlement and billing purposes in the event of the failure, or during tests or repairs of, the primary meter provided that such additional metering has a current Certificate of Compliance, the ISO Metered Entity gives the ISO prior verbal notice that such meter will be used and the period for which it will be used and, if the primary meter is directly polled by the ISO, the additional metering must also be capable of being directly polled by the ISO.

**10.3 Metering for Scheduling Coordinator Metered Entities.**

**10.3.1 Applicability.**

The requirements set forth in this Section 10.3 shall apply only to Scheduling Coordinators representing Scheduling Coordinator Metered Entities. If a Scheduling Coordinator Metered Entity is also a Scheduling Coordinator, it shall be treated as a Scheduling Coordinator for the purposes of Section 10 of the ISO Tariff and any references to entities that such a Scheduling Coordinator represents shall be deemed to include that Scheduling Coordinator itself.

**10.3.2 Responsibilities of Scheduling Coordinators and the ISO.**

**10.3.2.1 Duty to Provide Meter Data.**

Scheduling Coordinators shall provide the ISO with Settlement Quality Meter Data for all of the Scheduling Coordinator Metered Entities served by the Scheduling Coordinator no later than the day specified in Section 10.3.6. Settlement Quality Meter Data for Scheduling Coordinator Metered Entities shall be either (1) an accurate measure of the actual consumption of Energy by each Scheduling Coordinator Metered Entity in each Settlement Period, or (2) for Scheduling Coordinator Metered Entities connected to a UDC Distribution System and meeting that Distribution System's requirement for load profiling eligibility, a profile of that consumption derived directly from an accurate cumulative measure of the actual consumption of Energy over a known period of time and an allocation of that consumption to Settlement Periods using the applicable Approved Load Profile.

**10.3.2.2 Format for Data Submission.**

Scheduling Coordinators shall submit Settlement Quality Meter Data to MDAS for the Scheduling Coordinator Metered Entities they represent using the Meter Data Exchange Format. Subject to any exemption granted by the ISO under Section 10.3.18, Scheduling Coordinators must ensure that Settlement Quality Meter Data submitted to the ISO is in intervals of:

(a) 5 minutes for Loads and Generators providing Ancillary Services and/or Supplemental Energy; and

(b) 1 hour for other Scheduling Coordinator Metered Entities.

Each Scheduling Coordinator shall submit Settlement Quality Meter Data for all of the Scheduling Coordinator Metered Entities that it schedules aggregated by:

(a) Demand Zone, Load group or bus for Demand;

(b) the relevant unit for Generation; or

(c) the Scheduling Point for imports and exports.

The Settlement Quality Meter Data submitted by Scheduling Coordinators may be in either kWh or MWh values.

**10.3.2.3 Format for Data Requests.**

Scheduling Coordinators may obtain Settlement Quality Meter Data relating to the Scheduling Coordinator Metered Entities they represent by requesting extracts from MDAS using the Meter Data Request Format. The ISO will ensure that such data is made available in a timely manner.

**10.3.3 Loss Factors.**

Where a Scheduling Coordinator Metered Entity is connected to a UDC's Distribution System, the responsible Scheduling Coordinator shall adjust the Meter Data by an estimated Distribution System loss factor to derive an equivalent ISO Controlled Grid level measure. Such estimated Distribution System loss factors shall be approved by the relevant Local Regulatory Authority prior to their use. The Scheduling Coordinator shall aggregate its equivalent ISO Controlled Grid-level Meter Data for Scheduling Coordinator Metered Entities

**10.3.4 Load Profile Authorization.**

Scheduling Coordinators shall be responsible for obtaining all necessary authorizations from Local Regulatory Authorities having jurisdiction over the use of profiled Meter Data in any Settlement process in which load profiles are used to allocate consumption to Settlement Periods.

**10.3.5 Communication of Meter Data.**

Each Scheduling Coordinator shall submit Settlement Quality Meter Data for Scheduling Coordinator Metered Entities to the ISO.

**10.3.6 Timing of Meter Data Submission.**

Scheduling Coordinators shall submit either hourly time-stamped Settlement Quality Meter Data for Scheduling Coordinator Metered Entities or profiled cumulative Settlement Quality Meter Data to the ISO for each Settlement Period in a Trading Day within forty-five (45) calendar days of that Trading Day.

Scheduling Coordinators shall submit Settlement Quality Meter Data to the ISO when required to do so by this ISO Tariff and the ISO Payments Calendar. Scheduling Coordinators must also submit Settlement Quality Meter Data on demand. The ISO will issue such demands using voice communications. If the ISO issues a demand for Settlement Quality Meter Data, the Scheduling Coordinator from which the ISO demands that data must submit it to the ISO within 4 hours of receiving the demand from the ISO.

**10.3.7 Meter Standards.**

Each Scheduling Coordinator, in conjunction with the relevant Local Regulatory Authority, shall ensure that each of its Scheduling Coordinator Metered Entities connected to and served from the Distribution System of a UDC shall be metered by a revenue meter complying with any standards of the relevant Local Regulatory Authority or, if no such standards have been set by that Local Regulatory Authority, the metering standards set forth in Appendix J.

**10.3.8 Access to Meter Data.**

The ISO has complete authority over rights of access to (and has authority to deny access to) its revenue meter data acquisition and processing system including servers (where used), interface equipment, and software needed to accept Settlement Quality Meter Data from Scheduling Coordinator Metered Entities for Settlement, billing and related purposes. Each Scheduling Coordinator, on behalf of itself and Market Participants that it serves or represents, acknowledges this ISO authority as a condition of access to the ISO Controlled Grid.

**10.3.8A Collection of Meter Data.**

**10.3.8A.1 Responsibility of Scheduling Coordinators.**

Each Scheduling Coordinator shall be responsible for the collection of Meter Data from the Scheduling Coordinator Metered Entities it represents and for ensuring that the Settlement Quality Meter Data supplied to the ISO meets the requirements of this Section 10.3

**10.3.9 Certification of Meters.**

Scheduling Coordinators shall ensure that revenue meters and related metering facilities of those Scheduling Coordinator Metered Entities whom they represent are certified in accordance with any certification criteria prescribed by the relevant Local Regulatory Authority or, if no such criteria have been prescribed by that Local Regulatory Authority. Scheduling Coordinators shall upon request of the ISO supply promptly copies of all certificates issued by the relevant Regulatory Authority. The End Use Meter of an ISO Metered Entity or a Scheduling Coordinator Metered Entity in place as of the ISO Operations Date is deemed to be certified as in compliance with Appendix J. Once certified, meters for Scheduling Coordinator Metered Entities need not be recertified provided such meters are maintained so as to meet the standards and accuracy requirements prescribed by any relevant Local Regulatory Authority or, if no such standards have been prescribed by that Local Regulatory Authority, such requirements as referred to in Appendix J. Recertification is not required by the ISO upon an election by a Scheduling Coordinator Metered Entity to change its Scheduling Coordinator from which it takes service.

**10.3.10 Requirement for Audit and Testing.**

**(a) Audit and Testing by Scheduling Coordinator**

Each Scheduling Coordinator shall at least annually conduct (or engage an independent, qualified entity to conduct) audits and tests of the Metering Facilities of the Scheduling Coordinator Metered Entities that it represents and the Meter Data provided to the Scheduling Coordinator in order to ensure compliance with all applicable requirements of any relevant Local Regulatory Authority. Scheduling Coordinators shall undertake any other actions that are reasonable necessary to ensure the accuracy and integrity of the Settlement Quality Meter Data provided by them to the ISO.

**(b) Audit and Testing by ISO**

Subject to any applicable Local Regulatory Authority requirements, the Metering Facilities and data handling and processing procedures of Scheduling Coordinators and Scheduling Coordinator Metered Entities are subject to audit and testing by the ISO or an ISO Authorized Inspector in accordance with Section 10.3.14.2 of the ISO Tariff. Subject to any applicable Local Regulatory Authority requirements,

the ISO will have the right to either conduct any audit or test it considers necessary or to witness such audit or test carried out by the Scheduling Coordinator, Scheduling Coordinator Metered Entity or an ISO Authorized Inspector engaged by the Scheduling Coordinator, Scheduling Coordinator Metered Entity or the ISO to carry out those audits or tests.

**10.3.11 Scheduling Coordinator to Ensure Certification.**

If the relevant Local Regulatory Authority has not prescribed any certification criteria for the Metering Facilities of a Scheduling Coordinator Metered Entity, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must promptly notify the ISO in writing that no such criteria have been prescribed. That Scheduling Coordinator will then be responsible for ensuring that the Scheduling Coordinator Metered Entities it represents obtain and maintain Certificates of Compliance in respect of all of the Metering Facilities of those Scheduling Coordinator Metered Entities in accordance with Section 10.2.4. Scheduling Coordinators must engage an ISO Authorized Inspector to perform the certification of any Metering Facilities that are to be certified under the ISO Tariff.

**10.3.12 Certification of Meter Data Servers.**

Subject to any exemption granted by the ISO under 10.3.18 the ISO will not accept Settlement Quality Meter Data relating to a Scheduling Coordinator Metered Entity from a meter data server unless that meter data server is a Compatible Meter Data Server.

**10.3.12.1 Confirmation of Certification.**

On the written request of the ISO, each Scheduling Coordinator must give the ISO written confirmation that the Metering Facilities of each Scheduling Coordinator Metered Entity that it represents are certified in accordance with either the criteria of the relevant Local Regulatory Authority or the criteria prescribed by this Section within 5 Business Days of receiving a request from the ISO.

**10.3.12.2 Deemed Certification.**

In accordance with Section 10.3.9 of the ISO Tariff, those revenue quality meters of Scheduling Coordinator Metered Entities that are subject to certification pursuant to the ISO Tariff and which were

installed and operational as of the ISO Operations Date will be deemed to be certified for the purposes of the ISO Tariff. Revenue quality meters that have been fully installed as of the ISO Operations Date but which are not operational as of that date because they were undergoing maintenance or repairs will also be deemed to be certified in accordance with the ISO Tariff.

**10.3.13 Meter Service Agreements for Scheduling Coordinator Metered Entities.**

The ISO shall enter into meter service agreements with Scheduling Coordinators responsible for providing Settlement Quality Meter Data for Scheduling Coordinator Metered Entities to the ISO. Such agreements shall specify that Scheduling Coordinators require their Scheduling Coordinator Metered Entities to adhere to the meter requirements set forth in this Section 10.3.

**10.3.14 Approval by Local Regulatory Authority of Security and Validation Procedures.**

Scheduling Coordinators shall be responsible for obtaining any necessary approval of the relevant Local Regulatory Authority to its proposed security, validation, editing and estimation procedures. The ISO will not perform any validation, editing or estimating on the Settlement Quality Meter Data it receives from Scheduling Coordinators.

**10.3.14.1 UDC and TO Agreements.**

Each Scheduling Coordinator shall be responsible for obtaining any necessary consent from the UDCs on whose Distribution Systems or the Participating TOs on whose transmission facilities the Scheduling Coordinator has Scheduling Coordinator Metered Entities as is necessary to give effect to the procedures governing Meter Data validation and security and inspection and testing of metering facilities. Scheduling Coordinators must verify with the relevant UDC the identity of each Scheduling Coordinator Metered Entity they represent and must notify the UDC of any discrepancies of which they become aware.

**10.3.14.2 Scheduling Coordinator Metered Entity Certification, Testing and Audit.**

Subject to any Local Regulatory Authority requirements, the ISO reserves the right to inspect, test and otherwise audit the entire metering systems of the Scheduling Coordinator Metered Entity connected to the ISO Controlled Grid, from the Meter Data server to the metering system(s), and such systems shall

be subject to ISO audits and tests. However, only the Meter Data server supplying the ISO is subject to ISO certification requirements.

The Scheduling Coordinator or its designated representative shall provide the ISO with all such information, assistance and cooperation the ISO reasonably requires in order to conduct such inspections, tests and audits.

**10.3.14.3 Failure to Achieve Required Standards.**

Subject to any Local Regulatory Authority requirements, meter service agreements shall set out appropriate measures and rights the ISO may exercise upon any failure by the other party to meet the requirements for meter standards and accuracy set out in this Section 10.3.

**10.3.14.4 Data Access.**

Meter Data of a Scheduling Coordinator Metered Entity remains the property of that Scheduling Coordinator Metered Entity and shall be made available to third parties only with its express permission or as otherwise required by law or provided for in this ISO Tariff. The ISO shall be granted access to Meter Data of Scheduling Coordinator Metered Entities obtained by Scheduling Coordinators.

**10.3.15 Exemptions from ISO Metering Standards.**

The ISO has the authority to grant exemptions from certain ISO metering standards for Scheduling Coordinator Metered Entities that are subject to ISO metering standards provided the ISO annually publishes details of the criteria the ISO will use when considering an application for an exemption and details of specific exemptions which are available.

**10.3.16 COMMUNICATIONS**

**10.3.16.1 Facilities Provided by the ISO.**

The ISO will provide the facilities referred to in this 10.3.16.1 to acquire Meter Data from ISO Metered Entities and receive Settlement Quality Meter Data from Scheduling Coordinators.

**10.3.16.1.1 MDAS Master Station.**

The MDAS master station will have a redundant configuration. The primary master station is located in Folsom, the redundant master station is located in Alhambra.

**10.3.16.1.2 WEnet.**

MDAS will use WEnet to acquire Meter Data from ISO Metered Entities and receive Settlement Quality Metered Data from Scheduling Coordinators. WEnet is an ISO-provided Wide Area Network (WAN). WEnet will use the TCP/IP networking protocol.

**10.3.16.1.3 Points of Presence.**

WEnet will have a Point of Presence (POP) in the general vicinity of most ISO Metered Entities and Scheduling Coordinators. The POP is the interface point between WEnet and the facilities provided by ISO Metered Entities and Scheduling Coordinators pursuant to 10.3.16.2 and 10.3.16.3.

**10.3.16.1.4 Facilities Failure.**

In the event that the primary or redundant MDAS master station or WEnet fails, the procedures referred to in Appendix A will be followed by the ISO, ISO Metered Entities and Scheduling Coordinators.

**10.3.16.2 Facilities Provided by ISO Metered Entities.**

ISO Metered Entities must provide the telecommunication facilities referred to in 10.3.16.2.1 to 10.3.16.2.3 inclusive to connect their Compatible Meter Data Servers to the WEnet POP.

**10.3.16.2.1 Telecommunications Channels.**

The ISO Metered Entity must provide one of the following types of telecommunication channels from the WEnet POP to its Compatible Meter Data Servers:

(a) Digital leased line;

(b) ISDN channel; or

(c) frame relay channel.

With the ISO's approval, the revenue quality meters of two or more ISO Metered Entities may be served by one telecommunications channel.

**10.3.16.2.2 Router/Terminal Server.**

ISO Metered Entities must provide router/terminal servers to interface the telecommunication channels to revenue quality meters. Each revenue quality meter will use an RS-232 interface nominally operating at 9600 bits/second.

**10.3.16.2.3 Meter Data Server.**

ISO Metered Entities must use a Compatible Meter Data Server to interface with MDAS.

**10.3.16.3 Facilities provided by Scheduling Coordinators.**

Scheduling Coordinators must use a Compatible Meter Data Server to interface with MDAS.

**10.3.17 METER IDENTIFICATION.**

**10.3.17.1 Scheduling Coordinator Metered Entities.**

If a Scheduling Coordinator Metered Entity is required to identify its revenue quality meters by the relevant:

(a) Local Regulatory Authority; or

(b) UDC,

then the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must, at the ISO's request, provide the ISO with a copy of that information within 5 Business Days of a request by the ISO in a format to be prescribed by the ISO.

If a Scheduling Coordinator Metered Entity is not required by either the relevant Local Regulatory Authority or UDC to identify its revenue quality meters, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity shall maintain an accurate record of the revenue quality meter of each of the Scheduling Coordinator Metered Entities that it represents from time to time. The record maintained by Scheduling Coordinators must include the information set out in the Technical

Specifications. The Scheduling Coordinator must, at the ISO's request, provide the ISO with a copy of any information contained in that record within 5 Business Days of a request by the ISO in a format to be prescribed by the ISO.

**10.3.18 EXEMPTIONS FROM COMPLIANCE.**

**10.3.18.1 Authority to Grant Exemptions.**

In addition to the specific exemptions granted under the ISO Tariff, the ISO has the authority under the ISO Tariff to grant exemptions from compliance with certain requirements imposed by the ISO Tariff.

**10.3.18.2 Guidelines for Granting Exemptions.**

The ISO will use the following guidelines when considering applications for exemptions from compliance with the ISO Tariff.

(a) Publication of Guidelines

The ISO will from time to time publish the general guidelines that it may use when considering applications for exemptions so as to achieve consistency in its reasoning and decision making and to give prospective applicants an indication of whether an application will be considered favorably.

(b) Publication of Exemption Applications

The ISO will promptly publish on the ISO Home Page a description of each application it receives for an exemption.

(c) Publication of Decision

The ISO will publish on the ISO Home Page details of whether the application was approved or rejected by it and, if the ISO considers it appropriate, the reasons for rejecting the application.

(d) Class Exemptions

In addition to exemptions granted to individual entities, the ISO may grant exemptions that will apply to a class of entities. The ISO may grant class exemptions whether or not it has received any application for an exemption. The ISO will publish details of the class exemptions it has granted on the ISO Home Page.

**10.3.18.3 Procedure for Applying for Exemptions.**

All applications to the ISO for exemptions from compliance with the requirements of the ISO Tariff must be made in writing addressed to the Meter and Data Acquisition Manager, Client Service Department. The ISO will confirm receipt of each application it receives within 3 Business Days of receiving the application. The ISO will decide whether to grant the exemption within 45 Business Days of receiving the application. At any time during that period, the ISO may require the applicant to provide additional information in support of its application. The applicant must provide such additional information to the ISO within 5 Business Days of receiving the request for additional information or within such other period as the ISO may notify to the applicant. If the ISO makes a request for additional information more than 40 Business Days after the date on which it received the application, the ISO will have an additional 7 Business Days after receiving that additional information in which to consider the application. If the applicant does not provide the additional information requested, the ISO may refuse the application in which case it will notify the applicant that its application has been rejected for failure to provide the additional information.

**10.3.18.4 Information to be Included in the Application.**

The application submitted to the ISO must provide:

(a) a detailed description of the exemption sought (including specific reference to the relevant section(s) of the ISO Tariff giving the ISO authority to grant the exemption) and the facilities to which the exemption will apply;

(b) a detailed statement of the reason for seeking the exemption (including any supporting documentation);

(c) details of the entity(s) (if any) to which the exemption will apply;

(d) details of the location (if any) to which the exemption will apply;

(e) details of the period of time for which the exemption will apply (including the proposed start and finish dates of that period); and

(f) any other information requested by the ISO.

**10.3.18.5 Permitted Exemptions.**

**10.3.18.5.1 Exemptions from Providing Meter Data Directly to MDAS.**

(a) General

The ISO has the authority under 10.2.6 of the ISO Tariff to exempt ISO Metered Entities from the requirement to make Meter Data directly available to the ISO via MDAS. In addition to the specific exemptions provided under 10.3.18.5.1, the ISO may, at its discretion, grant such an exemption where it considers the requirement to install communication links (or related facilities) between the ISO Metered Entity and WEnet to allow the ISO to directly poll that ISO Metered Entity would be unnecessary, impractical or uneconomic.

(b) Specific Exemptions Available

i. Tie Points

Meters located at tie points are exempted from the requirement that they be directly polled by the ISO provided that the meters at those tie points are revenue quality and they provide hourly, raw Meter Data to the ISO's Power Management System.

The entities responsible for Tie Point Meters must designate a primary meter and the entity responsible for providing the relevant Meter Data to the ISO. Meter Data from any other meter located at that tie point may be provided to the ISO in the event that the primary meter is unable to provide Meter Data to the ISO.

Existing Tie Point Meters will be exempt from the metering standards referred to in the ISO Tariff, if such meters are only used to measure bi-directional Energy.

ii. Generation not Providing Regulation

ISO Metered Entities that are Generators or Participating Generators that are not directly connected to the ISO Controlled Grid and which do not provide Regulation may request the ISO for an exemption from

the requirement that they be directly polled by the ISO in which case they will be treated as Scheduling Coordinator Metered Entities for the purposes of the ISO Tariff.

iii. Scheduling Coordinators inability to directly poll MDAS

If a Scheduling Coordinator does not have the ability as at the ISO Operations Date to directly poll MDAS for the Settlement Quality Meter Data of the ISO Metered Entities that it represents, that Scheduling Coordinator shall have a period of 12 months from the ISO Operations Date in which to install the necessary equipment to enable it to directly poll MDAS. During the period in which a Scheduling Coordinator is unable to directly poll MDAS, that Scheduling Coordinator will be responsible for providing the ISO with Settlement Quality Meter Data for its ISO Metered Entities in accordance with the ISO Tariff.

iv. Generator Profiling

The ISO may permit Generators and Participating Generators with Generating Units of less than 1 MW to use generator profiles, provided that such profiles are reconciled against revenue quality cumulative meters and the ISO has given prior approval to the use of the proposed generator profile. The revenue quality meters used by such Generators and Participating Generators will not be required to have a current Certificate of Compliance at the ISO Operations Date. However, such meters maybe required to have a Certificate of Compliance within a time period prescribed by the ISO after consultation with the relevant Generator or Participating Generator.

v. Small Remote Generators

Remote Generators of less than 10 MW and capacity factors of less than 20% over the past three years, may be granted an exemption from the requirement to be directly polled by the ISO provided that the ISO is able to receive Meter Data for that Generator from a Compatible Meter Data Serve.

**10.3.18.5.2 Exemptions from Meter Standards.**

(a) General

The ISO has the authority under 10.2.12 of the ISO Tariff to exempt ISO Metered Entities from the requirement to comply with the meter standards referred to in the ISO Tariff.

(b) Specific Exemptions Available

i. Data Storage for Existing Meters

Revenue quality meters installed as at the ISO Operations Date are required to have 30 days data storage capacity (new revenue quality meters are required to have 60 days data storage capacity). Existing revenue quality meters that otherwise comply with the meter standards referred to in the ISO Tariff but which do not have 30 days data storage will be exempted from that requirement if there is alternative time stamped meter data storage of 30 days or more.

ii. Voltage Transformers

ISO Metered Entities will be exempt from the requirement to install Voltage Transformers (VT) at 500 kV and higher voltage levels provided that those ISO Metered Entities install Capacity Coupled Voltage Transformers (CCVT) that meet the metering standards referred to in the ISO Tariff. The ISO Metered Entity must establish a testing program to ensure that the CCVT remains within the ISO's accuracy requirements. A copy of such test program must be supplied to the ISO and the ISO may require amendments and/or additions to that program that it reasonably believes are necessary to ensure the accuracy of the CCVT.

iii. Loss Correction Factors

The ISO may grant an ISO Metered Entity an exemption from compliance with the metering standards referred to and the ISO Tariff if, in the ISO's sole discretion, applicable loss correction factors can be applied to existing meters without any materially adverse effect on the accuracy or security of the Meter Data obtained from such meters.

iv. 5 Minute Interval Data

Generators that are ISO Metered Entities and that provide Ancillary Services to the ISO will not be required to provide the ISO with 5 minute interval data until such time as specified by the ISO. Until such time as the ISO requires 5 minute interval data, these entities will be required to provide the ISO with hourly interval data.

v. Request for Direct Polling

Scheduling Coordinators may request the ISO to grant an exemption from the requirement to provide Settlement Quality Meter Data to the ISO for Scheduling Coordinator Metered Entities they represent if those entities are Generators which have requested the ISO, and the ISO has agreed, to directly poll them for Meter Data. Such Generators will be treated as ISO Metered Entities and must comply with all of the requirements relating to ISO Metered Entities in accordance with the ISO Tariff. The Scheduling Coordinator representing such Generators will be required to apply the relevant distribution loss factors to that Generator's Meter Data (the Scheduling Coordinator may obtain that Meter Data from the ISO).

vi. QF Exemptions

If a QF sells all of its Energy (excluding any Energy consumed by auxiliary load equipment electrically connected to that QF at the same point or any Energy sold through "over the fence" arrangements as authorized by Section 218(b) of the California Public Utilities Code) and Ancillary Services to the UDC in whose Service Area it is located pursuant to an existing power purchase agreement (which is authorized under Section 218(b) of the California Public Utilities Code) and there is any inconsistency between that existing power purchase agreement, Section 10 of the ISO Tariff or Appendix J to the ISO Tariff, the existing power purchase agreement shall prevail to the extent of that inconsistency for the term of the agreement. In this context, an existing power purchase agreement shall mean an agreement which has been entered into and is effective as of December 20, 1995.

vii. Combining Generation

A metered entity may elect to meter a group of Generating Units which are electrically connected to the same point by combined total generation output or by individual Generating Unit provided that those Generating Units are Scheduled in the same fashion as they are metered and the Generating Units are not individually providing Ancillary Services.

**10.3.18.5.3 Exemptions from Audit, Testing or Certification.**

The ISO has the authority under 10.2.12 of the ISO Tariff to exempt ISO Metered Entities from the metering standards referred to in the ISO Tariff.

## 11 ISO SETTLEMENTS AND BILLING.

**11.1.1** The ISO shall calculate, account for and settle transactions in accordance with the following principles:

**11.1.2** The ISO shall be responsible for calculating Settlement balances for all transactions carried out by Scheduling Coordinators on the ISO Controlled Grid in each Settlement Period

**11.1.3** The ISO shall carry out all Settlements in accordance with Meter Data provided pursuant to the requirements of Section 10 of this ISO Tariff;

**11.1.4** The ISO shall create and maintain computer back-up systems, including off-site storage of all necessary computer hardware, software, records and data at an alternative location that, in the event of a Settlement system breakdown at the primary location of the day-to-day operations of the ISO, could serve as an alternative location for day-to-day Settlement operations within a reasonable period of time; and

**11.1.5** The ISO shall retain all Settlement data records for a period which, at least, allows for the re-run of data as required by this ISO Tariff and any adjustment rules of the Local Regulatory Authority governing the Scheduling Coordinators and their End-Use Customers;

**11.1.6** The ISO shall settle the following charges in accordance with Section 11.2 of this ISO Tariff: (1) Grid Management Charge; (2) Grid Operations Charge; (3) Ancillary Services charges; (4) Imbalance Energy charges; (5) Usage Charges; (6) High Voltage Access Charges and Transition Charges; (7) Wheeling Access Charges; (8) Voltage Support and Black Start charges; and Reliability Must-Run Charges; (9) Default Interest Charges; and Participating Intermittent Resource Fees.

**11.1.7** Financial Transaction Conventions and Currency.

The following conventions have been adopted in defining sums of money to be remitted to or received by the ISO:

(a) where the ISO is to receive a sum of money under this Section, this is defined as a “Charge”;

(b) where the ISO is to required to pay a sum of money under this Section, this is defined as a “Payment”.

(c) All financial transactions are denominated in US dollars and cents.

(d) All payments by the ISO to Scheduling Coordinators, Black Start Generators and Participating TOs shall be made by Fed-Wire. All payments to the ISO by Scheduling Coordinators, Black Start Generators and Participating TOs shall be made by Fed-Wire.

**11.2 Calculations of Settlements.**

The ISO shall calculate, account for and settle, based on the Settlement Quality Meter Data it has received, or, if Settlement Quality Meter Data is not available, based on the best available information or estimate it has received, the following charges in accordance with this ISO Tariff.

**11.2.1 Grid Management Charge.**

The Grid Management Charge will be levied in accordance with this Section and Appendix F, Schedule 1 of this ISO Tariff. The Charges shall accrue on a monthly basis.

**11.2.2 Grid Operations Charge.**

The Grid Operations Charge will be levied in accordance with Section 27.1.3 and Appendix F, Schedule 2 of this ISO Tariff. These charges shall accrue on a monthly basis.

**11.2.2.1 ISO’s Obligations.**

**11.2.2.1.1 FERC’s Uniform System of Accounts.**

The ISO shall maintain a set of financial statements and records in accordance with the FERC’s Uniform System of Accounts.

**11.2.2.1.2 [Not Used]**

**11.2.2.2 Costs Included in the Grid Management Charge.**

**11.2.2.2.1 [Not Used]**

**11.2.2.2.2 Operating Costs.**

Budgeted annual operating costs, which shall include all staffing costs including remuneration of contractors and consultants, salaries, benefits and any incentive programs for employees, costs of operating, replacing and maintaining ISO systems, lease payments on facilities and equipment necessary for the ISO to carry out its business, and annual costs of financing the ISO's working capital and other operating costs ("Operating Costs").

**11.2.2.2.3 Financing Costs.**

The financing costs that are approved by the ISO Governing Board, including capital expenditures that may be financed over such period as the ISO Governing Board shall decide. Financing Costs shall also include the ISO start up and development costs standing to the credit of the ISO Memorandum Account plus any additional start up or development costs incurred after the date of Resolution E-3459 (July 17, 1996), plus any additional capital expenditure incurred by the ISO in 1998 ("Start Up and Development Costs"). The amortized amount to be included in the Grid Management Charge shall be equal to the amount necessary to amortize fully all Start Up and Development Costs over a period of five (5) years, or such longer period as the ISO Governing Board shall decide ("Financing Costs").

**11.2.2.2.4 Operating and Capital Reserves Cost.**

The budgeted annual cost of pay-as-you-go capital expenditures and reasonable coverage of debt service obligations. Such reserves shall be utilized to minimize the impact of any variance between forecast and actual costs throughout the year ("Operating and Capital Reserves Costs").

**11.2.2.3 Allocation of the Grid Management Charge Among Scheduling Coordinators.**

The costs recovered through the Grid Management Charge shall be allocated to the eight service charges that comprise the Grid Management Charge. If the ISO's revenue requirement for any service charge

changes from the most recent FERC-approved revenue requirement for that service charge, the costs recovered through that service charge shall be delineated in a filing to be made at FERC as set forth in Section 11.2.2.4. The eight service charges are as follows:

(1) Core Reliability Services - Demand Charge,

(2) Core Reliability Services – Energy Exports Charge

(3) Energy Transmission Services Net Energy Charge,

(4) Energy Transmission Services Uninstructed Deviations Charge,

(5) Forward Scheduling Charge,

(6) Congestion Management Charge,

(7) Market Usage Charge, and

(8) Settlements, Metering, and Client Relations Charge.

The eight charges shall be levied separately monthly in arrears on all Scheduling Coordinators based on the billing determinants specified below for each charge in accordance with formulae set out in Appendix F, Schedule 1, Part A of this Tariff, subject to the requirements set out in Appendix F, Schedule 1, Part F of this Tariff.

**11.2.2.3.1 Core Reliability Services – Demand Charge.**

The Core Reliability Services - Demand Charge for a Scheduling Coordinator's Load that is not associated with Energy Exports is calculated using the Scheduling Coordinator's metered non-coincident peak hourly Demand during the month (in megawatts) less the volume of Energy Exports included in the Scheduling Coordinator's non-coincident peak hourly Demand for the month, if any; provided that if the Scheduling Coordinator's metered non-coincident peak hour during the month occurs during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400 the rate shall be sixty-six (66) percent of the standard CRS rate. The standard rate for the Core Reliability Services – Demand Charge is determined by dividing the GMC costs allocated to this service category, including a specified

percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total of the forecasted metered non-coincident peak hourly Demand for all months during the year (excluding the portion of such Demand associated with Energy Exports, if any), reduced by thirty-four (34) percent of the sum of all Scheduling Coordinators' metered non-coincident peak hour during the month occurs between the hour ending 2300 and the hour ending 0600, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.2 Core Reliability Services – Energy Exports Charge.**

The Core Reliability Services – Energy Exports Charge for the load associated with a Scheduling Coordinator's Energy Exports is calculated using the Scheduling Coordinator's metered volume of Energy Exports (in megawatt-hours); The rate for the Core Reliability Services – Energy Exports Charge is determined by dividing the GMC costs allocated to the Core Reliability Services service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.3 Energy Transmission Services Net Energy Charge.**

The Energy Transmission Services Net Energy Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's Metered Control Area Load (in megawatt-hours). The rate for the Energy Transmission Services Net Energy Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted Metered Control Area Load, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.4 Energy Transmission Services Uninstructed Deviations Charge.**

The Energy Transmission Services Uninstructed Deviations Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's net uninstructed deviations by Settlement Interval. The rate for the Energy Transmission Services Uninstructed Deviations Charge is determined by dividing the

GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted net uninstructed deviations by Settlement Interval according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.5 Forward Scheduling Charge.**

The Forward Scheduling Charge for each Scheduling Coordinator is calculated using the sum of that Scheduling Coordinator's Final Hour-Ahead Schedules, including all awarded Ancillary Services bids, with a value other than 0.03 MW. The Forward Scheduling Charge attributable to Final Hour-Ahead Schedules for Inter-Scheduling Coordinating Energy and Ancillary Service Trades for each Scheduling Coordinator is fifty (50) percent of the standard Forward Scheduling Charge. The rate for the Forward Scheduling Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted Final Hour-Ahead Schedules and awarded Ancillary Service bids submitted to the ISO, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.6 Congestion Management Charge.**

The Congestion Management Charge for each Scheduling Coordinator is calculated as the product of the rate for the Congestion Management Charge and the absolute value of the net scheduled inter-zonal flow (excluding flows pursuant to Existing Contracts) per path for that Scheduling Coordinator. The rate for the Congestion Management Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted inter-zonal scheduled flow (excluding flows pursuant to Existing Contracts) per path in MWh, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.7 Market Usage Charge.**

The Market Usage Charge for each Scheduling Coordinator is calculated using the absolute value of the Scheduling Coordinator's market purchases and sales of Ancillary Services, Supplemental Energy,

Instructed Imbalance Energy, and net Uninstructed Imbalance Energy (with uninstructed deviations being netted by Settlement Interval). The rate for the Market Usage Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted number of market purchases and sales, according to the formula in Appendix F, Schedule 1, Part A of this Tariff.

**11.2.2.3.8 Settlements, Metering, and Client Relations Charge.**

The Settlements, Metering, and Client Relations Charge for each Scheduling Coordinator is fixed at $500.00 per month, per Scheduling Coordinator ID with an invoice value other than $0.00 in the current trade month, as indicated in Appendix F, Schedule 1, Part A of this Tariff. Excess GMC costs related to the provision of these services that are not recovered through this charge are allocated to the other GMC service categories as specified above and in Appendix F, Schedule 1, Part E of this Tariff.

**11.2.2.4 Calculation and Adjustment of the Grid Management Charge.**

The eight charges set forth in Section 11.2.2.3 that comprise the Grid Management Charge shall be calculated through the formula set forth in Appendix F, Schedule 1, Part A of this Tariff. The formula set forth in Appendix F, Schedule 1, Part C of this Tariff sums the Operating Costs (less any available expense recoveries), Financing Costs, and Operating and Capital Reserves Costs associated with each of the eight ISO service charges to obtain a total revenue requirement. This revenue requirement is allocated among the eight charges of the GMC through the application of the factors specified in Appendix F, Schedule 1, Part E of this Tariff.

The revenue requirement for each service then shall be divided by the forecast annual or periodic billing determinant volume to obtain a rate for each service, which will be payable by Scheduling Coordinators as set forth in Section 11.2.2.3. The rates so established will be adjusted annually, through the operation

of the formula set forth in Appendix F, Schedule 1, Part A of this Tariff. The ISO shall post on its website each year, before the adjusted rates go into effect, as described in Appendix F, Schedule 1,

Part D of this Tariff, data showing the rates adjusted to reflect any change in the annual revenue requirement, variance between forecast and actual costs for the previous year or period, or any surplus revenues from the previous year or period (as defined in Section 11.2.2.5), or the inability to recover from a Scheduling Coordinator its share of the Grid Management Charge, or any under-achievement of a forecast of the billing determinant volumes used to establish the rates. The circumstances under which the ISO is permitted to put the adjusted rates into effect without submitting a filing to the FERC are described in Appendix F, Schedule 1, Part D of this Tariff. Appendix F, Schedule 1, Part B of this Tariff sets forth the conditions under which a quarterly adjustment to the Grid Management Charge will be made.

**11.2.2.4.1 Credits and Debits of the Grid Management Charge.**

In addition to the adjustments permitted under Section 11.6.3.3, the ISO shall credit or debit, as appropriate, the account of a Scheduling Coordinator for any overpayment or underpayment of the Grid Management Charge that the ISO determines occurred due to error, omission, or miscalculation by the ISO or the Scheduling Coordinator.

**11.2.2.5 Operating and Capital Reserves Account.**

Revenues collected to fund the ISO financial operating reserves shall be deposited in an Operating and Capital Reserves Account until such account reaches a level specified by the ISO Governing Board. The Operating and Capital Reserves Account shall be calculated separately for each GMC service category (Core Reliability Services – Demand, Core Reliability Services – Energy Export, Energy Transmission Services – Net Energy, Energy Transmission Services – Uninstructed Deviations, Forward Scheduling, Congestion Management, Market Usage, and Settlements, Metering and Client Relations). The allocation factors, reassignments and reallocations specified in Schedule 1, Parts E and F, will be accounted for in the development of the Operating and Capital Reserves Account for each component. If

the Operating and Capital Reserves Account as calculated for such service category is fully funded, surplus funds will be considered an offset to the revenue requirement of the next fiscal year.

**11.2.3 Ancillary Services.**

The ISO shall calculate, account for and settle charges and payments for Ancillary Services as set out in Sections 8.11.1 to 8.11.3A, 8.12.1 to 8.12.3A of this Tariff and Part C of Appendix N.

**11.2.4 Imbalance Energy.**

The ISO shall calculate, Dispatch and account for Imbalance Energy for each Dispatch Interval and settle Imbalance Energy in the Real Time Market for each Settlement Interval for the relevant Zone or Scheduling Point within the ISO Controlled Grid. Imbalance Energy is the difference between the Metered Quantity and the Energy that corresponds to the Final Hour-Ahead Schedule. Instructed Imbalance Energy is the portion of Imbalance Energy that is produced or consumed due to Dispatch Instructions. The Instructed Imbalance Energy will be calculated based on all Dispatch Instructions taking into account applicable ramp rates and time delays. All Dispatch Instructions shall be deemed delivered. The remaining Imbalance Energy constitutes Uninstructed Imbalance Energy, and will be calculated based on the difference between the Metered Quantity and the Generator's Dispatched Operating Point.

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

Uninstructed Imbalance Energy attributable to each Demand Take-Out Point, Generating Unit, System Unit or System Resource for which a Scheduling Coordinator has a Final Hour-Ahead Schedule or Metered Quantity, for each Settlement Interval, shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Uninstructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each Settlement Interval in accordance with Section 34.9.2.1. Positive or negative Uninstructed Imbalance Energy as described in SABP Appendix D Section 2.1.1 shall be paid or charged the Resource-Specific Settlement Interval Ex Post Price or the Zonal Settlement Interval Ex Post Price, as the case may be.

**11.2.4.1.1 Settlement for Instructed Imbalance Energy.**

Instructed Imbalance Energy attributable to each Scheduling Coordinator in each Settlement Interval shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Instructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each Settlement Interval in accordance with Section 34.9.

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

The ISO shall determine, for each Trading Day, for each Generating Unit, System Unit, dynamically scheduled System Resource, and Curtailable Demand, Dispatched in the Real Time Market pursuant to Section 34.3.0, whether there exists a surplus or deficit in that resource's recovery of its Energy Bid costs, that are less than or equal to the Maximum Bid Level, through Instructed Imbalance Energy credits, as set forth in Section 11.2.4.1.1. This determination of market revenue surplus or deficit shall be calculated as the difference between: 1) the Instructed Imbalance Energy payment as based on the relevant Resource-Specific Settlement Interval Ex Post Price and 2) the resource's Energy Bid cost for each Settlement Interval. Bid cost recovery payment will be based on Settlement Intervals in which the resource: 1) did not recover its Energy Bid costs, and 2) generated or consumed an amount of Energy resulting from any Dispatch Instructions pursuant to Section 34.3.0. These Settlement Intervals will be netted against all Settlement Intervals in which the Instructed Imbalance Energy payments to the resource exceeded its Energy Bid costs. The resulting total bid cost recovery payment is then divided equally amongst the same Settlement Intervals to yield a per-Settlement Interval bid cost recovery payment. Payments for un-recovered bid costs for portions of Energy associated with bids above the Maximum Bid Level will not be netted with other surpluses or deficits and are subject to recall if the such bids above have not been adequately justified pursuant to Section 39.2. Energy Bid cost recovery associated with Residual Energy as provided for in Section 34.3.2.5 shall be based on the Energy Bids for the previous or next operating hour, whichever the case may be, upon which the Dispatch Instruction was based.

**11.2.4.1.1.2 Bid Cost Recovery for System Resources.**

The ISO shall settle predispatched Energy from System Resources based on each resource's Energy Bid costs for each Settlement Interval, for each System Resource submitting bids in the Real Time Market pursuant to Section 8.2.2. This Energy bid cost settlement shall be calculated as set forth in Sections D 2.1.2 and D 2.6.3 in Part B of Appendix T. Bid cost settlement shall apply to both incremental and decremental predispatched Energy.

An uplift payment will be made as necessary for each Settlement Interval to assure that the System Resource recovers its Energy Bid costs for the quantity of Energy delivered. Payments for un-recovered bid costs for portions of Energy associated with bids above the Maximum Bid Level are subject to recall if such bids have not been adequately justified pursuant to Section 39.2.

The settlement methodology set forth in this section will continue in effect until such time as the ISO implements a methodology for settling bids from System Resources as part of its Market Redesign and Technology Upgrade process.

**11.2.4.1.2 Penalties for Uninstructed Imbalance Energy.**

Effective December 1, 2004, the ISO shall not charge any Uninstructed Deviation Penalties pursuant to this Section 11.2.4.1.2 until FERC issues an order authorizing the ISO to charge Uninstructed Deviation Penalties pursuant to this section. Beginning with Settlement Statements for the first Trading Day for which FERC authorizes the ISO to charge Uninstructed Deviation Penalties pursuant to this section, the ISO shall charge Scheduling Coordinators Uninstructed Deviation Penalties for Uninstructed Imbalance Energy resulting from resource deviations outside a Tolerance Band from their Dispatch Operating Point, for dispatched resources, or their Final Hour-Ahead Schedule otherwise. The Dispatch Operating Point will take into account the expected Ramping of a resource as it moves to a new Hour-Ahead Schedule at the top of each hour and as it responds to Dispatch Instructions. The Uninstructed Deviation Penalty will be applied as follows:

a) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval. The Uninstructed Deviation Penalty for

positive Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval in which the ISO has not declared a staged System Emergency;

b) The Uninstructed Deviation Penalty will apply to pre-Dispatched bids from non-dynamically scheduled System Resources identified, when such a pre-Dispatch Instruction is issued more than 40 minutes prior to the relevant Operating Hour, subject to the following conditions: i) The Uninstructed Deviation Penalty will only apply to the pre-Dispatched amount of the bid that is declined or not delivered, ii) the Uninstructed Deviation Penalty will not apply to a portion of a pre-Dispatched bid that is subsequently not delivered at the direction of a Control Area, including the ISO, due to a curtailment of transmission capability or to prevent curtailment of native firm load occurring subsequent to issuing the pre-Dispatch Instruction, iii) the Uninstructed Deviation Penalty will not apply to uninstructed energy resulting from declining subsequent intra-hour Dispatch Instructions. Dynamically scheduled System Resources, to the extent they deviate from their Final Hour-Ahead Schedule plus any real-time Dispatch Instructions, will be subject to the Uninstructed Deviation Penalty;

c) The Uninstructed Deviation Penalty will not apply to Load or Curtailable Demand;

d) **[Not Used]**

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

f) For the Scheduling Coordinator of an MSS that has elected to follow the MSS Load and associated Transmission Losses pursuant to Section 4.9.9, the deviation penalties in Sections 4.9.9.2.1 and 4.9.9.2.2 will apply. For the Scheduling Coordinator of an MSS that has not elected to follow the MSS Load, the Uninstructed Deviation Penalties in this Section 11.2.4.1.2 will apply;

g) The Uninstructed Deviation Penalty will apply to Generating Units providing Regulation and dynamically scheduled System Resources providing Regulation to the extent that uninstructed deviations from such resources exceed each resource's actual Regulation range plus the applicable Tolerance Band. Resources providing Regulation and generating within their relevant Regulating range (or outside their relevant Regulating range as a direct result of ISO control or instruction) will be deemed to have zero deviations for purposes of the Uninstructed Deviation Penalty.

h) The Uninstructed Deviation Penalty will be calculated and assessed for each resource individually, except that as specified in Appendix R, uninstructed deviations from individual resources may be aggregated.

i) **[Not Used]**

j) **[Not Used]**

k) The Uninstructed Deviation Penalty will not apply when the Zonal Settlement Interval Ex Post Price is negative or zero;

l) The Uninstructed Deviation Penalty for positive Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 100% of the corresponding Zonal Settlement Interval Ex Post Price. The net effect of the Uninstructed Deviation Penalty and the Settlement for positive Uninstructed Imbalance Energy beyond the Tolerance Band will be that the ISO will not pay for such Energy;

m) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the Tolerance Band multiplied by a price equal to 50% of the corresponding Zonal Settlement Interval Ex Post Price;

n) The Uninstructed Deviation Penalty will not apply to deviations from Energy delivered as part of a scheduled test so long as the test has been scheduled by the Scheduling Coordinator with the ISO or the ISO has initiated the test for the purposes of validating unit performance;

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

p) Generating Units and dynamically scheduled System Resources with Uninstructed Imbalance Energy will be exempted from the Uninstructed Deviation Penalty if the Generating Unit or dynamically scheduled System Resource was physically incapable of delivering the expected Energy, provided that the Generating Unit or dynamically scheduled System Resource had notified the ISO within 30 minutes of the onset of an event that prevents the resource from performing its obligations. A Generating Unit or dynamically scheduled System Resource must notify ISO operations staff of its reasons for failing to deliver the expected Energy in accordance with Section 9.3.10.5 and must provide information to the ISO that verifies the reason the resource failed to comply with the Dispatch instruction within 48 hours of the operating hour in which the instruction is issued;

q) Adjustments to any Generating Unit, Curtailable Demand and System Resource Final Hour-Ahead Schedules made in accordance with the terms of Existing Contracts shall not be subject to Uninstructed Deviation Penalties.

r) Any changes made to Schedules prior to the ISO issuing Final Hour-Ahead Schedules shall not be subject to Uninstructed Deviation Penalties.

s) Uninstructed Deviation Penalties shall not be charged to any deviation from a Dispatch Instruction that does not comply with the requirements set forth in this ISO Tariff.

t) Amounts collected as Uninstructed Deviation Penalties shall first be assigned to reduce the portion of above-MCP costs that would otherwise be assigned pro rata to all Scheduling Coordinators in that Settlement Interval pursuant to Section 11.2.4.2.2. Any remaining portion of amounts collected as Uninstructed Deviation Penalties after satisfying these sequential commitments shall be treated in accordance with Section 11.8.5.3.

u) Condition 2 RMR Units shall be exempt from Uninstructed Deviation Penalties.

v) The Uninstructed Deviation Penalty shall not apply to positive Uninstructed Imbalance Energy attributable to operation below the Generating Unit's minimum operating level from the time the Generating Unit synchronizes to the grid to the earlier of (1) the Settlement Interval in which the Generating Unit produces a quantity of Energy that represents an average rate of delivery over such Settlement Interval in excess of the Generating Unit's minimum operating level plus the applicable Tolerance Band, or (2) the first Settlement Interval after the expiration of a period of time that begins at the end of the Settlement Interval in which the Generating Unit synchronizes to the grid and ends after the Generating Unit's maximum start-up time as specified in the Master File. The Uninstructed Deviation Penalty shall not apply to any positive Uninstructed Imbalance Energy attributable to operation below the Generating Unit's minimum operating level for a duration equal to the time specified in the Generating Unit's Resource Data Template for the Generating Unit to disconnect from the grid after reaching its minimum operating level following either (1) the last Settlement Interval of an hour in which the Generating Unit had a non-zero Final Hour-Ahead Schedule or (2) the Settlement Interval in which the Generating Unit is expected to reach its minimum operating level based on the applicable ramp rate when the ISO instructed the Generating Unit to shut down. The amount of Uninstructed Imbalance Energy exempted from the Uninstructed Deviation Penalty shall not exceed the amount of the Generating Unit's minimum operating level plus the applicable Tolerance Band.

(w) UDP shall not apply to deviations by a Generating Unit that are attributable to any automatic response to a system disturbance in accordance with Applicable Reliability Criteria.

**11.2.4.2 Payment Options for ISO Dispatch Orders.**

With respect to all resources which have not bid into the Imbalance Energy or Ancillary Services markets but which have been dispatched by the ISO to avoid an intervention in market operations, to prevent or relieve a System Emergency, or to satisfy a locational requirement, the ISO shall calculate, account for and, if applicable, settle deviations from the Final Schedule submitted on behalf of each such resource, with the relevant Scheduling Coordinator for each Settlement Period for each such resource by application of either of the following payment options described below. For resources subject to a Reliability Must-Run Contract, the ISO will dispatch such resources according to the terms of the RMR Contract, except as provided for below. In circumstances where an RMR Unit would be used to resolve Intra-Zonal Congestion and there are no such RMR Units available, a resource may be called upon and paid under this Section to resolve the Intra-Zonal Congestion.

By December 31 of each year for the following calendar year, each Scheduling Coordinator for a resource shall select one of the following payment options for each resource it schedules:

(a) the Uninstructed Imbalance Energy charge price as calculated in accordance with Section 34.9.2.4 (i.e., using the Hourly Ex Post Price) or

(b) a calculated price:

(i) for decremental dispatch orders that is an Energy payment to the ISO that is equal to the Market Clearing Price for the relevant Settlement Period for the applicable Energy market less verifiable daily gas imbalance charges, if any, that are solely attributable to the ISO's Dispatch Instruction and that the Scheduling Coordinator or Generator was not able to eliminate or reduce despite the application of best efforts, if the Scheduling Coordinator provides the resource's daily gas imbalance charges to the ISO within thirty (30) Business Days from the Settlement Period for which the resource is dispatched; and

(ii) for incremental dispatch orders is the sum of: 1) a capacity payment equal to the average Day-Ahead Market prices for Spinning Reserve

and Non-Spinning Reserve for the three (3) most recent similar days for the same Settlement Period for which the resource is dispatched; 2) an Energy payment equal to the average calculated using the ISO Real Time Market Energy prices for the three (3) most recent similar days for the same Settlement Period for which the resource is dispatched; 3) such resource's verifiable Start-Up Costs, if the start-up was solely attributable to the ISO's Dispatch Instruction and if the Scheduling Coordinator provides the resource's Start-Up Costs to the ISO within thirty (30) Business Days from the Settlement Period for which the resource is dispatched; and 4) verifiable daily gas imbalance charges, if any, that are solely attributable to the ISO's Dispatch Instruction and that the Scheduling Coordinator or Generator was not able to eliminate or reduce despite the application of best efforts, if the Scheduling Coordinator provides the resource's daily gas imbalance charges to the ISO within thirty (30) Business Days from the Settlement Period for which the resource is dispatched. References to "similar days" in this Section refer to Business Days when the resource is dispatched on a Business Day and otherwise to days that are not Business Days.

To the extent a Scheduling Coordinator does not specify a payment option, the ISO will apply the payment provisions of the payment option described in Section 11.2.4.2(a).

If the ISO Dispatches an RMR Unit that has selected Condition 2 of its RMR Contract to start-up or provide energy other than a start-up or energy requested pursuant to the RMR Contract, as provided in Section 5.2.9 of the ISO Tariff, the ISO shall pay as follows:

(a) if the Owner has elected Option A of Schedule G, two times the start-up cost specified in Schedule D to the applicable RMR Contract for any start-up incurred, and 1.5 times the rate specified in Equation 1a or 1b below times the amount of energy delivered in response to the ISO’s instruction;

(b) if the Owner has elected Option B of Schedule G, three times the start-up cost specified in Schedule D to the applicable RMR Contract for any start-up incurred, and the rate specified in Equation 1a or 1b below times the amount of energy delivered in response to the ISO's instruction.

Equation 1a

$$\text{Energy Price (\$/MWh)} = \frac{(AX^3 + BX^2 + CX + D) * P * E}{X} + \text{Variable O\&M Rate}$$

Equation 1b

$$\text{Energy Price (\$/MWh)} = \frac{A * (B + CX + De^{FX}) * P * E}{X} + \text{Variable O\&M Rate}$$

Where:

- for Equation 1a, A, B, C, D and E are the coefficients given in Table C1-7a of the applicable RMR Contract;
- for Equation 1b, A, B, C, D, E and F are the coefficients given in Table C1-7b of the applicable RMR Contract;
- X is the Unit output level during the applicable settlement period, MWh;
- P is the Hourly Fuel Price as calculated by Equation C1-8 in Schedule C using the Commodity Prices in accordance with the applicable RMR Contract;
- Variable O&M Rate ($/MWh): as shown on Table C1-18 of the applicable RMR Contract.

**11.2.4.2.1 Allocation of Costs Resulting From Dispatch Instructions.**

Pursuant to Section 11.2.4.1, the ISO may, at its discretion, Dispatch any Participating Generator, Participating Load and dispatchable System Resource that has not bid into the Imbalance Energy or Ancillary Services markets, to avoid an intervention in market operations or to prevent or relieve a System Emergency. Such Dispatch may result from, among other things, planned and unplanned transmission facility Outages; bid insufficiency in the Ancillary Services and real-time Energy markets; and location-

specific requirements of the ISO. The cost associated with each Dispatch instruction is broken into two components:

a) the portion of the Energy payment at or below the Market Clearing Price ("MCP") for the Settlement Interval, and

b) the portion of the Energy payment above the MCP, if any, for the Settlement Interval.

For each Settlement Interval, costs above the MCP incurred by the ISO for such Dispatch instructions necessary as a result of a transmission facility Outage or in order to satisfy a location-specific requirement in that Settlement Interval shall be payable to the ISO by the Participating Transmission Owner in whose PTO Service Territory the transmission facility is located or the location-specific requirement arose. The costs incurred by the ISO for such Dispatch instructions for reasons other than for a transmission facility Outage or a location-specific requirement will be recovered in the same way as for Instructed Imbalance Energy.

**11.2.4.2.1.1 Allocation of Costs from Out-Of-Market calls to Condition 2 RMR Units.**

All costs associated with energy provided by a Condition 2 RMR Unit operating other than according to a dispatch notice issued under the RMR Contract shall be allocated in accordance with Section 11.2.4.2.1. Until either the RMR Contract Counted MWh, Counted Service Hours or Counted Start-ups exceed the relevant RMR Contract Service Limit, any cost incurred for energy provided under the RMR Contract above the rate specified in equation 1a or 1b as set forth in Section 11.2.4.2 shall be allocated in accordance with Section 11.2.4.2.1, not to the Responsible Utility.

Start-Up Costs for Condition 2 RMR Units providing service outside the RMR Contract, and any additional Start-Up Cost associated with a Condition 2 RMR Unit providing service under the RMR Contract when the unit's total service has exceeded an RMR Contract Service Limit but neither the RMR Contract Counted MWh, Counted Service Hours or Counted Start-ups have exceeded the applicable RMR Contract Service Limit, shall be invoiced in accordance with Section 40.12.6 and collected in accordance with Section 40.12.1.

**11.2.4.2.2 Allocation of Above-MCP Costs For Accepted Bids.**

For each Settlement Interval, the at or below-MCP costs incurred as a result of accepted bids in the ISO Imbalance Energy Markets shall be allocated in accordance with 11.2.4.1. Allocation of above-MCP costs for accepted bids in the ISO Imbalance Energy Markets shall be in accordance with this Section 11.2.4.2.2 as follows.

**11.2.4.2.2.1 Allocation of Bid Costs Above the Maximum Bid Level.**

For each Settlement Interval, costs that are both above the MCP and above the Maximum Bid Level, incurred by the ISO as a result of Instructed Imbalance Energy and Dispatch instructions for reasons other than for a transmission facility Outage or a location-specific requirement shall be charged to Scheduling Coordinators as follows in a three-step process. First, each Scheduling Coordinator's charge shall be the lesser of:

(a) the pro rata share of the total costs that are both above the MCP and above the Maximum Bid Level based upon the ratio of each Scheduling Coordinator's Net Negative Uninstructed Deviations to the total system Net Negative Uninstructed Deviations; or

(b) the amount obtained by multiplying the Scheduling Coordinator's Net Negative Uninstructed Deviation for each Settlement Interval and a weighted average price. The weighted average price is equal to the total costs that are both above the MCP and above the Maximum Bid Level divided by the MWh delivered as a result of ISO instructions with a cost component above the MCP.

Second, any remaining unallocated costs shall be reduced pursuant to Section 11.2.4.1.2.

Third, any remaining unallocated costs shall be allocated amongst all Scheduling Coordinators in that Settlement Interval pro rata based on their metered Demand, including exports.

A Scheduling Coordinator shall be exempt from the first allocation step of costs that are both above the MCP and above the Maximum Bid Level in a Settlement Interval if the Scheduling Coordinator has sufficient incremental Energy bids from physically available resources in the Imbalance Energy market to

cover its Net Negative Uninstructed Deviation in the given Settlement Interval and the prices of such Energy bids do not exceed the applicable Maximum Bid Level as set forth in Section 39.2 of this Tariff.

**11.2.4.2.2.2 Allocation of Bid Costs Above-MCP and Below the Maximum Bid Level.**

For each Settlement Interval, the total unrecovered costs pursuant to Section 11.2.4.1.1.1 that are above the MCP and below the Maximum Bid Level for each Trading Day will be allocated pro-rata to each Scheduling Coordinator based on its metered Demand. For a Scheduling Coordinator of an MSS Operator that has elected to follow Load, allocation of such unrecovered costs will be based on net metered Demand.

**11.2.4.3 Unaccounted For Energy (UFE).**

For settlement purposes, UFE is treated as Imbalance Energy. For each Settlement Interval, the ISO will calculate UFE on the ISO Controlled Grid, for each utility Service Area for which separate UFE calculation is performed. The UFE will be settled as Imbalance Energy at the Zonal Settlement Interval Ex Post Price. UFE attributable to meter measurement errors, load profile errors, Energy theft, and distribution loss deviations will be allocated to each Scheduling Coordinator based on the ratio of their metered Demand (including exports to neighboring Control Areas) within the relevant utility Service Area to total metered Demand within the utility Service Area.

**11.2.4.4 High Voltage Access Charge.**

High Voltage Access Charges and Transition Charges will be levied in accordance with Section 26.1 of this ISO Tariff and Appendix F, Schedule 3.

**11.2.4.5 Participating Intermittent Resources.**

**11.2.4.5.1 Uninstructed Energy and Transmission Losses by Participating Intermittent Resources.**

Uninstructed Imbalance Energy associated with deviations by a Participating Intermittent Resource and Transmission Losses shall be settled as provided in this Section 11.2.4.5.1 for every Settlement Period in which such Participating Intermittent Resource meets the scheduling requirements established in the

Appendix Q. In each Settlement Period such requirements are met, the Participating Intermittent Resource shall be exempt from the Uninstructed Deviation Penalty that otherwise would be determined in accordance with Section 11.2.4.1.2 and other charges (payments) for Uninstructed Imbalance Energy. Instead, the net Uninstructed Imbalance Energy in each Settlement Interval, together with the transmission loss obligation calculated in accordance with Section 27.2.1.1.1, shall be assigned to a deviation account specific to each Participating Intermittent Resource. The net balance in each deviation account at the end of each calendar month shall be paid (or charged) to the Scheduling Coordinator for the associated Participating Intermittent Resource at the average price specified in Section 34.9.2.5 of the ISO Tariff. If the above-referenced scheduling requirements for Participating Intermittent Resources are not met, then charges (payments) for Uninstructed Imbalance Energy during such Settlement Periods shall be determined in accordance with Section 11.2.4.1

**11.2.4.5.2 Adjustment of Other Charges Related to Participating Intermittent Resources.**

Charges pursuant to Section 8.12.3A or Section 11.2.4.2.2 to Scheduling Coordinators representing Participating Intermittent Resources shall exclude the effect of uninstructed deviations by Participating Intermittent Resources that have scheduled in accordance with the ISO Protocols. The amount of such adjustments shall be accumulated and settled as provided in Section 11.2.4.5.3.

**11.2.4.5.3 Allocation of Costs From Participating Intermittent Resources.**

The charges (payments) for Uninstructed Imbalance Energy that would have been calculated if the Settlement Interval deviations by each Participating Intermittent Resource were priced at the appropriate Dispatch Interval Ex Post Price shall be assigned to a monthly balancing account for all Participating Intermittent Resources in the ISO Control Area. The balance in such account at the end of each month shall be netted against the aggregate payments (charges) by Scheduling Coordinators on behalf of Participating Intermittent Resources pursuant to Section 11.2.4.5.1. The resulting balance, together with the adjustments to charges in each Settlement Interval or Settlement Period pursuant to Section 11.2.4.5.2 shall be assigned to each Scheduling Coordinator in the same proportion that such Scheduling

Coordinator's aggregate Net Negative Uninstructed Deviations in that month bears to the aggregate Net Negative Uninstructed Deviations for all Scheduling Coordinators in the Control Area in that month.

**11.2.4.5.4 Payment of Participating Intermittent Resource Fees**

**11.2.4.5.4.1 Forecasting Fee**

A fee to defray the costs of the implementation of the forecasting service for Participating Intermittent Resources shall be assessed to Scheduling Coordinators for Participating Intermittent Resources as specified in Schedule 4 of Appendix F.

**11.2.4.5.4.2 Process Fee**

A fee to defray the costs of processing the Participating Intermittent Resource Export Fee as specified in Schedule 4 of Appendix F.

**11.2.4.5.4.3 Participating Intermittent Resource Export Fee**

A Participating Intermittent Resource Export Fee will be levied in accordance with Section 5.3 of Appendix Q and Schedule 4 of Appendix F.

**11.2.4.6 [Not Used]**

**11.2.5 Usage Charges.**

Usage Charges will be levied in accordance with Section 27.1.2.1 and Appendix N, Part E of this Tariff.

**11.2.6 Wheeling Through and Wheeling Out Transactions.**

The ISO shall calculate, account for and settle charges and payments for Wheeling Through and Wheeling Out transactions in accordance with Section 26.1.4 and Appendix N, Part C of this Tariff.

**11.2.7 Voltage Support and Black Start Charges.**

The ISO shall calculate, account for and settle charges and payments for Voltage Support and Black Start as set out in Sections 8.11.4, 8.11.5, 8.12.4, 8.12.5, and the SABP Charge Computation Manual – Appendix N, Part G of this ISO Tariff.

**11.2.8 Reliability Must-Run Charges.**

The ISO shall calculate and levy the charges for Reliability Must-Run Contract costs in accordance with Section 30.6.1.1 of this ISO Tariff.

**11.2.9 Neutrality Adjustments.**

The ISO shall be authorized to levy additional charges or payments as special adjustments in regard to:

(a) amounts required to round up any invoice amount expressed in dollars and cents to the nearest whole dollar amount in order to clear the ISO Clearing Account. These charges will be allocated amongst Scheduling Coordinators over an interval determined by the ISO and pro rata based on metered Demand (including exports) during that interval;

(b) amounts in regard to penalties or sanctions which may be levied by the ISO in accordance with the ISO Tariff. These charges will be levied on the Market Participants liable for payment of the penalty or sanction;

(c) amounts required to reach an accounting trial balance of zero in the course of the Settlement process in the event that the charges calculated as due from ISO Debtors are lower than payments calculated as due to the ISO Creditors for the same Trading Day. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh of Energy for that Trading Day. In the event that the charges due from ISO Debtors are higher than the payments due to ISO Creditors, the ISO shall allocate a payment to the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh of Energy for that Trading Day;

(d) amounts required with respect to payment adjustments for regulating Energy as calculated in accordance with Section 8.11.1. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (excluding exports) in MWh for that Trading Day; and

(e) awards payable by or to the ISO pursuant to good faith negotiations or ISO ADR Procedures that the ISO is not able to allocate to or to collect from a Market Participant or Market Participants in accordance with Section 13.5.3. These charges will be allocated amongst Scheduling Coordinators over an interval determined by the ISO and pro rata based on metered Demand (including exports) during that interval.

**11.2.9.1** The total annual charges levied under Section 11.2.9 shall not exceed $0.095/MWh, applied to Gross Loads in the ISO Control Area and total exports from the ISO Controlled Grid, unless: (a) the ISO Governing Board reviews the basis for the charges above that level and approves the collection of charges above that level for a defined period; and (b) the ISO provides at least seven days' advance notice to Scheduling Coordinators of the determination of the ISO Governing Board.

**11.2.10 Payments Under Section 42.1 Contracts.**

The ISO shall calculate and levy charges for the recovery of costs incurred under contracts entered into by the ISO under the authority granted in Section 42.1 in accordance with Section 42.1.8 of this ISO Tariff.

**11.2.11 Obligation for FERC Annual Charges.**

**11.2.11.1** Each Scheduling Coordinator shall be obligated to pay for the FERC Annual Charges for its use of the ISO Controlled Grid to transmit electricity, including any use of the ISO Controlled Grid through Existing Contracts scheduled by the Scheduling Coordinator. Any FERC Annual Charges to be assessed by FERC against the ISO for such use of the ISO Controlled Grid shall be assessed against Scheduling Coordinators at the FERC Annual Charge Recovery Rate, as determined in accordance with this Section 11.2.11. Such assessment shall be levied monthly against all Scheduling Coordinators based upon each Scheduling Coordinator's metered Demand and exports.

**11.2.11.2** Scheduling Coordinators may elect, each year, to pay the FERC Annual Charges assessed against them by the ISO either on a monthly basis or an annual basis. Scheduling Coordinators that elect to pay FERC Annual Charges on a monthly basis shall make payment for such charges within five (5) Business Days after issuance of the monthly invoice. The FERC Annual Charges will be issued to Market Participants once a month, on the first business day after the final market and Grid Management Charge invoices are issued for the trade month. Once the final FERC Annual Charge Recovery Rate is received from FERC in the Spring/Summer of the following year, a supplemental invoice will be issued. Scheduling Coordinators that elect to pay FERC Annual Charges on an annual basis shall make payment for such charges within five (5) Business Days after the ISO issues such supplemental invoice. Scheduling Coordinators that elect to pay FERC Annual Charges on an annual basis shall maintain either an Unsecured Credit Limit or shall maintain Financial Security in accordance with Section 12.1.

**11.2.12 FERC Annual Charge Trust Account.**

All funds collected by the ISO for FERC Annual Charges shall be deposited in the FERC Annual Charge Trust Account. The FERC Annual Charge Trust Account shall be an interest-bearing account separate from all other accounts maintained by the ISO, and no other funds shall be commingled in it at any time. The ISO shall disburse funds from the FERC Annual Charge Trust Account in order to pay the FERC any and all FERC Annual Charges assessed against the ISO.

**11.2.13 Determination of the FERC Annual Charge Recovery Rate.**

**11.2.13.1** The FERC Annual Charge Recovery Rate shall be set at the projected total FERC Annual Charge obligation with regard to transactions on the ISO Controlled Grid during the year in which the FERC Annual Charge Recovery Rate is collected, adjusted for interest projected to be earned on the monies in the FERC Annual Charge Trust Account ("Annual Charge Obligation"), divided by the projected Demand and exports during that year for all entities subject to assessment of FERC Annual Charges by the ISO ("Annual Charge Demand"). The FERC Annual Charge Recovery Rate for the period from January 1, 2001 until the first adjustment of the FERC Annual Charge Recovery Rate goes into effect shall be posted on the ISO Home Page at least fifteen (15) days in advance of the date on which the initial rate will go into effect.

**11.2.13.2** The ISO may adjust the FERC Annual Charge Recovery Rate on a quarterly basis, as necessary, to reflect the net effect of the following:

(a) the difference, if any, between actual Annual Charge Demand and projected Annual Charge Demand during the year-to-date;

(b) the difference, if any, between the projections of the Annual Charge Obligation and the Annual Charge Demand upon which the charge for the year is based and the ISO's most current projections of those values, provided that the projection of the Annual Charge Obligation may only be adjusted on an annual basis for changes in the Federal Energy Regulatory Commission's budget for its electric regulatory program or changes in the projected total transmission volumes subject to assessment of FERC Annual Charges;

(c) the difference, if any, between actual and projected interest earned on funds in the FERC Annual Charge Trust Account; and

(d) any positive or negative balances of funds collected for FERC Annual Charges in a previous year after all invoices for FERC Annual Charges for that year have been paid by the ISO, other than those that are addressed through the mechanism described in Section 11.2.13.4.

**11.2.13.3** The adjusted FERC Annual Charge Recovery Rate shall take effect on the first day of the calendar quarter. The ISO shall publish all data and calculations used by the ISO as a basis for such an adjustment on the ISO Home Page at least fifteen (15) days in advance of the date on which the new rate shall go into effect.

**11.2.13.4** If the FERC Annual Charges assessed by FERC against the ISO for transactions on the ISO Controlled Grid during any year exceed or fall short of funds collected by the ISO for FERC Annual Charges with respect to that year by a range of 10% or less, the ISO shall take such under- or over-recovery into account through an adjustment to the FERC Annual Charge Recovery Rate in accordance with Section 11.2.13.2. Any deficiency of available funds necessary to pay for any assessment of FERC Annual Charges payable by the ISO may be covered by an advance of funds from the ISO's Grid Management Charge, provided any such advanced funds will be repaid. If the ISO's collection of funds for FERC Annual Charges with respect to any year results in an under- or over-recovery of greater than 10%, the ISO shall either assess a surcharge against all active Scheduling Coordinators for the amount under-recovered or shall issue a credit to all active Scheduling Coordinators for the amount over-recovered. Such surcharge or credit shall be allocated among all active Scheduling Coordinators based on the percentage of each active Scheduling Coordinators metered Demand and exports during the relevant year. For purposes of this section, an "active Scheduling Coordinator" shall be a Scheduling Coordinator certified by the ISO in accordance with Section 4.5.1 of this ISO Tariff at the time the ISO issues a surcharge or credit under this section. The ISO will issue any surcharges or credits under this section within 60 days of receiving a FERC Annual Charge assessment from the FERC.

**11.2.14 Credits and Debits of FERC Annual Charges Collected from Scheduling Coordinators.**

In addition to the surcharges or credits permitted under Sections 11.2.13 or 11.6.3.3 of this ISO Tariff, the ISO shall credit or debit, as appropriate, the account of a Scheduling Coordinator for any over- or under-assessment of FERC Annual Charges that the ISO determines occurred due to the error, omission, or miscalculation by the ISO or the Scheduling Coordinator.

**11.2.15** The ISO shall calculate the amount due from each UDC or MSS, or from a Scheduling Coordinator delivering Energy for the supply of Gross Load not directly connected to the facilities of a UDC or MSS, for the High Voltage Access Charge and Transition Charge in accordance with operating procedures posted on the ISO Home Page. These charges shall accrue on a monthly basis.

**11.2.16 Emissions and Start-Up Fuel Cost Charges.**

The ISO shall calculate, account for and settle charges and payments for Emissions Costs and Start-Up Fuel Costs in accordance with Sections 40.11 and 40.12 of this ISO Tariff.

**11.2.17** The ISO shall calculate, charge and disburse all collected default Interest in accordance with the ISO Tariff.

**11.2.18 Auditing**

All of the data, information, and estimates the ISO uses to calculate these amounts shall be subject to the auditing requirements of Section 10.2.11 of the ISO Tariff. The ISO shall calculate these amounts using the software referred to in Section 11.4. 4except in cases of system breakdown when it shall apply the procedures set out in 11.9a (Emergency Procedures).

**11.3 Billing and Payment Process.**

The ISO will calculate for each charge the amounts payable by the relevant Scheduling Coordinator, Black Start Generator or Participating TO for each Settlement Period of the Trading Day, and the amounts payable to that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for each Settlement Period of that Trading Day and shall arrive at a net amount payable for each

charge by or to that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for that Trading Day. Each of these amounts will appear in the Preliminary and Final Settlement Statements that the ISO will provide to the relevant Scheduling Coordinator, Black Start Generator or Participating TO.

The eight components of the Grid Management Charge will be included in the Preliminary Settlement Statement and Final Settlement Statement with the other types of charges referred to in Section 11.2, but a separate invoice for the Grid Management Charge, stating the rate, billing determinant volume, and total charge for each of its eight components, will be issued by the ISO to the Scheduling Coordinator.

**11.3.1** The billing and payment process shall be based on the issuance of Preliminary and Final Settlement Statements for each Settlement Period in each Trading Day.

**11.3.2** Payment for the charges referred to in Section 11.1.6 of the ISO Tariff (except for the charges payable under long-term contracts) for each Trading Day in each calendar month shall be made five (5) Business Days after issuance of the Preliminary Settlement Statement for the last day of the relevant calendar month. Payment for adjustments will be made five (5) Business Days after issuance of the Final Settlement Statement for the last day of the relevant month. Payments for FERC Annual Charges will be made in accordance with Section 17 of this ISO Tariff.

**11.3.3 Prepayments.**

(a) A Scheduling Coordinator may choose to pay at an earlier date than the Payment Date specified in the ISO Payments Calendar by way of prepayment provided it notifies the ISO by electronic means before submitting its prepayment.

(b) Prepayment notifications must specify the dollar amount prepaid.

(c) Prepayments must be made by Scheduling Coordinators via Fed-Wire into their ISO prepayment account designated by the ISO. The relevant Scheduling Coordinator shall grant the ISO a security interest on all funds in its ISO prepayment account.

(d) On any Payment Date the ISO shall be entitled to cause funds from the relevant Scheduling Coordinator's ISO prepayment account to be transferred to the ISO Clearing Account in such amounts as may be necessary to discharge in full that Scheduling Coordinator's payment obligation arising in relation to that Payment Date.

(e) Any funds held in the relevant Scheduling Coordinator's ISO prepayment account shall be treated as part of that Scheduling Coordinator's Security.

(f) Interest (or other income) accruing on the relevant Scheduling Coordinator's ISO prepayment account shall inure to the benefit of that Scheduling Coordinator and shall be added to the balance of its ISO prepayment account on a monthly basis.

(g) Funds held in an ISO prepayment account by a Scheduling Coordinator may be recouped, offset or applied by the ISO to any outstanding financial obligations of that Scheduling Coordinator to the ISO or to other Scheduling Coordinators under this ISO Tariff,

**11.3.4 System Failure.**

**11.3.4.1 At ISO Debtor's Bank.**

If any ISO Debtor becomes aware that a payment will not, or is unlikely to be, remitted to the ISO Bank by 10:00 am on the relevant Payment Date for any reason (including failure of the Fed-Wire or any computer system), it shall immediately notify the ISO, giving full details of the payment delay (including the reasons for the payment delay). The ISO Debtor shall make all reasonable efforts to remit payment as soon as possible, by an alternative method if necessary, to ensure that funds are received for value no later than 10:00 am on the Payment Date, or as soon as possible thereafter.

**11.3.4.2 At the ISO's Bank.**

In the event of failure of any electronic transfer system affecting the ISO Bank, the ISO shall use reasonable efforts to establish alternative methods of remitting funds to the ISO Creditors' Settlement Accounts by close of banking business on that Payment Date, or as soon as possible thereafter. The ISO

shall notify the ISO Debtors and the ISO Creditors of occurrence of the system failure and the alternative methods and anticipated time of payment.

**11.4 General Principles for Production of Settlement Statements.**

**11.4.1 Basis of Settlement.**

The basis of each Settlement Statement shall be the debiting or crediting of an account in the name of the relevant Scheduling Coordinator in the general ledger set up by the ISO to reflect all transactions, charges or payments settled by the ISO.

**11.4.2 Right to Dispute.**

All Scheduling Coordinators shall have the right to dispute any item or calculation set forth in any Preliminary Settlement Statement in accordance with this ISO Tariff.

**11.4.3 Data Files.**

Settlement Statements relating to each Scheduling Coordinator shall be accompanied by a data file of supporting information that includes the following for each Settlement Period of the Trading Day on a Zone-by-Zone basis:

(a) the aggregate quantity (in MWh) of Energy supplied or withdrawn by the Metered Entities represented by the Scheduling Coordinator;

(b) the aggregate quantity (in MW) and type of Ancillary Services capacity provided or purchased;

(c) the relevant prices that the ISO has applied in its calculations;

(d) details of the Scheduled quantities of Energy and Ancillary Services accepted by the ISO in the Day-Ahead Market and the Hour-Ahead Market;

(e) details of Imbalance Energy and penalty payments; and

(f) detailed calculations of all fees, charges and payments allocated amongst Scheduling Coordinators and each Scheduling Coordinator's share.

**11.4.4 Settlement Software.**

The ISO Settlement software shall be audited by an independent firm of auditors competent to carry out audits of such software to determine its consistency with the ISO Tariff. In any dispute regarding Settlement calculations, a certificate of such firm of auditors that the ISO software is consistent with the ISO Tariff shall be prima facie proof that the charges shown in a Settlement Statement have been calculated in a method consistent with the ISO Tariff. Nothing in this section will be deemed to establish the burden of proof with respect to Settlement calculations in any proceeding.

**11.5 Calculation in the Event of Lack of Meter Data for the Balancing of Market Accounts.**

Settlements shall not be cleared for final processing until the accounting trial balance is zero. In order to publish a Settlement Statement, the ISO may use estimated, disputed or calculated Meter Data. When actual verified Meter Data is available and all of the disputes raised by Scheduling Coordinators during the validation process described in Section 11.7 of this ISO Tariff have been determined, the ISO shall recalculate the amounts payable and receivable by the affected Scheduling Coordinators or by all

Scheduling Coordinators, if applicable, as soon as reasonably practical and shall show any required adjustments as a debit or credit in the next Settlement Statement.

**11.6 Settlements Cycle.**

**11.6.1 Timing of the Settlements Process.**

**11.6.1.1 Preliminary Statements.**

The ISO shall provide to each Scheduling Coordinator, Black Start Generator or Participating TO for validation a Preliminary Settlement Statement for each Trading Day within thirty-eight (38) Business Days of the relevant Trading Day, covering all Settlement Periods in that Trading Day. Each Preliminary Settlement Statement will include a statement of:

(a) the amount payable or receivable by the Scheduling Coordinator, Black Start Generator or Participating TO for each charge referred to in Section 11.2for each Settlement Period in the relevant Trading Day;

(b) the total amount payable or receivable by that Scheduling Coordinator, Black Start Generator or Participating TO for each charge for all Settlement Periods in that Trading Day after the amounts payable and the amounts receivable under (a) have been netted off pursuant to Section 11.3; and

(c) the components of each charge in each Settlement Period except for information contained in the Imbalance Energy Report referred to in Section 11.6.1.1.

Each Preliminary Settlement Statement shall also be accompanied by a breakdown of the components of the Imbalance Energy Charge (the “Imbalance Energy Report”).

**11.6.1.2** Each Scheduling Coordinator, Black Start Generator or Participating TO shall have a period of eight (8) Business Days from the issuance of a Preliminary Settlement Statement during which it may review the Preliminary Settlement Statement and notify the ISO of any errors. No later

than fifty-one (51) Business Days after the Trading Day to which it relates, the ISO shall issue a Final Settlement Statement to each Scheduling Coordinator for that Trading Day.

**11.6.1.2A Final Statements.**

The ISO shall provide to each Scheduling Coordinator, Black Start Generator or Participating TO a Final Settlement Statement in accordance with the ISO Tariff and the ISO Payments Calendar. The Final Settlement Statement shall be in a format similar to that of the Preliminary Settlement Statement and shall include all the information provided in the Preliminary Settlement Statement as amended following the validation procedure.

**11.6.1.3** Each Scheduling Coordinator, Black Start Generator or Participating TO shall have a period of ten (10) Business Days from the issuance of the Final Settlement Statement during which it may

review the Incremental Changes on the Final Settlement Statement and notify the ISO of any errors. No later than twenty-five (25) Business Days from the date of issuance of the Final Settlement Statement, the ISO shall incorporate any required corrections in a subsequent Preliminary Settlement Statement.

**11.6.2 Basis for Billing and Payment.**

The Preliminary and the Final Settlement Statements shall constitute the basis for billing and associated automatic funds transfers in accordance with this ISO Tariff. The Preliminary Settlement Statement shall constitute the basis for billing and associated automatic funds transfers for all charges in the first instance. The Final Settlement Statement shall constitute the basis for billing and associated automatic funds transfers for adjustments to charges set forth in the Preliminary Settlement Statement. Each Scheduling Coordinator shall pay any net debit and shall be entitled to receive any net credit shown in an invoice on the Payment Date, whether or not there is any dispute regarding the amount of the debit or credit.

**11.6.2.1 Elimination of Invoices under $10.00.**

Preliminary and final invoices either due to or from any Market Participant for amounts less than $10.00 will be adjusted to $0.00 and no amount will be due to or from that Market Participant for that invoice.

**11.6.3 Settlement Statement Re-runs and Post Final Adjustments.**

The ISO is authorized to perform Settlement Statement Re-runs following approval of the ISO Governing Board. A request to perform a Settlement Statement Re-run may be made at any time by a Scheduling Coordinator by notice in writing to the ISO Governing Board. The ISO Governing Board shall, in considering whether to approve a request for a Settlement Statement Re-run, determine in its reasonable discretion, whether there is good cause to justify the performance of a Settlement Statement Re-run.

**11.6.3.1** If a Settlement Statement Re-run is ordered by the ISO Governing Board, the ISO shall arrange to have the Settlement Statement Re-run carried out as soon as is reasonably practicable following the ISO Governing Board's order, subject to the availability of staff and computer time, compatible software, appropriate data and other resources.

**11.6.3.2**. The cost of a Settlement Statement Re-run shall be borne by the Scheduling Coordinator requesting it, unless the Settlement Statement Re-run was needed due to a clerical oversight or error on the part of the ISO staff.

**11.6.3.3** Where a Settlement Statement Re-run indicates that the accounts of Scheduling Coordinators should be debited or credited to reflect alterations to Settlements previously made under this ISO Tariff, for those Scheduling Coordinators affected by the statement re-run, the ISO shall reflect the amounts to be debited or credited in the next Preliminary Settlement Statements that it issues following the Settlement Statement Re-run to which the provisions of this Section 11 apply.

**11.6.3.4** Reruns, post closing adjustments and the financial outcomes of Dispute Resolution may be invoiced separately from monthly market activities. The ISO shall provide a market notice at least 30 days prior to such invoicing identifying the components of such invoice.

**11.7 Confirmation and Validation.**

**11.7.1 Confirmation.**

It is the responsibility of each Scheduling Coordinator to notify the ISO if it fails to receive a Preliminary Settlement Statement or a Final Settlement Statement on the date specified for the publication of such Settlement Statement in the ISO Payments Calendar. Each Scheduling Coordinator shall be deemed to have received its Settlement Statement on the dates specified, unless it notifies the ISO to the contrary.

**11.7.2 Validation.**

Each Scheduling Coordinator, Black Start Generator, or Participating TO shall have the opportunity to review the terms of the Preliminary Settlement Statements that it receives. The Scheduling Coordinator, Black Start Generator, or Participating TO shall be deemed to have validated each Preliminary Settlement Statement unless it has raised a dispute or reported an exception within eight (8) Business Days from the date of issuance. Once validated, a Preliminary Settlement Statement shall be binding on the Scheduling Coordinator, Black Start Generator or Participating TO to which it relates, unless the ISO performs a Settlement re-run pursuant to Section 11.6.3 of this ISO Tariff.

The notice of dispute, if any, shall state clearly the Trading Day, the issue date of the Preliminary Statement, the item disputed, the reasons for the dispute, the amount claimed (if appropriate) and shall be accompanied with all available evidence reasonably required to support the claim.

**11.7.3 Validation of Final Settlement Statements.**

Each Scheduling Coordinator, Black Start Generator or Participating TO shall have the opportunity to review the Incremental Changes that appear on the Final Settlement Statement that it receives. The Scheduling Coordinator, Black Start Generator or Participating TO shall be deemed to have validated the Incremental Changes on each Final Settlement Statement unless it has raised a dispute or reported an exception regarding those Incremental Changes within ten (10) Business Days from the date of issuance. Once validated, the Incremental Changes on the Final Settlement Statement shall be binding on the Scheduling Coordinator, Black Start Generator or Participating TO to which it relates, unless the ISO performs a Settlement re-run pursuant to Section 11.6.3 of this ISO Tariff.

The notice of dispute shall state clearly the Trading Day, the issue date of the Final Settlement Statement, the item disputed, the reasons for the dispute, the amount claimed (if appropriate) and shall be accompanied with all available evidence reasonably required to support the claim.

**11.7.4 Recurring Disputes or Exceptions.**

A Scheduling Coordinator, Black Start Generator or Participating TO may request the ISO to treat as recurring a dispute or exception raised in accordance with Sections 11.7.2 and 11.7.3 above, if a dispute or exception would apply to subsequent Preliminary and Final Settlement Statements. A request for recurring treatment may be made for any valid reason provided that subsequent Preliminary and Final Settlement Statements would be affected, including but not limited to, that the disputed calculation will recur, or that a disagreement as to policy will affect calculations in subsequent Preliminary and Final Settlement Statements. If a Scheduling Coordinator, Black Start Generator or Participating TO wishes to request that the ISO treat a dispute as recurring, it shall, in the notice, clearly indicate that it requests such treatment and set forth in detail the reasons that support such treatment. To the extent possible, the Scheduling Coordinator, Black Start Generator or Participating TO shall state the types of charges and dates to which the dispute will apply, and provide estimates of the amounts that will likely be claimed on each date.

The ISO shall make a determination on such a request within five (5) Business Days of receipt. To preserve its right to dispute an item, a Scheduling Coordinator, Black Start Generator or Participating TO must continue to raise a dispute or report an exception until it is notified by the ISO that the ISO agrees to treat the dispute or exception as recurring. If the ISO grants a request to treat a dispute or exception as recurring, the dispute raised or exception reported by the Scheduling Coordinator, Black Start Generator or Participating TO shall be deemed to apply to every subsequent Preliminary and Final Settlement Statement provided to the Scheduling Coordinator, Black Start Generator or Participating TO from the date that the ISO grants the request for recurrent treatment until: a) ninety (90) days have elapsed, unless the ISO indicates a different expiration date on its response to the request, in which case the expiration date stated by the ISO, in its response or b) the dispute or exception is resolved, whichever is shorter. The ISO may deny a request that the ISO treat a dispute as recurring for any valid reason, including because the request is not adequately specific as to the basis for recurring treatment or the subsequent calculations that will be affected.

**11.7.5 Amendment.**

Regarding a dispute related to a Preliminary Settlement Statement, if the ISO agrees with the amount claimed, it shall incorporate the relevant data into the Final Settlement Statement. Regarding a dispute related to an Incremental Change in a Final Settlement Statement, the ISO shall make a determination on the dispute no later than twenty-five (25) Business Days from the issuance of the Final Settlement Statement, and, if the ISO agrees with the amount claimed, shall incorporate the relevant data into the next available Preliminary Settlement Statement.

**11.7.6 ISO Contact.**

If the ISO does not agree with the amount claimed or if it requires additional information, it shall make reasonable efforts (taking into account the time it received the notice of dispute and the complexity of the issue involved) to contact the relevant Scheduling Coordinator, Black Start Generator or Participating TO to resolve the issue before issuing the Final Settlement Statement. If it is not possible to contact the

relevant party, the ISO shall issue the Final Settlement Statement without taking into account the dispute notice.

**11.7.7 Payment Pending Dispute.**

Each Scheduling Coordinator, Black Start Generator or Participating TO which receives an invoice shall pay any net debit and shall be entitled to receive any net credit shown in the invoice on the Payment Date, whether or not there is any dispute regarding the amount of the debit or credit. The provisions of Section 13 (Dispute Resolution) of the ISO Tariff shall apply to the disputed amount.

**11.8 Payment Procedures.**

**11.8.1 All Payments to Be Made Through the ISO.**

All Scheduling Coordinators shall discharge their obligations to pay the amounts owed by them and shall receive payments of all amounts owed to them under this ISO Tariff only through the ISO.

**11.8.2 Accounts to be Established.**

The ISO is authorized to establish and maintain bank accounts held in trust for Market Participants and obtain lines of credit and other banking facilities (not exceeding an aggregate amount set by the ISO Governing Board) necessary for the operation of its Settlement and billing procedures. Unless otherwise specified in this Tariff the ISO will recover all costs incurred in connection with these ISO banking facilities through the appropriate component of the Grid Management Charge. The ISO shall establish and operate the following accounts:

**11.8.2.1** An ISO Clearing Account to and from which all payments are made;

**11.8.2.2** An ISO Reserve Account from which any debit balances on the ISO Clearing Account at the close of banking business on each Business Day shall be settled or reduced in accordance with this ISO Tariff. The ISO shall use the security provided by a Scheduling Coordinator pursuant to Section 12.1 of this ISO Tariff, if necessary, to clear any debit balances on the ISO Reserve Account that may arise as a result of that Scheduling Coordinator's failure to pay an amount due under this ISO Tariff.

**11.8.2.2.a An ISO Surplus Account.**

**11.8.2.3** Such other accounts as the ISO deems necessary or convenient for the purpose of efficiently implementing the funds transfer system under this ISO Tariff. The ISO shall notify Market Participants of the establishment of such accounts through the ISO Home Page.

**11.8.2.4 Accounts of the Scheduling Coordinators and Participating TOs.**

Each Scheduling Coordinator and each Participating TO shall establish and maintain a Settlement Account at a commercial bank located in the United States and reasonably acceptable to the ISO which can effect money transfers via Fed-Wire where payments to and from the ISO Clearing Account shall be made in accordance with this ISO Tariff. Scheduling Coordinators may, but will not be required to, maintain separate accounts for receipts and payments. Each Scheduling Coordinator shall notify the ISO of its account details and of any changes to those details in accordance with the provisions of its Scheduling Coordinator Agreement. Participating TOs will notify the ISO of their Settlement Account details in accordance with Section 2.2.1 of their Transmission Control Agreement and may notify the ISO from time to time of any changes by giving at least 7 days written notice before the new account becomes operational.

**11.8.3 Declaration of Trust.**

All ISO Accounts established pursuant to Section 11.8.2 of this ISO Tariff shall be opened and operated by the ISO on trust for Market Participants, in accordance with this ISO Tariff. Each such account shall be maintained at a bank or other financial institution in California and shall bear a name indicating that it is a trust account.

**11.8.4 No Co-Mingling.**

The ISO shall not co-mingle any funds standing to the credit of an ISO Account with its other funds and shall promptly withdraw any amounts paid into an ISO Account representing amounts paid for the account of the ISO.

**11.8.5 Use of Accounts.**

**11.8.5.1 Clearing Account**

(a) Subject to Section 11.3.3 each ISO Debtor shall remit to the ISO Clearing Account the amount shown on the invoice as payable by that ISO Debtor for value not later than 10:00 am on the Payment Date.

(b) On the Payment Date the ISO shall be entitled to cause the transfer of such amounts held in a Scheduling Coordinator's ISO prepayment account to the ISO Clearing Account as provided in Section 11.3.3.

The ISO shall calculate the amounts available for distribution to ISO Creditors on the Payment Date and shall give irrevocable instructions to the ISO Bank to remit from the ISO Clearing Account to the relevant Settlement Accounts maintained by the ISO Creditors, the aggregate amounts determined by the ISO to be available for payment to ISO Creditors for value by close of business on the Payment Date if no ISO Debtors are in default. If an ISO Debtor is in default and until all defaulting amounts have been collected, the ISO shall make payments as soon as practical within five (5) business days of the collection date posted in the ISO Payments Calendar. If required, the ISO shall instruct the ISO Bank to transfer amounts from the ISO Reserve Account to enable the ISO Clearing Account to clear.

The ISO is authorized to instruct the ISO Bank to debit the ISO Clearing Account and transfer to the relevant ISO account sufficient funds to pay in full the Grid Management Charge falling due on any Payment Day with priority over any other payments to be made on that or on subsequent days out of the ISO Clearing Account.

**11.8.5.2 Reserve Account.**

The ISO Reserve Account shall be available to the ISO for the purpose of providing funds to clear the ISO Clearing Account in the event that there are insufficient funds in the ISO Clearing Account to pay ISO Creditors. If there are insufficient funds in the ISO Clearing Account to pay ISO Creditors and clear the account on any Payment Date, due to payment default by one or more ISO Debtors, the ISO shall

transfer funds from the ISO Reserve Account to the ISO Clearing Account to clear it by close of banking business on that Payment Date pursuant to Section 11.12.2.2.

If the ISO Reserve Account is drawn upon, the ISO shall as soon as possible thereafter take any necessary steps against the defaulting Scheduling Coordinator, including making any calculations or taking any other appropriate action, to replenish the ISO Reserve Account including drawing on any credit support provided by the defaulting Scheduling Coordinator pursuant to Section 12.1 of this ISO Tariff or serving demands on any defaulting Scheduling Coordinators with an Unsecured Credit Limit.

The proceeds of drawings under any line of credit or other credit facility of the ISO Reserve Account shall be held on trust for ISO Creditors. If the Reserve Account is replenished as provided for in 11.8.5.2.1, any credits shall be held on trust for all ISO Creditors.

**11.8.5.2.1 Replenishing the ISO Reserve Account Following Payment Default.**

If the ISO has debited the ISO Reserve Account then:

(a) If, after the ISO has debited the ISO Reserve Account on a Payment Date, the ISO Bank receives a remittance from an ISO Debtor which has not been (but should have been, if it had been received on a timely basis) credited to the ISO Clearing Account by 10:00 am on the Payment Date and which required the debiting of the ISO Reserve Account, such remittance shall be credited to the ISO Reserve Account.

(b) The proceeds of any enforcement of Security and/or amounts recovered under proceedings shall be credited to the ISO Reserve Account.

(c) If after taking reasonable action the ISO determines that the Default Amount (or any part) and/or Interest cannot be recovered, such amounts shall be deemed to be owing by those Market Participants who were ISO Creditors on the relevant Payment Date pro rata to the net payments they received on that Payment Date and shall be accounted for by way of a charge in the next

Settlement Statements of those ISO Creditors. Such charge shall be credited to the Reserve Account.

**11.8.5.3 Surplus Account.**

The ISO shall establish and maintain a bank account in accordance with this Protocol denominated the "ISO Surplus Account". The ISO Surplus Account shall include:

(a) Any amounts paid to the ISO in respect of penalties or sanctions referred to in Section 11.2.9 shall be credited to the Surplus Account, subject, however, to Section 11.8.5.3 (b).

(b) The funds referred to in Section 11.8.5.3 (a) pertaining to penalties or sanctions as provided in Section 11.2.9 shall first be applied towards any expenses, loss or costs incurred by the ISO except for that portion of those amounts collected pursuant to EP 9.4. Any excess after such application will be credited to the Surplus Account pursuant to Section 11.8.5.3 (a).

(c) The funds referred to in Section 11.8.5.3 (a) pertaining to default interest referred to in Section 11.12.1 shall first be applied towards any unpaid creditor balances for the trade month in which the default interest was assessed and second to any other unpaid creditor balances. Only after all unpaid creditor balances are satisfied in full will any excess funds pertaining to default interest be credited to the Surplus Account pursuant to Section 11.8.5.3 (a).

In the event that there are funds in the ISO Surplus Account in excess of an amount to be determined by the ISO Governing Board and noticed by the ISO to Market Participants, the amount of such excess will be distributed to Scheduling Coordinators using the same method of apportioning the refund as the method employed in apportioning the liability for the Grid Management Charge.

**11.9 Invoices.**

The ISO shall prepare and send to each Scheduling Coordinator, Black Start Generator or Participating TO two invoices for each calendar month. The first invoice will be based on the Preliminary Settlement Statements and the second invoice will be based on the Final Settlement Statement(s). Each invoice will show amounts which are to be paid by or to each Scheduling Coordinator, Black Start Generator or Participating TO, the Payment Date, being the date on which such amounts are to be paid or received and details of the ISO Clearing Account to which any amounts owed by Scheduling Coordinators, Black Start Generator or Participating TO are to be paid.

A separate invoice for the Grid Management Charge, stating the rate, billing determinant volume and total charge for each of its eight components, will be issued by the ISO to the Scheduling Coordinator. A separate invoice for Interest, issued on the preliminary invoice date, stating the total charges for each Trade Month in which interest is charged, will be issued by the ISO.

Reruns, post closing adjustments and the financial outcomes of Dispute Resolution may be invoiced separately from monthly market activities. The ISO shall provide a market notice at least 30 days prior to such invoicing identifying the components of such invoice.

**11.9A Emergency Procedures.**

**11.9A.1 Use of Estimated Data.**

In the event of an emergency or a failure of any of the ISO software or business systems, the ISO may use estimated Settlement Statements and invoices and may implement any temporary variation of the timing requirements relating to the Settlement and billing process contained in the ISO Tariff. Details of the variation and the method chosen to produce estimated data, Settlement Statements and invoices will be published on the ISO Home Page.

**11.9A.2 Payment of Estimated Statements and Invoices.**

When estimated Settlement Statements and invoices are issued by the ISO, payments between the ISO and Market Participants shall be made on an estimated basis and the necessary corrections shall be

made by the ISO as soon as practicable. The corrections will be reflected as soon as practicable in later Settlement Statements and invoices issued by the ISO in the manner set forth in Section 11.5 of the ISO Tariff. Failure to make such estimated payments shall result in the same consequences as a failure to make actual payments.

**11.9A.3 Validation and Correction of Estimated Statements and Invoices.**

The ISO shall use its best efforts to verify the estimated data and to make the necessary corrections as soon as practicable. The corrections will be reflected as soon as practicable in later Settlement Statements and invoices issued by the ISO.

**11.9A.4 Estimated Statements to be Final.**

In the event that the ISO is of the opinion that, despite its best efforts, it is not possible for it to verify the estimated data because actual data is not reasonably expected to become available to the ISO in the foreseeable future, the ISO shall consult with the Market Participants in order to develop the most appropriate substitute data including using data provided by Market Participants. Following such determination of substitute data, the ISO shall send to the relevant Market Participants revised Settlement Statements and Invoices. The provisions of Section 11.7.6 shall apply to payment of revised invoices issued in accordance with these emergency procedures. Failure to make payments of such revised invoices shall result in the same consequences as a failure to make actual payments.

**11.10 Instructions for Payment.**

Each Scheduling Coordinator shall remit to the ISO Clearing Account the amount shown on the invoice as payable by that Scheduling Coordinator for value not later than 10:00 a.m. on the Payment Date.

**11.11 ISO's Responsibilities.**

On the due date for payment of amounts shown in an invoice, the ISO shall ascertain whether all amounts required to be remitted to the ISO Clearing Account have been credited to it. If any such amount has not been so credited, it shall ascertain which Scheduling Coordinators have failed to pay the amount owed by them and it may take steps to recover any overdue amount.

**11.12 Non-payment by a Scheduling Coordinator.**

**11.12.1 Notification and Interest.**

If a Scheduling Coordinator becomes aware that a payment for which it is responsible will not be remitted to the ISO Clearing Account on time, it shall immediately notify the ISO of the fact and the reason for the non-payment. If the Scheduling Coordinator fails to pay any sum to the ISO when due and the ISO is unable to enforce the Security (if any) provided by the defaulting Scheduling Coordinator, the Scheduling Coordinator shall pay interest on the overdue amount for the period from the Payment Date to the date on which the payment is remitted to the ISO Clearing Account, together with any related transaction costs incurred by the ISO. The ISO shall apply all such Interest payments on the Default Amount on a pro rata basis to ISO Creditors in relation to amounts past due in the order of the creation of such debts.

**11.12.2 Payment Default.**

Subject to Section 11.12.3, if by 10:00 am on a Payment Date the ISO, in its reasonable opinion, believes that all or any part of any amount due to be remitted to the ISO Clearing Account by any Scheduling Coordinator will not or has not been remitted and there are insufficient funds in the relevant Scheduling Coordinator's ISO prepayment account (the amount of insufficiency being referred to as the "Default Amount"), the ISO shall take the following actions to enable the ISO Clearing Account to clear not later than the close of banking business on the relevant Payment Date:

**11.12.2.1 Enforcing the Security of a Defaulting Scheduling Coordinator.**

Subject to Section 11.12.3, the ISO shall make reasonable endeavors to enforce the defaulting Scheduling Coordinator's Security (if any) to the extent necessary to pay the Default Amount. If it is not practicable to obtain clear funds in time to effect payment to ISO Creditors on the same day the ISO shall proceed in accordance with 11.12.2.2 or 11.16.1 as applicable.

**11.12.2.2 Use of ISO Reserve Account.**

If there are funds standing to the credit of the ISO Reserve Account (including the proceeds of drawings under banking facilities described in Section 11.8.5.2) the ISO shall debit the ISO Reserve Account with the Default Amount in order to clear the ISO Clearing Account and effect payment to the ISO Creditors.

**11.12.2.3 Action against a Defaulting Scheduling Coordinator.**

The ISO shall as soon as possible after taking action under 11.12.2.2 take any steps it deems appropriate against the defaulting Scheduling Coordinator to recover the Default Amount (and any Interest as set out in Section 11.12.1) including enforcing any Security, exercising its rights of recoupment or set-off and/or bringing proceedings against the defaulting Scheduling Coordinator pursuant to Section 11.20.1 of the ISO Tariff.

**11.12.3 Default to be Remedied Promptly.**

In the event that the ISO reasonably believes that an outstanding amount which has not been paid by 10:00 am on the relevant Payment Date, is likely to be paid no later than close of banking business on the next Business Day then the ISO may, but shall not be obliged to, delay enforcing that ISO Debtor's Security or taking other measures to recover payment until after the close of banking business on the next Banking Day but Interest shall nonetheless accrue pursuant to Section 11.12.1.

**11.12.4 Set-Off.**

The ISO is authorized to recoup, set off and apply any amount to which any defaulting ISO Debtor is or will be entitled, in or towards the satisfaction of any of that ISO Debtor's debts arising under the ISO

Settlement and billing process. Each ISO Creditor and each ISO Debtor expressly acknowledges the following application of funds: first to the current month's Grid Management Charge, and then as described in 11.12.5 unless otherwise specified in accordance with Section 11.16.

**11.12.5 Order of Payments.**

Unless otherwise specified in accordance with Section 11.16, the ISO shall apply payments received in respect of amounts owing to ISO Creditors to repay the relevant debts in the order of the creation of such debts.

**11.12.6 Interest Accruing while Enforcing the Security.**

If the ISO has debited the Reserve Account and it subsequently succeeds in enforcing the Security provided by the defaulting Scheduling Coordinator, the ISO shall be entitled to withdraw from such Security in addition to the Default Amount, all costs incurred and interest accrued to the ISO as a result of debiting the Reserve Account from the date of such debit to the date of enforcement of the said Security.

**11.12.7 Application of Funds Received.**

Amounts credited to the ISO Clearing Account in payment of a Default Amount (as set out in Section 11.8.5.2.1) or as a result of enforcing the defaulting ISO Debtor's Security shall be applied to the ISO Reserve Account pursuant to Section 11.8.5.2.1 to reduce amounts outstanding under any ISO banking facilities used to fund the ISO Reserve Account on the relevant Payment Date and the balance (if any) shall be applied to reimburse pro rata any ISO Creditors whose payments were reduced pursuant to Section 11.16.1.

**11.13 [Not Used]**

**11.14 [Not Used]**

**11.15 Prohibition on Transfers.**

The ISO shall at no time instruct the ISO Bank to transfer any sum from an ISO Account to another account (not being an ISO Account) unless that account is a Settlement Account or the amount is owed to the ISO under this ISO Tariff.

**11.16 Alternative Payment Procedures.**

**11.16.1 Pro Rata Reduction to Payments.**

If it is not possible to clear the ISO Clearing Account on a Payment Date because of an insufficiency of funds available in the ISO Reserve Account or by enforcing any guarantee, letter of credit or other credit support provided by a defaulting Scheduling Coordinator, the ISO shall reduce payments to all ISO Creditors proportionately to the net amounts payable to them on the relevant Payment Date to the extent necessary to clear the ISO Clearing Account. The ISO shall account for such reduction in the ISO ledger

accounts as amounts due and owing by the non-paying ISO Debtor to each ISO Creditor whose payment was so reduced. The provisions of this section shall not apply to non-payment of any penalty amount that a Scheduling Coordinator has disputed and FERC has specifically authorized the Scheduling Coordinator to net its payment to the ISO by the amount of the penalty in question in accordance with Section 37.9.3, in which case the non-payment amount will be allocated exclusively to the ISO penalty trust account and not allocated to ISO Creditors.

**11.16.2 Payment of Defaulted Receivables.**

Collections of defaulted receivables (other than Interest) will be distributed pro rata to ISO Creditors for the month of default.

(1) If the total collected in that closing related to the past due trade month is less than $5,000, then the funds shall accumulate in an Interest-bearing account until either: (a) the account exceeds $5,000, (b) there have been no distributions from the account for six months, or (c) all defaults for that month have been collected exclusive of any bankruptcy defaults.

(2) If all ISO Creditors for that trade month have been paid, then the proceeds will be paid pro rata to the ISO Creditors in the oldest unpaid trade month.

(3) This provision is also applicable to the amounts netted against ISO Creditor balances related to prior defaulted receivables.

(4) All defaulted receivables disbursed under this Section shall be disbursed in accordance with the timeframes set forth in Section 11.8.5.1.

**11.17 [DELETED]**

**11.18 Payment Errors.**

**11.18.1 Overpayments.**

If for any reason, including the negligence of the ISO Bank or the ISO, an ISO Creditor receives an overpayment on any Payment Date, the ISO Creditor shall within two (2) Business Days from the date of

receipt of the funds into its Scheduling Coordinator Settlement Account, notify the ISO of the amount of the overpayment and shall forthwith pay the overpayment into an ISO Account specified by the ISO.

**11.18.2 Repayment of Overpayment.**

If prior to an ISO Creditor notifying the ISO of the overpayment, the ISO receives notice (from the ISO Bank or otherwise) of the overpayment, the ISO shall within two (2) Business Days notify the recipient of the overpayment. The ISO shall be responsible for payment to those entitled to the sum which has been overpaid.

**11.18.2.a Overpayment Held In Trust.**

Until an ISO Creditor refunds the overpayment to the ISO, the ISO Creditor shall be deemed to hold the amount of such overpayment on trust for any ISO Creditor which may have been underpaid in consequence of such overpayment, pro rata to the amount of the underpayment.

**11.18.2.b Interest on Overpayment.**

(a) If an overpayment is repaid by an ISO Creditor in accordance with Section 11.18.1 of the ISO Tariff, the ISO shall be entitled to Interest on the amount of the overpayment at the prime rate of the bank where the Settlement Account of the overpaid ISO Creditor is located from the date the overpayment was received to the time that the repayment is credited to the relevant ISO Account.

(b) If the overpayment (or any part of it) is not repaid by an ISO Creditor in accordance with Section 11.18.1 of the ISO Tariff, the ISO shall be entitled to Interest on the amount of the overpayment from the expiry of the two day period referred to in that Section until the repayment is credited to the relevant ISO Account and the ISO will be entitled to treat the overpayment (and any Interest accruing thereon) as a Default Amount to which Section 11.12.2 will apply.

**11.18.2.c Treatment of Amounts Outstanding as a Result of an Overpayment.**

The ISO shall apply the amount of any overpayment repaid (including interest received) to credit any underpaid ISO Creditors pro rata to the amounts of their underpayments on the same day of receipt, or if not practicable, on the following Business Day.

**11.18.3 Underpayments.**

If for any reason, including the negligence of the ISO Bank or the ISO, an ISO Creditor receives on the relevant Payment Date an underpayment, the ISO Creditor shall within two (2) Business Days from receipt into its Settlement Account, notify the ISO of the amount of the underpayment, and the ISO after consultation with the ISO Bank, shall use all reasonable endeavors to identify such entity as shall have received any corresponding overpayment and promptly correct the underpayment. If, by reason of negligence, the ISO holds or has under its control after five (5) Business Days from receipt in the ISO Clearing Account amounts which it ought properly to have paid to ISO Creditors, such ISO Creditors shall be entitled to interest on such amounts, for such period as the ISO improperly holds or has such amounts under its control.

**11.19 Defaults.**

Each ISO Creditor shall give notice to the ISO before instituting any action or proceedings in any court against an ISO Debtor to enforce payments due to it.

**11.20 Proceedings to Recover Overdue Amounts.**

**11.20.1 Proceedings Brought by the ISO.**

Without prejudice to the right of any Scheduling Coordinator to bring such proceedings as it sees fit in connection with matters related to the recovery of amounts owed to it, the ISO may bring proceedings against any Scheduling Coordinator on behalf of those Scheduling Coordinators who have indicated to the ISO their willingness for the ISO first so to act, for the recovery of any amounts due by that Scheduling Coordinator, if the ISO has first reached agreement with the Scheduling Coordinators as to the appropriate remuneration, is indemnified to its reasonable satisfaction and receives such security as it

may reasonably request against all costs, claims, expenses (including legal fees) and liabilities which it will or may sustain or incur in complying with such instructions.

**11.20.2 Evidence of Unpaid Amount.**

The ISO shall, on request, certify in writing the amounts owed by an ISO Debtor that remain unpaid and the ISO Creditors to whom such amounts are owed and shall provide certified copies of the relevant Preliminary and Final Settlement Statements, invoices and other documentation on which the ISO's certificate was based to the ISO Debtor and the relevant ISO Creditors. An ISO certificate given under this Section 11.20.2 may be used as prima facie evidence of the amount due by an ISO Debtor to ISO Creditors in any legal proceedings.

**11.21 Data Gathering and Storage.**

**11.21.1 Required Capabilities.**

The ISO shall ensure that the Settlement process shall contain, at a minimum, the following data gathering and storage capabilities:

(a) the accurate, time-sequenced, end-to-end traceability of the Settlements process so that Scheduling Coordinators and Participating TOs can fully verify their Settlement Statements;

(b) the ability to specify and accept data that is specifically needed for audit trail requirements; and

(c) the archiving of Meter Data, Settlement runs and other information used to prepare Settlement Statements to be consistent with the time frame required to re-run the Settlement process by state laws and the rules of the Local Regulatory Authority.

**11.21.2 Data Dissemination.**

Data shall not be disseminated by the ISO except as permitted in this ISO Tariff.

**11.23 Communications.**

Preliminary Settlement Statements, Final Settlement Statements and invoices will be considered issued to ISO Creditors or ISO Debtors when released by the ISO via direct computer link. Communications on a Payment Date relating to payment shall be made by the fastest practical means including by telephone. If there is a failure of a communication system and it is not possible to communicate by electronic means, then the ISO or ISO Creditor or ISO Debtor, as the case may be, shall communicate by facsimile but only if the recipient is first advised by telephone to expect the facsimile. Methods of communication between the ISO and Market Participants may be varied by the ISO giving not less than 10 days notice to Market Participants on the WEnet.

**11.24 ISO Payments Calendar.**

**11.24.1 Preparation.**

In September of each year, the ISO will prepare a draft ISO Payments Calendar for the following calendar year showing for each Trading Day:

(a) The date by which Scheduling Coordinators are required to provide Settlement Quality Meter Data for all their Scheduling Coordinator Metered Entities for each Settlement Period in the Trading Day;

(b) The date on which the ISO will issue Preliminary Settlement Statements and invoices to Scheduling Coordinators, Black Start Generators and Participating TOs for that Trading Day;

(c) The date by which Scheduling Coordinators, Black Start Generators and Participating TOs are required to notify the ISO of any disputes in relation to their Preliminary Settlement Statements pursuant to Section 11.7.2;

(d) The date on which the ISO will issue Final Settlement Statements and invoices to Scheduling Coordinators, Black Start Generators and Participating TOs for that Trading Day;

(e) The date and time by which ISO Debtors are required to have made payments into the ISO Clearing Account in payment of invoices for that Trading Day; and

(f) The dates and times on which ISO Creditors will receive payments from the ISO Clearing Account of amounts owing to them for that Trading Day.

(g) In relation to Reliability Must-Run Charges and Payments, the details set out in paragraph 3 of Appendix N, Part J.

The ISO will make a draft of the ISO Payments Calendar available on the ISO Home Page to Scheduling Coordinators, Black Start Generators, Participating TOs and Owners any of which may submit comments and objections to the ISO within two weeks of the date of posting of the draft on the ISO Home Page. No later than October 31st in each year, the ISO will publish the final ISO Payments Calendar for the following calendar year, after considering the comments and objections received from Scheduling Coordinators, Black Start Generators, Participating TOs and Owners. The final ISO Payments Calendar will be posted on the ISO Home Page, and will show for the period from 1 January to 31 December in the next succeeding year (both dates inclusive), the dates on which Settlement Statements shall be published by the ISO and the Payment Dates on which the ISO will pay the Participating TO the Wheeling revenues allocated to them pursuant to Section26.1.4.3 of this ISO Tariff.

**11.24.2 Distribution.**

Any ISO Payments Calendar prepared pursuant to this Section 11.24 shall be distributed promptly to each Scheduling Coordinator, each Participating TO, the ISO Bank, the ISO Audit Committee and the ISO Governing Board and shall be published on the ISO Home Page.

**11.24.3 Final Calendar Binding.**

The final ISO Payments Calendar shall be binding on the ISO and on Scheduling Coordinators, Black Start Generators, Participating TOs and Owners.

**11.24.4 Calendar Content and Format**

The ISO may change the content or format of the ISO Payments Calendar. The ISO may also produce a summary outline of the Settlement and billing cycles.

**11.24.5 Update the Final Payments Calendar.**

If as a result of a tariff amendment approved by FERC, the final ISO Payments Calendar developed in accordance with Section 11.24 is rendered inconsistent with the timing set forth in the tariff, the ISO shall update the final ISO Payments Calendar to make it consistent with the tariff as approved by FERC on the date on which the tariff amendment goes into effect. The ISO shall simultaneously send out a notice to Market Participants that the final ISO Payments Calendar has been revised.