

**CAISO TARIFF APPENDIX M**

**Procedures for Addressing Parallel Flows**

**PROCEDURES FOR ADDRESSING PARALLEL FLOWS**

The North American Electric Reliability Corporation's (NERC) Qualified Path Unscheduled Flow Relief for the Western Electricity Coordinating Council (WECC), Reliability Standard WECC-IRO-STD-006-0 filed by NERC in Docket No. RR07-11-000 on March 26, 2007, and approved by the Commission on June 8, 2007, and any amendments thereto, are hereby incorporated and made part of this Tariff. See [www.nerc.com](http://www.nerc.com) for the current version of the NERC's Qualified Path Unscheduled Flow Relief Procedures for WECC.

**[Eight Sheet Numbers Reserved for Future Filings.]**

**CAISO TARIFF APPENDIX N**

**[NOT USED]**

**[Ten Sheet Numbers Reserved for Future Filings.]**

**CAISO TARIFF APPENDIX O**

**[NOT USED]**

**[Ten Sheet Numbers Reserved for Future Filings.]**

**CAISO TARIFF APPENDIX P**

**CAISO Department of Market Monitoring and Market Surveillance Committee**

## CAISO TARIFF APPENDIX P

### CAISO Department of Market Monitoring and Market Surveillance Committee

#### 1 CAISO DEPARTMENT OF MARKET MONITORING

##### 1.1 Establishment

There shall be established within the CAISO a Department of Market Monitoring that shall be responsible for the ongoing development, implementation, and execution of the CAISO Market monitoring and information scheme described in this CAISO Tariff and the adherence to its objectives, as set forth in Section 38.

##### 1.2 Composition

The Department of Market Monitoring shall be adequately staffed by the CAISO with full-time CAISO staff with the experience and qualifications necessary to fulfill the functions referred to in this CAISO Tariff. Such qualifications may include professional training pertinent to and experience in the operation of markets analogous to CAISO Markets, in the electric power industry, and in the field of competition and antitrust law, economics and policy. The Department of Market Monitoring shall be under the general management of the CAISO CEO, provided that the CAISO CEO may designate another CAISO officer for day-to-day oversight of the Department.

##### 1.3 Accountability and Responsibilities

###### 1.3.1 Department of Market Monitoring

The Department of Market Monitoring shall report to and be accountable to the CAISO CEO and his or her designee on all matters pertaining to policy and other matters that may affect the effectiveness and integrity of the monitoring function, including matters pertaining to market monitoring, information development and dissemination and pertaining to generic or entity-specific investigations, corrective actions or enforcement.

###### 1.3.2 CAISO CEO and MSC

The CAISO CEO and the MSC shall each have the independent authority to refer any of the matters referred to in Section 1.3.1 of this Appendix to the CAISO Governing Board for approval of recommended actions.

### **1.3.3 CAISO Chief Executive Officer (CAISO CEO)**

**1.3.3.1** The Department of Market Monitoring shall report to and be accountable to the CAISO CEO and his or her designee on all matters relating to administration of the Department and the internal resources and organization of the CAISO in accordance with Appendix P, Section 1.3.3.2.

**1.3.3.2** The CAISO, through the CAISO CEO and Governing Board, shall determine that the Department of Market Monitoring has adequate resources and full access to data and the full cooperation of all parts of the CAISO organization in developing the database necessary for the effective functioning of the Department of Market Monitoring and the fulfillment of its monitoring function.

### **1.3.4 Regulatory and Antitrust Enforcement Agencies**

Where considered necessary and appropriate, or where so ordered by the regulatory or antitrust agency with jurisdiction over the matter in question, or by a court of competent jurisdiction, the CAISO shall refer a matter to the regulatory or antitrust enforcement agency concerned, e.g., in cases of serious abuse requiring expeditious investigation or action by the agency. In all such cases of direct referral, the CAISO CEO shall promptly inform the CAISO Governing Board and the MSC of the fact of and the content of the referral.

### **1.3.5 Complaints**

Any Market Participant, or any other interested entity, may at any time submit information to or make a complaint to the Department of Market Monitoring concerning any matter that it believes may be relevant to the Department of Market Monitoring's monitoring responsibilities. Such submissions or complaints may be made on a confidential basis in which case the Department of Market Monitoring shall preserve the confidentiality thereof. The Department of Market Monitoring, at its discretion, may request further information from such entity and carry out any investigation that it considers appropriate as to the concern raised. The Department of Market Monitoring shall periodically make reports to the CAISO CEO and CAISO Governing Board on complaints received.



**CAISO TARIFF APPENDIX P1**

**CAISO Department of Market Monitoring**

**P1.1 CAISO Department of Market Monitoring**

**P1.1.1 Information Gathering and Market Monitoring Indices for Evaluation**

**P1.1.1.1 Information System**

The Department of Market Monitoring shall be responsible for developing an information system and criteria for evaluation that will permit it to effectively monitor the CAISO Markets to identify and investigate abuses of that market, whether caused by exercises of market power or by other actions or inactions.

**P1.1.1.2 Data Categories**

To develop the information system set forth in Section P1.1.1.1, the Department of Market Monitoring shall initially develop, and shall refine on the basis of experience, a detailed catalog of all the categories of data it will have the means of acquiring, and the procedures it will use (including procedures for protecting confidential data) to handle such data.

**P1.1.1.3 Catalog of Market Monitoring Indices**

The Department of Market Monitoring shall initially develop, and shall refine on the basis of experience, a catalog of the CAISO Market monitoring indices that it will use to evaluate the data so collected.

**P1.1.2 Evaluation of Information**

**P1.1.2.1 Ongoing Evaluation**

The Department of Market Monitoring shall evaluate and reevaluate on an ongoing basis the data categories and market monitoring indices that it has developed under Appendix P1, Sections P1.1.1.2 and P1.1.1.3, and the information it collects and receives from various other sources, including and in particular the CAISO's operation of the CAISO Markets. Such ongoing evaluations shall provide the basis for its reporting and publication responsibilities as set forth in this CAISO Tariff, for recommendations on proposed changes to the CAISO Tariff and CAISO Business Practice Manuals and other potential rules affecting the CAISO Markets, and for the development of criteria or standards for the initiation of proposed corrective or enforcement actions. In evaluating such information, the Department of Market Monitoring may consult the MSC or such external bodies as may be appropriate.

**P1.1.2.2 Submission of Evaluation Results**

The final results of the Department of Market Monitoring's ongoing evaluations under Appendix P1, Section P1.1.2.1 shall routinely and promptly be submitted to the CAISO CEO and to the MSC for comment.

**P1.1.3 Review of Rules of Conduct**

The Department of Market Monitoring shall review Rules of Conduct for their effectiveness and consistency with its market monitoring activities and standards. The Department of Market Monitoring may at that time, and from time to time thereafter based on its experience in monitoring the CAISO Markets, propose to the CAISO CEO and/or the CAISO Governing Board that changes be made in such Rules of Conduct.

**P1.1.4 Reports and Recommendations**

**P1.1.4.1 CAISO CEO and Governing Board**

On the basis of the evaluation conducted under Appendix P1, Section P1.1.2 or the review conducted under Section P1.1.3, the Department of Market Monitoring shall prepare periodic reports, as required by the CAISO CEO, and specific ad hoc reports as appropriate, for the CAISO CEO and CAISO Governing Board on the state of competition in or the efficiency of the CAISO Markets; and on its monitoring activities, the results of its evaluation and review activities, and its development and implementation of recommendations. Where appropriate, the CAISO Department of Market Monitoring may recommend to the CAISO CEO and/or the CAISO Governing Board actions to be taken, including the amendment of the CAISO Tariff and CAISO Business Practice Manuals and corrective or enforcement action against specific entities. Such reports shall be made not less frequently than quarterly in the case of the CAISO CEO and annually in the case of the CAISO Governing Board and shall contain such information and be in such form as specified by such entities. Such reports shall be made public and publicized as specified by such entities except to the extent that they contain confidential or commercially sensitive information or to the extent such entities determine that effective enforcement of the monitoring function dictates otherwise.

**P1.1.4.2 Regulatory Agencies**

As required in the CAISO Tariff or by the CAISO CEO and CAISO Governing Board, or as required by the regulatory agency with jurisdiction over the matters in question, the Department of Market Monitoring shall prepare reports to the FERC and other regulatory agencies, which shall be reviewed and approved by the CAISO CEO or his or her designee and then submitted as required. When publicly available reports are made to one regulatory agency with competent jurisdiction, such as the FERC, the Department of Market Monitoring may simultaneously make such reports available to other regulatory agencies with legitimate interests in their contents, such as the Electricity Oversight Board, the California Public Utilities Commission, the California Energy Commission and/or the California Attorney General.

**P1.1.4.3 CAISO Market Surveillance Committee**

All reports and recommendations to be made to regulatory agencies under Appendix P1, Section P1.1.4.2, unless urgency requires otherwise, shall first be submitted to the MSC for comments, which comments shall be reflected in any submittal to the CAISO Governing Board seeking approval of any such reports or recommendations. All final reports made to external regulatory agencies shall be simultaneously submitted to the MSC.

**P1.1.5 Market Participants**

**P1.1.5.1 Collection of Data**

The Department of Market Monitoring may request that Market Participants or other entities whose activities may affect the operation of the CAISO Markets submit any information or data determined by the Department of Market Monitoring to be potentially relevant. This data will be subject to due safeguards to protect confidential and commercially sensitive data. Failures by Market Participants to provide such data shall be treated under Section 37. In the event of failures by other entities to provide such data, the CAISO may take whatever action is available to it and appropriate for it to take, including reporting the failure to the pertinent regulatory agency, after providing such entity the opportunity to respond in writing as to the reason for the alleged failure and may include possible exclusion from the CAISO Markets or termination of any relevant CAISO agreements or certifications. Before any such action is taken, the CAISO Market Participant shall be provided the opportunity to respond in writing as to the reason for the alleged failure.

**P1.1.5.2 Dissemination of Data**

Any Market Participant may request that the CAISO provide data that the CAISO has collected concerning that Market Participant; and, such data may, subject to constraints on the CAISO's resources and at the CAISO's sole discretion, be provided by the CAISO subject to due safeguards to protect confidential and commercially sensitive data. Where such activity imposes a significant burden or expense on the CAISO, the data may be provided on the condition that a reasonable contribution to the cost incurred by the CAISO is made to the CAISO by the requesting party.

**P1.1.6 External Consulting Assistance and Expert Advice**

In carrying out any of its responsibilities under this CAISO Tariff, including the development of an information system, market monitoring indices and evaluation criteria, and the catalogs associated therewith, and in its analysis and ongoing evaluation of these catalogs and of the Rules of Conduct, the Department of Market Monitoring may hire consulting assistance subject to the budgetary approval of the CAISO CEO and may seek such expert external advice as it believes necessary.

**P1.1.7            Liability for Damages**

As provided in Section 14 of the CAISO Tariff, the Department of Market Monitoring, the MSC, the CAISO CEO and other CAISO staff, and the CAISO Governing Board shall not be liable to any Market Participant under any circumstances whatsoever for any matter described in those sections, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by such CAISO entities of their functions under this CAISO Tariff.

**CAISO TARIFF APPENDIX P2**

**Market Surveillance Committee**

**P2.2 Market Surveillance Committee**

**P2.2.1 Establishment**

There shall be established a Market Surveillance Committee (MSC), whose role it shall be to provide independent external expertise on the CAISO market monitoring process and, in particular, to provide independent expert advice and recommendations to the CAISO CEO and Governing Board. Members of the Committee shall not be, and shall not be understood to be, employees or agents of the CAISO.

**P2.2.2 Composition**

**P2.2.2.1 Qualifications**

The MSC shall comprise a body of three or more independent and recognized experts whose combined professional expertise and experience shall encompass the following:

- (a) economics, with emphasis on antitrust, competition, and market power issues in the electricity industry;
- (b) experience in operational aspects of Generation and transmission in electricity markets;
- (c) experience in antitrust or competition law in regulated industries; and
- (d) financial expertise relevant to energy or other commodity trading.

**P2.2.2.2 Criteria for Independence**

Each member of the MSC must meet the following criteria for independence:

**P2.2.2.2.1** no material affiliation, through employment, consulting or otherwise, with any Market Participant or Affiliate thereof consistent with the pertinent FERC Standards of Conduct; and

**P2.2.2.2** no material financial interest in any Market Participant or Affiliate thereof consistent with the pertinent FERC Standards of Conduct.

**P2.2.2.3** during their time on the Committee, members may not provide paid expert witness testimony or other commercial services to the CAISO or to any other party in connection with any legal or regulatory proceeding relating to the CAISO or any trade or other transaction involving the CAISO Markets (except that the Committee may consult with and make recommendations concerning the functioning of the markets to CAISO management or the CAISO Governing Board in connection with legal or regulatory proceedings).

### **P2.2.3 Appointments to the MSC**

For each position on the MSC, the CAISO CEO shall conduct a thorough search and requisite due diligence to develop a nomination to the CAISO Governing Board, which nomination shall be consistent with meeting the combined professional expertise and experience of the MSC set forth in Appendix P2, Section P2.2.2.1 and with the criteria for independence set forth in Appendix P2, Section P2.2.2.2. The CAISO Governing Board shall expeditiously consider such nominations. If the nomination is approved, the CAISO CEO shall appoint the candidate so nominated to the MSC. If the nomination is rejected, the CAISO CEO shall expeditiously proceed to develop another nomination.

### **P2.2.4 Compensation and Reimbursements**

Members of the MSC shall be compensated on such basis as the CAISO Governing Board shall from time to time determine.

Members of the MSC shall receive prompt reimbursement for all expenses reasonably incurred in the execution of their responsibilities under this Appendix P2, Section P2.2.

### **P2.2.5 Liability for Damages**

As provided in Section 14 of the CAISO Tariff, the Department of Market Monitoring, the MSC, the CAISO CEO and other CAISO staff, and the CAISO Governing Board shall not be liable to any Market Participant under any circumstances whatsoever for any matter described in those sections, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by such CAISO entities of their functions under this CAISO Tariff.

### **P2.2.6 SPECIFIC FUNCTIONS OF MARKET SURVEILLANCE COMMITTEE (MSC)**

#### **P2.2.6.1 Information Gathering and Evaluation Criteria**

The MSC shall review the initial catalogs of information and data and of evaluation criteria developed by the Department of Market Monitoring pursuant to Appendix P1, Section P1.1 and shall propose such changes, additions or deletions to such catalogs or items therein as it sees fit. In so doing, the MSC shall have full discretion to specify database items or evaluation criteria for inclusion in the pertinent catalog.

**P2.2.6.2 Evaluation of Information**

The MSC may, upon request of the Department of Market Monitoring, the CAISO management or the CAISO Governing Board, or on its own volition, evaluate such information or data, including as may be collected by the Department of Market Monitoring on the basis of the evaluation criteria developed by the Department of Market Monitoring or on such further articulated evaluation criteria developed by the MSC.

**P2.2.6.3 Reports and Recommendations**

**P2.2.6.3.1 Required Reports**

All evaluations carried out by the MSC pursuant to Appendix P2, Section P2.2.6.2, and any recommendations emanating from such evaluations, shall be embodied by the MSC in written reports to the CAISO CEO and CAISO Governing Board and shall be made publicly available subject to due restrictions on dissemination of confidential or commercially sensitive information. The MSC may submit any MSC report to FERC, subject to due restrictions on dissemination of confidential or commercially sensitive information.

**P2.2.6.3.2 Additional Reports**

The MSC may make such additional reports and recommendations as it sees fit relating to the monitoring program referred to in this CAISO Tariff, the analysis of information, the evaluation criteria or any corrective or enforcement actions proposed by the Department of Market Monitoring or proposed of its own volition.

**P2.2.6.4 Publication of Reports and Recommendations**

Upon request of the MSC, the CAISO shall publish reports and recommendations of the MSC or incorporate them, if consistent, into the CAISO's own reports or recommendations.

**P2.2.7 IMPLEMENTATION OF RECOMMENDATIONS**

**P2.2.7.1 Plan and Rules of Conduct Changes**

Following a recommendation of the MSC, the CAISO Governing Board may make such changes as it believes are appropriate to the CAISO Tariff, any CAISO Business Practice Manual or Agreement, or any Rules of Conduct applicable in accordance with Section 22.11 of this CAISO Tariff. .

**P2.2.7.2 Tariff Changes**

Upon recommendation of the MSC, the CAISO Governing Board shall consider and may adopt proposed CAISO Tariff changes in accordance with Section 22.11 of this CAISO Tariff.

**P2.2.7.3 Sanctions and Penalties**

Upon recommendation of the MSC, the CAISO may impose such sanctions or penalties as it believes necessary and as are permitted under the CAISO Tariff and related protocols approved by FERC; Section 37.9 or it may make any such referral to such regulatory or antitrust agency as it sees fit to recommend the imposition of sanctions and penalties.

**P2.2.8 PUBLICATION OF INFORMATION**

**P2.2.8.1 Market Monitoring Data and Indices**

The CAISO Department of Market Monitoring shall, pursuant to Appendix P1, Section P1.1.1, develop a catalog of data and indices. Upon approval of the CAISO CEO, such catalogs shall be duly published on the CAISO Website and disseminated to all Market Participants.

**P2.2.8.2 Reports to Regulators**

The CAISO shall develop annual reports of market performance for delivery to FERC, and such other reports as may be required by FERC, which shall be submitted for review to the MSC. The Department of Market Monitoring shall prepare and submit such reports to the CAISO CEO, CAISO Governing Board and to the regulatory agency concerned.



**CAISO TARIFF APPENDIX Q**  
**Eligible Intermittent Resources Protocol (EIRP)**

## APPENDIX Q

### Eligible Intermittent Resources Protocol (EIRP)

#### 1 SCOPE

##### 1.1 Scope of Application to Parties

This EIRP applies to the CAISO and to:

- (a) Scheduling Coordinators (SCs);
- (b) Eligible Intermittent Resources; and
- (c) Participating Intermittent Resources.

##### 1.2 Liability of the CAISO

Any liability of the CAISO arising out of or in relation to this EIRP shall be subject to Section 14 of the CAISO Tariff as if references to the CAISO Tariff were references to this EIRP.

#### 2 PARTICIPATING INTERMITTENT RESOURCE CERTIFICATION

##### 2.1 No Mandatory Participation

Eligible Intermittent Resources may elect to be scheduled and settled as the CAISO Tariff provides for Generating Units, and are not required to seek certification as Participating Intermittent Resources.

##### 2.2 Minimum Certification Requirements

Those Eligible Intermittent Resources that intend to become Participating Intermittent Resources must meet the following requirements.

###### 2.2.1 Agreements

The following agreements must be executed:

- (a) A Participating Generator Agreement that, among other things, binds the Participating Intermittent Resource to comply with the CAISO Tariff;

- (b) A Meter Service Agreement for CAISO Metered Entities; and
- (c) A letter of intent to become a Participating Intermittent Resource, which when executed and delivered to the CAISO shall initiate the process of certifying the Participating Intermittent Resource. The form of the letter of intent shall be specified by the CAISO and published on the CAISO Website.

### **2.2.2 Composition**

The CAISO shall develop criteria to determine whether one or more Eligible Intermittent Resources may be included within a Participating Intermittent Resource. Such criteria shall include:

- (a) A Participating Intermittent Resource must be at least 1 MW rated capacity.
- (b) A Participating Intermittent Resource may include one or more Eligible Intermittent Resources that have similar response to weather conditions or other variables relevant to forecasting Energy, as determined by the CAISO.
- (c) Each Participating Intermittent Resource shall be electrically connected at a single point on the CAISO Controlled Grid, except as otherwise permitted by the CAISO on a case-by-case basis as may be allowed under the CAISO Tariff.
- (d) The same Scheduling Coordinator must schedule all Eligible Intermittent Resources aggregated into a single Participating Intermittent Resource.

### **2.2.3 Equipment Installation**

A Participating Intermittent Resource must install and maintain the communication equipment required pursuant to [Section 3 of this EIRP](#), and the equipment supporting forecast data required pursuant to [Section 6 of this EIRP](#).

### **2.2.4 Forecast Model Validation**

The CAISO must determine that sufficient historic and real-time telemetered data are available to support an accurate and unbiased forecast of Energy generation by the Participating Intermittent Resource, according to the forecasting process validation criteria described in [Section 4 of this EIRP](#).

### **2.2.5 Information Requirements For Participating Intermittent Resource Export Fee**

In order for the CAISO to administer, implement and calculate the Participating Intermittent Resource Export Fee, each Participating Intermittent Resource jointly with, and through, its Scheduling Coordinator must provide the CAISO with the following information and documents under the schedule and conditions set forth in this section.

The CAISO will maintain the confidentiality of all information and documents received under this section in accordance with CAISO Tariff Section 20 et seq.

- (a) A certification, in the form posted on the CAISO Website, signed by an officer of the Participating Intermittent Resource and its Scheduling Coordinator, identifying (1) the PIR Export Percentage under Section 5.3.2 of this EIRP, if any, and basis thereof, and (2) each contract to sell Energy or capacity from the Participating Intermittent Resource, including for each such contract, the counterparty, start and end dates, delivery point(s), quantity in MW, other temporal terms, i.e., seasonal or hourly limitations.

The certification must be updated by resubmission to the CAISO (1) upon a request to modify the composition of the Participating Intermittent Resource under Section 2.4.2 of this EIRP; or (2) within ten (10) calendar days of final execution of a new contract or any change in counterparty, start and end dates, delivery point(s), quantity in MW, or other temporal terms, as described above, for any prior certified contract. All other contractual changes will not trigger the obligation for recertification;

- (b) Copies of all contracts, including changes, identified in the above-referenced certification; however, price information may be redacted from the contracts provided.

Each Participating Intermittent Resource, as of November 1, 2006, must initially provide the information requested by this Section 2.2.5 in accordance with a Market Notice provided by the CAISO to Participating Intermittent Resources. All other Eligible Intermittent Resources must satisfy this Section 2.2.5 in order to become a Participating Intermittent Resource after November 1, 2006.

## **2.3 Notice of Certification**

When all requirements described in Section 2.2 of this EIRP have been fulfilled, the CAISO shall notify the Scheduling Coordinator and the representatives of the Eligible Intermittent Resources comprising the Participating Intermittent Resource that the Participating Intermittent Resource has been certified, and is eligible for the settlement terms provided under Section 11.12 of the CAISO Tariff, as conditioned by the terms of this EIRP.

## **2.4 Requirements After Certification**

### **2.4.1 Forecast Fee**

Beginning on the date first certified, a Participating Intermittent Resource must pay the Forecast Fee for all metered Energy generated by the Participating Intermittent Resource over the duration of the commitment indicated in the letter of intent described in Section 2.2.1(c) of this EIRP.

The amount of the Forecast Fee shall be determined so as to recover the projected annual costs related to developing Energy forecasting systems, generating forecasts, validating forecasts, and monitoring forecast performance, that are incurred by the CAISO as a direct result of participation by Participating Intermittent Resources in CAISO Markets, divided by the projected annual Energy production by all Participating Intermittent Resources.

The initial rate for the Forecast Fee, and all subsequent rate changes as may be necessary from time to time to recover costs incurred by the CAISO for the forecasting conducted on the behalf of Participating Intermittent Resources, shall be posted on the CAISO Website. In no event shall the level of the Forecast Fee exceed the amount specified in CAISO Tariff Appendix F, Schedule 4.

#### **2.4.2 Modification of Participating Intermittent Resource Composition**

A Participating Intermittent Resource may seek to modify the composition of the Participating Intermittent Resource (e.g., by adding or eliminating an Eligible Intermittent Resource from the Participating Intermittent Resource). Such changes shall not be implemented without prior compliance with the written approval by the CAISO. The CAISO will apply consistent criteria and expeditiously review any proposed changes in the composition of a Participating Intermittent Resource.

#### **2.4.3 Changes in Scheduling Coordinator**

This EIRP does not impose any additional requirement for CAISO approval to change the Scheduling Coordinator for an approved Participating Intermittent Resource than would otherwise apply under the CAISO Tariff to changes in the Scheduling Coordinator representing a Generating Unit.

#### **2.4.4 Continuing Obligation**

A Participating Intermittent Resource must meet all obligations established for Participating Intermittent Resources under the CAISO Tariff and this EIRP, and must fully cooperate in providing all data, other information, and authorizations the CAISO reasonably requests to fulfill its obligation to validate forecast models, explain deviations, and implement the Participating Intermittent Resource Export Fees.

#### **2.4.5 Failure to Perform**

If the CAISO determines that a material deficiency has arisen in the Participating Intermittent Resource's fulfillment of its obligations under the CAISO Tariff and this EIRP, and such Participating Intermittent Resource fails to promptly correct such deficiencies when notified by the CAISO, then the eligibility of the Participating Intermittent Resource for the settlement accommodations provided in Section 11.12 of the CAISO Tariff shall be suspended until such time that the unavailable data is provided or other material deficiency is corrected to the CAISO's reasonable satisfaction. Such suspension shall

not relieve the Scheduling Coordinator for the deficient Participating Intermittent Resource from paying the Forecast Fee over the duration of the period covered by the letter of intent described in [Section 2.2.1\(c\) of this EIRP](#).

### **3 COMMUNICATIONS**

#### **3.1 Forecast Data**

The CAISO may require various data relevant to forecasting Energy from the Participating Intermittent Resource to be telemetered to the [CAISO](#), including appropriate operational data, meteorological data or other data reasonably necessary to forecast Energy.

#### **3.2 Standards**

The standards for communications shall be the monitoring and communications requirements for Generating Units providing only Energy; as such standards may be amended from time to time, and published on the CAISO Website.

#### **3.3 Cost Responsibility**

An applicant for certification as a Participating Intermittent Resource is responsible for expenses associated with engineering, installation, operation and maintenance of required communication equipment.

### **4 FORECASTING**

The CAISO is responsible for overseeing the development of tools or services to forecast Energy for Participating Intermittent Resources. The CAISO will use its best efforts to develop accurate and unbiased forecasts, as limited by the availability of relevant explanatory data. Objective criteria and thresholds for unbiased, accurate forecasts shall be published on the CAISO Website, and shall be used to certify Participating Intermittent Resources in accordance with [Section 2.2.4 of this EIRP](#).

#### **4.1 Hour-Ahead Forecast**

The CAISO shall develop expert, independent hourly forecasts of Energy generation on each Participating Intermittent Resource. A forecast shall be published each hour on the half hour for each of the next seven operating hours. Other forecasts, including a Day-Ahead forecast, may be developed at the CAISO's discretion. The Scheduling Coordinator representing the Participating Intermittent Resource must use the [hour-ahead forecast](#) that is available 30 minutes prior to the deadline for submitting the [HASP/RTM](#) Bids. The CAISO shall use best efforts to provide reliable and timely

forecasts. However, if the CAISO fails to deliver the hour-ahead forecast to the Scheduling Coordinator prior to 15 minutes before the deadline for submitting HASP/RTM Bids, then the hour-ahead forecast shall be the most recent Energy forecast provided by the CAISO to the Scheduling Coordinator for the operating hour for which Bids are next due.

#### **4.2 Forecast Calibration**

The CAISO shall calibrate the forecast to eliminate bias as measured by net MWh deviations across any and all relevant time periods to minimize the expected cumulative net charges or payments that are recovered or allocated through Section 11.12 of the CAISO Tariff.

#### **4.3 Confidentiality**

The CAISO shall maintain the confidentiality of proprietary data for each Participating Intermittent Resource in accordance with Section 20 of the CAISO Tariff.

### **5 SCHEDULING AND SETTLEMENT**

#### **5.1 Schedules**

Scheduling Coordinators shall be required to submit HASP/RTM Bids(MWh) for the Generating Units that comprise each Participating Intermittent Resource that are identical, in the aggregate, to the hour-ahead forecast published for that Participating Intermittent Resource (MWh).

#### **5.2 Settlement**

After a Participating Intermittent Resource is certified, Settlement shall be determined for each Settlement Period based on consistency of Bids submitted on behalf of such Participating Intermittent Resources with the rules specified in the CAISO Tariff and this EIRP.

#### **5.3 Participating Intermittent Resource Export Fee**

##### **5.3.1 Exemptions**

After November 1, 2006, Participating Intermittent Resources shall be subject to the Participating Intermittent Resource Export Fee, as set forth in Schedule 4 of Appendix F, for Energy generated, except to the extent the Participating Intermittent Resource is exempt under one or more of the following conditions:

- (a) The owner of a Participating Intermittent Resource, as of November 1, 2006, utilizes the Energy generated from the Participating Intermittent Resource to meet its own Native Load outside the CAISO Balancing Authority Area. Should any Participating Intermittent Resource subject to this exemption increase its PMax set forth in the CAISO's Master File by modification under Section 2.4.2 of this EIRP, the exemption will not apply to the added capacity unless exempt under another subsection of this Section 5.3.1.

If the Participating Intermittent Resource subject to this exemption changes ownership, the Participating Intermittent Resource Export Fee will apply, except where the prior exempt owner demonstrates that the entire output of the Participating Intermittent Resource continues to be delivered to the exempt owner under a power purchase agreement for the purpose of serving the prior exempt owner's Native Load. The exemption will then continue only for the period of the power purchase agreement as provided in accordance with Section 2.2.5 of this EIRP and cannot exceed the MW quantity originally exempted.

- (b) A Participating Intermittent Resource demonstrates in its certification under Section 2.2.5(a) of this EIRP an export contract with a starting term prior to November 1, 2006. An export contract is any power purchase agreement to sell Energy to any entity other than a Load Serving Entity with an obligation under law or franchise to serve Demand within the CAISO Balancing Authority Area.

The exemption will apply to any extension of the current export contract through an evergreen or other existing extension provision. The exemption terminates upon termination of the export contract. Should any Participating Intermittent Resource subject to this exemption increase its PMax set forth in the CAISO's Master File by modification under Section 2.4.2 of this EIRP, the exemption will apply only to Energy generated up to the contract quantity, unless the Participating Intermittent Resource demonstrates a basis for exemption under subsection (c) for the expanded capacity.

- (c) A Participating Intermittent Resource demonstrates in its certification under Section 2.2.5(a) of this EIRP a contract to sell Energy to a Load Serving Entity with Native Load within the CAISO Balancing Authority Area. Energy service providers with contractual obligations with customers within the CAISO Balancing Authority Area would be deemed a Load Serving Entity with an obligation to serve Native Load within the CAISO Balancing Authority Area.

The exemption will apply to any extension of the current contract through an evergreen or other existing extension provision. The exemption terminates upon termination of the contract. Should any Participating Intermittent Resource subject to this exemption increase its PMax set forth in the CAISO's Master File by modification under Section 2.4.2 of this EIRP, the exemption will continue to apply only to Energy generated up to the contract quantity unless the Participating Intermittent Resource demonstrates a basis for exemption under this subsection (c) for the expanded capacity.



### 5.3.2 Participating Intermittent Resource Export Percentage

Based on the information required in Section 2.2.5 of this EIRP and application of the exemptions to the Participating Intermittent Resource Export Fee in Section 5.3.1 of this EIRP, the CAISO will determine a PIR Export Percentage for each Participating Intermittent Resource that will be calculated as the ratio of the Participating Intermittent Resource's PMax in the CAISO Master File minus the MW, subject to an exemption under Section 5.3.1 of this EIRP on a MW basis to the Participating Intermittent Resource's PMax in the CAISO Master File. For example, a Participating Intermittent Resource with a PMax of 100 MW and a contract with a CAISO Balancing Authority Area Load Serving Entity for 40 MW would have a PIR Export Percentage of  $(100-60)/100 = 60\%$ . A Participating Intermittent Resource with a PIR Export Percentage greater than zero (0) will be deemed an Exporting Participant Intermittent Resource. The CAISO will notify the Participating Intermittent Resource and its Scheduling Coordinator of the facility's PIR Export Percentage. Any dispute regarding the CAISO's determination of the PIR Export Percentage shall be subject to the dispute resolution procedures under Section 13 of the CAISO Tariff.

### 5.3.3 Quarterly Application of Participating Intermittent Resource Export Fee

Each quarter the CAISO will charge Exporting Participating Intermittent Resources the Participating Intermittent Resource Export Fee, as set forth in Schedule 4 of Appendix F.

### 5.3.4 Allocation of Credit for Participating Intermittent Resource Export Fees Received

Payments received by the CAISO from application of the Participating Intermittent Export Fee in accordance with this Section 5.3 shall be allocated as a credit on a quarterly basis to Scheduling Coordinators with Net Negative Uninstructed Deviations in proportion to the to the amount of Net Negative Uninstructed Deviations that each Scheduling Coordinator was assessed for Participating Intermittent Resources Settlement charges for the applicable CAISO Charge Code during the prior quarter.

### 5.3.5 Recording of Exemptions and Notice of Termination

The CAISO will record any exemption period ending date, if applicable, for each Participating Intermittent Resource. At the conclusion of the exemption period, the CAISO will notify the Scheduling Coordinator for the Participating Intermittent Resource that the facility is no longer exempt from the Participating Intermittent Resource Export Fee.

### 5.3.6 Annual Confirmation

On December 31 of each calendar year, each Participating Intermittent Resource shall confirm in the form posted on the CAISO Website, signed by an officer of the Participating Intermittent Resource, that the operations of the Participating Intermittent Resource are consistent with any certification(s) provided to the CAISO under Section 2.2.5 of this EIRP.

### 5.3.7 Audit Rights

In addition to the rights set forth in CAISO Tariff Section 4.6.9, the CAISO shall have the right to contact any counterparty to a contract relied upon under Section 5.3.1 of this EIRP for purposes of determining compliance with this EIRP.

## 6 DATA COLLECTION FACILITIES

The Participating Intermittent Resource must install and maintain equipment to collect, record and transmit data that the CAISO reasonably determines is necessary to develop and support a forecast model that meets the requirements of Section 4 of this EIRP.

### 6.1 Wind Resources

A Participating Intermittent Resource powered by wind must install at least one meteorological tower at a project location that is representative of the microclimate within the project boundary.

The meteorological tower must rely on equipment typically used in the wind industry to continuously monitor weather conditions at a wind resource site. Data collected shall be consistent with requirements published on the CAISO Website. Such data must be gathered and telemetered to the CAISO in accordance with Section 3 of this EIRP.

If objective standards developed by the CAISO indicate that the meteorological data may not be sufficiently representative of conditions affecting Energy output or changes in Energy output by that Participating Intermittent Resource, then the CAISO may require that additional meteorological equipment be temporarily installed at another location within the project boundary. The cost of such equipment, which may be temporarily installed by the Participating Intermittent Resource or the CAISO, shall be the responsibility of the Participating Intermittent Resource.

If objective standards indicate that the data collected from such a temporary site contribute significantly to the development of an accurate and unbiased forecast, then the Participating Intermittent Resource shall be responsible for installing and arranging for the telemetry of data from an additional permanent meteorological tower at such site, and for the reasonable cost, if any, that the CAISO may have incurred to install and remove the temporary equipment. Relocation of the original meteorological tower to the new site will be allowed if the CAISO determines that a sufficiently accurate and unbiased forecast can be generated from a single relocated meteorological tower.

### 6.2 Other Eligible Intermittent Resources

Eligible Intermittent Resources other than wind projects that wish to become Participating Intermittent Resources will be required to provide data of comparable relevance to estimating Energy generation. Standards will be developed as such projects are identified and will be posted on the CAISO Website.

**7 PROGRAM MONITORING**

The CAISO shall monitor the operation of these rules, and will in particular seek to eliminate any gaming opportunities provided by the flexibility provided Participating Intermittent Resources to self-select participation on an hourly basis.

Participating Intermittent Resources are expected to bid, schedule, and otherwise perform in good faith, and not seek to act strategically in a manner that causes financial gain through systematic behavior, where such gain results solely from the settlement accommodations provided under CAISO Tariff Section 11.12.

If requirements specified in this technical standard are not met, then Participating Intermittent Resource certification may be revoked pursuant to Section 2.4.5 of this EIRP. Any patterns of strategic behavior by Participating Intermittent Resources will be tracked, and the statistical significance of such deviations will be used by the CAISO to evaluate whether changes in the rules defined in this EIRP are appropriate.

The CAISO will monitor the impact of rules for Participating Intermittent Resources on Imbalance Energy and Regulation costs to the CAISO.

**8 AMENDMENTS**

If the CAISO determines a need for an amendment to this EIRP, the CAISO will follow the requirements as set forth in Section 15 of the CAISO Tariff.

**CAISO TARIFF APPENDIX R**  
**UDP Aggregation Protocol**

## CAISO TARIFF APPENDIX R

### UDP Aggregation Protocol

#### 1 SCOPE

There are two types of UDP Aggregation classifications:

- (1) Basic UDP Aggregations: composed of Generating Units connected at the same substation and stepping up to the same voltage level bus bar, or
- (2) Custom UDP Aggregations: composed of Generating Units connected at different substations and/or different voltage levels, particularly where the Generating Units to be aggregated are separated by CAISO Controlled Grid facilities. Examples of a proposed custom UDP Aggregation include hydroelectric units operating on a common watershed (but having multiple different interconnection points), or geothermal units fed from a common geothermal steam supply.

#### 2 SUBMITTAL OF A REQUEST FOR UDP AGGREGATION

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

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

#### 3 CAISO REVIEW OF A UDP AGGREGATION REQUEST

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

### 3.1 Criteria for Reviewing a Request

#### 3.1.1 Scheduling Coordinator and Interconnection Point

Uninstructed Deviations may be aggregated for resources that are:

- (1) Represented by the same Scheduling Coordinator and
- (2) Connected to the same CAISO Controlled Grid bus and voltage level. The CAISO will consider, on a case-by-case basis, requests to aggregate Uninstructed Deviations among resources represented by the same Scheduling Coordinator but not sharing a common CAISO Controlled Grid bus and voltage level based on a CAISO review of impact on the CAISO Controlled Grid. In particular, the CAISO will consider whether the request concerns resources related by a common flow of fuel which cannot be interrupted without a substantial loss of efficiency of the combined output of all components; whether the Energy production from one resource necessarily causes Energy production from other resource(s); and whether the operational arrangement of resources determines the overall physical efficiency of the combined output of all of the resources.

#### 3.1.2 Additional Criteria

Additional eligibility criteria for a UDP Aggregation are as follows:

- (1) Only Generating Units shall be eligible for UDP Aggregation. As a general rule, pump-generating Units (or a Physical Scheduling Plant [PSP] containing a pump-generating Unit) cannot be part of a UDP Aggregation. However, it is possible that Generating Units could form a UDP Aggregation comprised entirely of pump-generating Units whose operation is uniform, that is, Units all operating in either Generation mode or all in pump mode, but never mixed.
- (2) UDP Aggregations cannot include any of the following:
  - (a) Load;
  - (b) Condition 2 Reliability Must-Run (RMR) Units;
  - (c) Participating Intermittent Resources; or
  - (d) Generating Units less than five (5) MW.
- (3) The resources must have CAISO direct telemetry and must be fully compliant with the CAISO's direct telemetry standards.

- (4) The Generating Units must have the same relative effect on all network elements for which the Generating Units have at least a five percent (5%) effectiveness factor, that is, for those network elements for which a one (1) MW change in the output of the Generating Unit changes the flow across that element by at least 0.05 MW. For the purposes of this item (4), the "same relative effect" means that the effectiveness factors of any Generating Unit relative to a network element cannot differ by more than ten percent (10%) from the midpoint effectiveness factor of all the units. The midpoint effectiveness is the arithmetic mean of the two most different effectiveness factors to be aggregated.
- (5) Custom UDP Aggregations involving units not directly connecting to the CAISO Controlled Grid must recognize the transfer limits and status of the intermediate local facilities.
- (6) The applicable P<sub>Max</sub> of aggregated groups of resources will exclude units that are not operating.

### 3.1.3 Approval of a Request

If a UDP Aggregation request is approved, the CAISO shall create a new unique Resource ID, which reflects the identity or location of the units and stipulates the UDP Aggregation, but which cannot be used for scheduling purposes. The CAISO shall inform the Scheduling Coordinator of the approval and ask the Scheduling Coordinator to confirm the desired start date of the UDP Aggregation. When that confirmation has been received, the new aggregation will be entered into the CAISO systems. Unless otherwise agreed to by the Scheduling Coordinator and the CAISO, the UDP Aggregation will become effective on the first day of the month following approval. The units in an approved UDP Aggregation are obligated to follow their individual Schedules and instructions at all times.

### 3.1.4 Rejection of a Request

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

## 4 MODIFICATIONS TO AN EXISTING UDP AGGREGATION

### 4.1 Status of UDP Aggregation

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

#### **4.2 Suspension by the CAISO**

The CAISO may temporarily suspend any **UDP Aggregation** as needed to ensure reliability. The CAISO may also suspend previously approved **UDP Aggregations** if, due to changes to the grid, to the aggregated Generating Units, or to the facilities connecting aggregated Generating Units to the grid, the **UDP Aggregation** no longer meets the criteria set forth in Sections 3.1.1 and 3.1.2 of this **Appendix R**.

If the CAISO must suspend the **UDP Aggregation** due to a **Forced Outage** or other unanticipated event, the CAISO shall provide notice that the **UDP Aggregation** has been suspended as soon as practical after the affecting event, but in no case longer than **seventy-two (72) hours** after that event. If the CAISO must suspend the **UDP Aggregation** due to future changes, the CAISO shall notify the affected Scheduling Coordinator (1) that the **UDP Aggregation** will be suspended and (2) when the **UDP Aggregation** will be suspended as soon as practical after the CAISO determines the **UDP Aggregation** must be suspended.

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

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

#### **4.3 Request for Modification by a Scheduling Coordinator**

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