

California Independent System Operator Corporation
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Appendix W Amendment 39 Interconnection Procedures

Interconnection Procedures in Effect Prior to July 1, 2005 (“Amendment 39 Procedures”)

- **Applicability.**

- These Amendment 39 Procedures are applicable to Small Generating Facilities interconnecting to the CAISO Controlled Grid in accordance with Section 1.3 of the SGIP in Appendix S and to Large Generating Facilities in accordance with Section 5.1 of the LGIP in Appendix U. The owner of a planned New Facility, or its designee, is referred to for purposes of this Appendix as a New Facility Operator.

- **Definitions.**

2.1 Master Definitions Supplement.

Unless the context otherwise requires, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have the same meaning where used in this Appendix.

2.2 Special Definitions for this Appendix.

In this Appendix, the following words and expressions shall have the meanings set opposite them:

Completed Application

Date For purposes of this Appendix, the date on which a New Facility Operator submits an Interconnection Application to the CAISO that satisfies the requirements of the CAISO Tariff and the TO Tariff of the Interconnecting PTO.

Completed Interconnection Application

An Interconnection Application that meets the information requirements as specified by the CAISO and posted on the CAISO Website.

- **Data Adequacy**

- **Requirement** Any applicable minimum data requirements of the state agency responsible for generation siting or of any Local Regulatory Authority.

- **Delivery Upgrade**

The transmission facilities, other than Direct Assignment Facilities and Reliability Upgrades, necessary to relieve constraints on the CAISO Controlled Grid and to ensure the delivery of energy from a New Facility to Load.

- **Designated Contact Person** The person designated by each Participating TO to coordinate with the CAISO on the processing and completion of all Interconnection Applications.

- **Direct Assignment Facility** The transmission facilities necessary to physically and electrically interconnect a New Facility Operator to the CAISO Controlled Grid at the point of interconnection.

- **Expedited Interconnection**

Agreement A contract between a party which has submitted a Request for Expedited Interconnection Procedures and an Interconnection PTO under which the CAISO and an Interconnecting PTO agree to process, on an expedited basis, the Interconnection Application of a New Facility Operator and

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which sets forth the terms, conditions, and cost responsibilities for such interconnection.

Good Faith Deposit	The deposit paid to the CAISO by a New Facility Operator with submission of its Interconnection Application in accordance with Section 3.2 of this Appendix, in an amount equal to \$10,000, including any interest that accrues on the original amount, less any bank fees or other charges assessed on the escrow account. A New Facility Operator may satisfy its deposit obligation through any commercially available financial instrument determined to be satisfactory by the CAISO.
Interconnecting PTO	For purposes of this Appendix, the Participating TO that will supply the connection to the New Facility.
Interconnection Application	An application that requests interconnection of a New Facility to the CAISO Controlled Grid and that meets the information requirements as specified by the CAISO and posted on the CAISO Website.
New Facility	A planned or Existing Generating Unit that requests, pursuant to this Appendix, to interconnect or modify its interconnection to the CAISO Controlled Grid.
New Facility License	A license issued by a federal, state or Local Regulatory Authority that enables an entity to build and operate a Generating Unit.
New Facility Operator	The owner of a planned New Facility, or its designee.
Planning Procedures	Procedures governing the planning, expansion and reliable interconnection to the CAISO Controlled Grid that the CAISO may, from time to time, develop.
Reliability Upgrade	The transmission facilities, other than Direct Assignment Facilities, beyond the first point of interconnection necessary to interconnect a New Facility safely and reliably to the CAISO Controlled Grid, which would not have been necessary but for the interconnection of a New Facility, including network upgrades necessary to remedy short circuit or stability problems resulting from the interconnection of a New Facility to the CAISO Controlled Grid. Reliability Upgrades also include, consistent with WSCC practice, the facilities necessary to mitigate any adverse impact a New Facility's interconnection may have on a path's WSCC path rating.
Request for Expedited	
Interconnection Procedures	A written request, submitted pursuant to Section 3.1.1 of this Appendix, by which a New Facility Operator can request expedited processing of its Interconnection Application.
System Impact Study	An engineering study conducted to determine whether a New Facility Operator's request for interconnection to the CAISO Controlled Grid would require new transmission additions, upgrades or other mitigation measures.

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▪ **3 Interconnection Application.**

▪ Unless the New Facility Operator has submitted a Completed Interconnection Application to the CAISO prior to July 1, 2005, any New Facility Operators shall submit two (2) copies of a Completed Interconnection Application to the CAISO in the form specified by the CAISO. The CAISO will date stamp all copies of the Interconnection Application, retain one executed copy, and, within one (1) Business Day, send the other copy to the Designated Contact Person of the Interconnecting PTO. Within ten (10) Business Days after the Interconnecting PTO receives an Interconnection Application, the CAISO and the Interconnecting PTO shall determine whether the application is complete and the CAISO will notify the New Facility Operator that its Interconnection Application is complete; or, in the event that the CAISO, in consultation with the Interconnecting PTO, determines that the Interconnection Application is incomplete, the CAISO will notify the New Facility Operator of the deficiencies or omissions in its application.

▪ **3.1 Expedited Procedures For New Facilities.**

A New Facility Operator may submit a Request for Expedited Interconnection Procedures in accordance with Section 3.1.1 of this Appendix. The CAISO will develop and post on the CAISO Website the Planning Procedures applicable to such expedited processing of Interconnection Applications.

3.1.1 Request for Expedited Interconnection Procedures.

- (a) If it elects to expedite processing of its Completed Interconnection Application, a New Facility Operator shall submit a Request for Expedited Interconnection Procedures within 10 Business Days after receiving a copy of the System Impact Study for the proposed interconnection. The request should be submitted in writing to the CAISO and the Interconnecting PTO.
- (b) Within ten (10) Business Days after receiving a Request for Expedited Interconnection Procedures, the CAISO and Interconnecting PTO shall provide to applicant the results of any studies required in addition to the System Impact Study, and shall tender an Expedited Interconnection Agreement that requires the applicant to compensate the Interconnecting PTO for all costs reasonably incurred pursuant to the terms of the CAISO Tariff and the Interconnecting PTO's applicable TO Tariff for processing the Completed Interconnection Application and providing the requested interconnection.
- (c) Concurrent with the provision, by the CAISO and the Interconnecting PTO, of the studies referenced in subsection b, above, the Interconnecting PTO and the CAISO shall provide to applicant their best estimate of the cost of any needed Direct Assignment Facilities and Reliability Upgrades, Delivery Upgrades, if requested by the New Facility Operator, and other costs that may be incurred in processing the Interconnection Application and providing the requested interconnection, however, unless otherwise agreed by the CAISO, and the Interconnecting PTO, and the applicant, such cost estimate shall not be binding and the New Facility Operator shall compensate the CAISO and the Interconnecting PTO for all actual interconnection costs reasonably incurred pursuant to the provisions of this Appendix and the Interconnecting PTO's TO Tariff.
- (d) The New Facility Operator shall execute and return to the Interconnecting PTO, with a copy to the CAISO, such Expedited Interconnection Agreement within ten (10) Business Days of its receipt or the New Facility Operator's Interconnection Application will be deemed withdrawn. In that event, the New Facility Operator shall reimburse the CAISO and the Interconnecting PTO for all costs reasonably incurred in the processing of the Interconnection Application, including the Request for Expedited Interconnection.

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3.2 Good Faith Deposit.

- (a) Each New Facility Operator that submits an Interconnection Application will on the date of submission also provide a Good Faith Deposit to the CAISO. The CAISO shall hold the Good Faith Deposit in trust for each applicant in a separate, interest-bearing account.
- (b) The CAISO shall refund the Good Faith Deposit, with accrued Interest, in the event that:
 - (i) The CAISO determines that the New Facility is not responsible for any interconnection costs, other than study costs; or
 - (ii) The applicant withdraws its Interconnection Application or its Interconnection Application is deemed withdrawn.

3.3 Posting of Interconnection Applications and Non-disclosure.

The CAISO will maintain on its OASIS site an updated list of all pending Interconnection Applications. As soon as practicable after the CAISO receives a Completed Interconnection Application, the CAISO will post the nearest substation, the capacity (MW) of the New Facility and the year the New Facility is proposed to begin operations. At the time it submits its Interconnection Application, a New Facility Operator may request in writing that the CAISO and Interconnecting PTO not publicly disclose the identity of such New Facility Operator. Upon such request, the CAISO and Interconnecting PTO will not disclose the identity of the applicant while its Interconnection Application is pending, unless disclosure is permitted under Section 20.1 of the CAISO Tariff or in the event that an applicant's identity becomes otherwise publicly known.

4 Interconnection.

4.1 Detailed Planning Procedures.

The provisions set forth in this Appendix shall govern the interconnection of New Facilities to the CAISO Controlled Grid, including the costs of such interconnection. The CAISO shall also maintain on the CAISO Website detailed Planning Procedures and interconnection standards for all such interconnections.

4.2 Studies.

- (a) Except as provided in Section 4.2(d) of this Appendix, for each Completed Interconnection Application, the CAISO will direct the Interconnecting PTO to perform the required System Impact Study and Facility Study, and any additional studies the CAISO determines to be reasonably necessary.
- (b) The Interconnecting PTO will complete or cause to be completed all studies directed by the CAISO within the timelines provided in this section. Any studies performed by the CAISO or by a third party at the direction of the CAISO shall also be completed within the timelines provided in this section.
- (c) Each New Facility Operator shall pay the reasonable costs of all System Impact and Facility Studies performed by or at the direction of the CAISO or the Interconnecting PTO, and any additional studies the CAISO determines to be reasonably necessary in response to the Interconnection Application, including any iterative study costs required for other New Facility Operator's that have established a new queue position due to the New Facility Operator either withdrawing its Interconnection Application or because its queue position has been modified pursuant to the procedures in Section 4.4 of this Appendix. A New Facility Operator shall also pay the reasonable cost of Interconnecting

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PTO review of any System Impact Study or Facility Study that is performed by a New Facility Operator or its designee pursuant to subsection (d).

- (d) A New Facility Operator may perform its own System Impact Study and Facility Study, or contract with a third party to perform the System Impact Study and Facility Study, and shall so notify the CAISO and the Interconnecting PTO of this election at the time it submits its Interconnection Application. Any such study or studies performed by a New Facility Operator or third party must be completed within the timelines identified in Sections 4.2.1 and 4.2.2 of this Appendix. To the extent that the CAISO and Interconnecting PTO disagree on the adequacy of the New Facility Operator or third party-sponsored study, the CAISO will determine the adequacy of the study, subject to the CAISO's ADR Procedures. The CAISO and Interconnecting PTO shall complete their review of the New Facility Operator's study within thirty (30) calendar days of receipt of the completed study. The results of any study or studies performed by a New Facility Operator or third party must be approved by both the CAISO and the Interconnecting PTO.

4.2.1 System Impact Study Procedures.

Within ten (10) Business Days after receiving a Completed Interconnection Application by the Interconnecting PTO, the CAISO and the Interconnecting PTO will determine, on a non-discriminatory basis, whether a System Impact Study is required. The CAISO and the Interconnecting PTO will make such determination based on the CAISO Grid Planning Criteria and the transmission assessment practices outlined in the CAISO Planning Procedures posted on the CAISO Website. The CAISO and Interconnecting PTO will utilize, to the extent possible, existing transmission studies. The System Impact Study will identify whether any Direct Assignment Facilities and Reliability Upgrades are needed, as well as, if requested by the New Facility Operator, any Delivery Upgrades necessary to deliver a New Facility's full output over the CAISO Controlled Grid. The System Impact Study will also identify any adverse impact on Encumbrances existing as of the Completed Application Date.

If the CAISO and the Interconnecting PTO determine that a System Impact Study is necessary, the Interconnecting PTO shall within twenty (20) Business Days of receipt of Completed Interconnection Application, tender a System Impact Study Agreement that defines the scope, content, assumptions and terms of reference for such study, the estimated time required to complete it, and pursuant to which the applicant shall agree to reimburse the Interconnecting PTO for the reasonable actual costs of performing the required study. The New Facility Operator shall execute the System Impact Study Agreement and return it to the Interconnecting PTO within ten (10) Business Days, together with payment for the reasonable estimated cost, as provided by the Interconnecting PTO, of the System Impact Study. Alternatively, a New Facility Operator can request that the Interconnecting PTO proceed with the System Impact Study and abide by the terms, conditions, and cost assignment of the System Impact Study Agreement as determined through the CAISO ADR Procedures, provided that such request is accompanied by payment for the reasonable estimated cost, as provided by the Interconnecting PTO, of the System Impact Study. If a New Facility Operator elects neither to execute the System Impact Study Agreement nor to rely upon the CAISO ADR Procedures, such New Facility Operator's Completed Application will be deemed withdrawn. If the New Facility Operator's application is deemed withdrawn, the New Facility Operator will compensate the Interconnecting PTO for all reasonable costs incurred to that date in processing the Completed Interconnection Application.

The Interconnecting PTO will use due diligence to complete the System Impact Study within sixty (60) calendar days of receipt of payment and the System Impact Study Agreement or initiation of the CAISO ADR Procedures. If the Interconnecting PTO cannot complete the System Impact Study within sixty (60) calendar days, the Interconnecting PTO will notify the New Facility Operator, in writing, of the reason why additional time is required to complete the required study and the estimated completion date.

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4.2.2 Facility Study Procedures.

If a System Impact Study indicates that additions or upgrades to the CAISO Controlled Grid are needed to satisfy a New Facility Operator's request for interconnection, the Interconnecting PTO shall, within fifteen (15) Business Days of the completion of the System Impact Study, tender to a New Facility Operator a Facility Study Agreement that defines the scope, content, assumptions and terms of reference for such study, the estimated time to complete the required study, and pursuant to which the applicant agrees to reimburse the Interconnecting PTO for the actual costs of performing the required Facility Study. The New Facility Operator shall execute the Facility Study Agreement and return it to the Interconnecting PTO within ten (10) Business Days, together with payment for the reasonable estimated cost, as provided by the Interconnecting PTO, of the Facility Study. Alternatively, a New Facility Operator may request that the Interconnecting PTO proceed with the Facility Study and abide by the terms, conditions, and cost assignment of the Facility Study Agreement ultimately determined through the CAISO ADR Procedures, provided that such request is accompanied by payment for the reasonable estimated cost, as provided by the Interconnecting PTO, of the Facility Study. If a New Facility Operator elects either to not execute the Facility Study Agreement or to rely upon the CAISO ADR Procedures, such New Facility Operator's Completed Application will be deemed withdrawn. If the New Facility Operator's application is deemed withdrawn, the New Facility Operator will compensate the Interconnecting PTO for all reasonable costs incurred to that date in processing the Completed Application.

The Interconnecting PTO will use due diligence to complete the Facility Study within sixty (60) calendar days of receipt of payment and the Facility Study Agreement or initiation of the CAISO ADR Procedures. If the Interconnecting PTO cannot complete the Facility Study within sixty (60) calendar days, the Interconnecting PTO will notify the New Facility Operator, in writing, of the reason why additional time is required to complete the required study and the estimated completion date.

A New Facility Operator shall be entitled to amend its Completed Interconnection Application once without losing its queue position. Such amendment shall occur on or before ten (10) Business Days following the Date the Interconnecting PTO tenders a Facility Study Agreement. Specifically, as an alternative to executing and returning a Facility Study Agreement, a New Facility Operator may submit an amendment to its Completed Interconnection Application to reflect a revised configuration for its New Facility. The amended Completed Interconnection Application shall be treated in accordance with Section 4.2.1 of this Appendix and the New Facility Operator's Completed Interconnection Application shall not be deemed withdrawn, and it shall maintain its exiting queue position, if (a) the amended Completed Interconnection Application is received by the Interconnecting PTO within ten (10) Business Days of the Interconnecting PTO's tender of a Facility Study Agreement; and (b) the New Facility Operator has not submitted a previous amendment to the Completed Interconnection Application. In the event a New Facility Operator amends its Completed Interconnection Application, it will be responsible for any additional study costs that result from that amendment, including costs associated with revisions to studies for other applicants holding later queue positions.

4.3 Execution of Interconnection Agreement.

Following completion of the Facility Study, a New Facility Operator proposing to interconnect a Large Generating Facility shall continue the interconnection process in accordance with Section 11.2 of the LGIP. Within ten (10) Business Days of receipt of a completed Facility Study, a New Facility Operator proposing to interconnect a Small Generating Facility shall request the Interconnecting PTO to provide to such applicant an Interconnection Agreement. The Interconnecting PTO shall provide an Interconnection Agreement to an applicant within thirty (30) Business Days of receipt of the request for an Interconnection Agreement. If the CAISO and Interconnecting PTO determine, pursuant to Sections 4.2.1 and 4.2.2 of this Appendix, that either:

- (a) a New Facility Operator's Interconnection Application can be accommodated and that such New Facility Operator will not incur costs for Reliability Upgrades, the New Facility

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Operator shall execute the Interconnection Agreement within ten (10) Business Days of receipt of the Interconnection Agreement; or

- (b) a New Facility Operator's Interconnection Application will necessitate Reliability Upgrades, the New Facility Operator shall execute the Interconnection Agreement within thirty (30) Business Days of receipt of the Interconnection Agreement or, if a New Facility Operator and the Interconnecting PTO are unable to agree on the rates, terms and conditions of the Interconnection Agreement, the New Facility Operator may request that the Interconnecting PTO file an unexecuted Interconnection Agreement at FERC. If a New Facility Operator does request that the Interconnecting PTO file an unexecuted Interconnection Agreement at FERC, the New Facility Operator shall agree to abide by the rates, terms and conditions of such Interconnection Agreement ultimately determined by FERC to be just and reasonable.

4.4 Queuing.

- (a) The CAISO and Interconnecting PTO will process all Interconnection Applications based on the New Facility's Completed Application Date.
- (b) The queue position for each New Facility that has submitted an Interconnection Application will be established according to the Completed Application Date and the New Facility's compliance with the milestones set forth in Section 4.4.1 of this Appendix.
- (c) For any New Facility Operator that submitted a request to interconnect to a Interconnecting PTO prior to June 1, 2002 (the effective date of the Amendment 39 Procedures), such New Facility Operator's position in the queue will be based on its Completed Application Date as that term was defined in the Interconnecting PTOs TO Tariff in effect at the time the New Facility Operator submitted a request to interconnect to the Interconnecting PTO.

4.4.1 Queuing Milestones.

- (a) To maintain its queue position, each New Facility Operator must timely comply with the requirements of the CAISO Tariff and the TO Tariff of the Interconnecting PTO and must, within six (6) months of its Completed Application Date, satisfy all applicable Data Adequacy Requirements of state and local siting and other regulatory authorities. Any New Facility Operator not subject to state siting requirements must satisfy the information requirements set forth in 18 C.F.R. § 2.20. The CAISO will permit a New Facility Operator to retain its queue position if such New Facility Operator requests an extension of the six (6)-month period at least five (5) Business Days prior to the expiration of such period. Such extension will be limited to one period of thirty (30) Business Days and additional extensions shall not be granted. A New Facility Operator that does not maintain its queue position, but later satisfies the Data Adequacy Requirements, or the requirements of 18 C.F.R. § 2.20 if applicable, will be placed in a queue position comparable to that of other New Facility Operators that have satisfied the Data Adequacy Requirements, or the requirements of 18 C.F.R. § 2.20, as of the same date. At that time, the CAISO and the Interconnecting PTO will determine whether a new System Impact Study must be performed based on the revised queue position of such New Facility Operator.
- (b) Upon satisfaction of the Data Adequacy Requirements, or the requirements of 18 C.F.R. § 2.20 if applicable, each New Facility Operator, in order to maintain its queue position, must obtain a New Facility License within fifteen (15) months after satisfying the Data Adequacy Requirements. A New Facility Operator that does not obtain a New Facility License within the allowed time and does not maintain its queue position, but later

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obtains a New Facility License, will be placed in a queue position comparable to other New Facility Operators that have satisfied comparable milestones as of that date.

- (c) Any New Facility whose New Facility License or building permit expires or is rescinded will not maintain its queue position.
- (d) A New Facility Operator that has submitted a dispute under Article 13 of the CAISO Tariff regarding any part of this Appendix may request that the presiding judge, arbitrator, or mediator of the dispute suspend its obligation to meet milestones in order to maintain its queue position. In the event such a suspension is granted, the New Facility Operator must satisfy the missed milestones specified in this Section 4.4.1 of this Appendix within thirty (30) calendar days of the date the decision on the dispute becomes final.

▪ **4.5 Coordination of Critical Protective Systems.**

New Facility Operators shall coordinate with the CAISO, Participating TOs and UDCs to ensure that a New Facility Operator's Critical Protective Systems, including relay systems, are installed and maintained in order to function on a coordinated and complementary basis with CAISO Controlled Grid Critical Protective Systems and the protective systems of the Participating TOs and UDCs. The CAISO and Participating TOs will make available all information necessary for a New Facility Operator to determine whether its Critical Protective Systems are compatible with those of the CAISO, Participating TOs and UDCs. The CAISO and New Facility Operators shall also coordinate with entities that own, operate or control facilities outside of the CAISO Controlled Grid to ensure that a New Facility's Critical Protective Systems function on a coordinated and complementary basis with such entities Critical Protective Systems.

5 Cost Responsibility of New Facility Operators.

- (a) Each New Facility Operator shall pay the costs of required studies in accordance with Section 4.2 of this Appendix and the costs identified in this Section 5. The CAISO and Interconnecting PTO will provide each New Facility Operator an estimate of its total cost responsibility under this Section. A New Facility Operator shall be responsible for the actual costs of all Direct Assignment Facilities and Reliability Upgrades necessitated by its Completed Interconnection Application. The Interconnecting PTO will provide each New Facility Operator a detailed record of the actual costs assessed to it under this Section. A New Facility Operator may request the Interconnecting PTO to provide any additional information reasonably necessary to audit the actual costs the New Facility Operator is assessed.
- (b) The CAISO and Interconnecting PTO will process all Interconnection Applications, and determine the cost responsibility of each New Facility Operator based on the New Facility Operator's Completed Application Date or, if applicable, based on the queue position determined by the procedure described in Section 4.4.1(b) of this Appendix. The CAISO and Interconnecting PTO will process simultaneously all interconnection requests with the same Completed Application Date.
- (c) Each New Facility Operator shall pay the costs of planning, installing, operating and maintaining the following facilities: (i) Direct Assignment Facilities, and, if applicable, (ii) Reliability Upgrades. In addition, each New Facility Operator shall implement all existing operating procedures necessary to safely and reliably connect the New Facility to the facilities of the Interconnecting PTO and to ensure the CAISO Controlled Grid's conformance with the CAISO Grid Planning Criteria, and shall bear all costs of implementing such operating procedures. The New Facility Operator shall be responsible for the costs of Reliability Upgrades only if the necessary facilities are not included in the CAISO Controlled Grid Transmission Expansion Plan approved as of the

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New Facility Operator's Completed Application Date, or the date for the installation of a facility is advanced by the interconnection of the New Facility, in which case the New Facility Operator shall be responsible only for the incremental costs associated with the earlier installation of the facility.

- (d) Each New Facility Operator may, at its own discretion, sponsor, pursuant to Section 24 of the CAISO Tariff, any Delivery Upgrades.

5.1 Maintenance of Encumbrances.

No New Facility shall adversely affect the ability of the Interconnecting PTO to honor its Encumbrances existing as of the time a New Facility submits its Interconnection Application to the CAISO. The Interconnecting PTO, in consultation with the CAISO, shall identify any such adverse effect on its Encumbrances in the System Impact Study performed under Section 4.2.1 of this Appendix. To the extent the Interconnecting PTO determines that the connection of the New Facility will have an adverse effect on Encumbrances, the New Facility Operator shall mitigate such adverse effect.

5.2 Settlement of Interconnection Costs.

Payment for Direct Assignment Facilities and Reliability Upgrades shall be made by the New Facility Operator to the Interconnecting PTO pursuant to the terms of payment set forth in the Interconnection Agreement between the parties.

6 Energization.

Neither the CAISO nor the Interconnecting PTO shall be obligated to energize, nor shall the New Facility Operator be entitled to have its interconnection to the CAISO Controlled Grid energized, unless and until an Interconnection Agreement has been executed, or filed at FERC pursuant to Section 4.3 of this Appendix, and becomes effective and such New Facility Operator has demonstrated to the CAISO's reasonable satisfaction that it has complied with all of the requirements of this Appendix.

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Appendix X Dynamic Scheduling Protocol (DSP)

Dynamic Scheduling Protocol (DSP)

CAISO TARIFF APPENDIX X

Dynamic Scheduling Protocol (DSP)

1 [NOT USED]

2 CONSISTENCY WITH NERC/WECC POLICIES AND REQUIREMENTS

2.1 Scheduling and operation of Dynamic Schedule functionalities must comply with all applicable NERC and WECC policies and requirements regarding inter-Balancing Authority Area scheduling, in accordance with Section 4.5.4.3 of the CAISO Tariff.

2.2 Scheduling and operation of Dynamic Schedule functionalities must be consistent with the NERC Dynamic Transfer White Paper and all NERC standards or policies.

2.3 All new dynamic functionality implementations may be subject to NERC-specified peer review.

3 CONTRACTUAL RELATIONSHIPS

3.1 The Host Balancing Authority and all Intermediary Balancing Authorities must each execute an Interconnected Balancing Authority Area Operating Agreement ("IBAAOA") with the CAISO, with accompanying service schedule, a Dynamic Scheduling Host Balancing Authority Operating Agreement, or a special agreement particular to the operation of the functionality supporting dynamic imports of Energy, and/or Energy associated with non-Regulation Ancillary Services to the CAISO Balancing Authority Area.

3.2 The Scheduling Coordinator for the System Resource must execute a Dynamic Scheduling Agreement for Scheduling Coordinators with the CAISO governing the operation of the Dynamic Schedule functionality, which agreement will include a provision for its termination based on failure to comply with these standards.

3.3 The Scheduling Coordinator for the System Resource must have the necessary operational and contractual arrangements in place with the Host Balancing Authority (see Section 5 of this Appendix X below). Such arrangements must include the Host Balancing Authority's ability to receive telemetry from the System Resource and to issue a Dynamic Schedule signal pertinent to that System Resource to the CAISO. Proof of such arrangements must be provided to the CAISO.

4 COMMUNICATIONS, TELEMETRY, AND OTHER TECHNICAL REQUIREMENTS

4.1 The communication and telemetry requirements set forth in the CAISO's Standards for Imports of Regulation will apply to all Dynamic Schedules, except for (a) those dynamic functionalities established prior to the CAISO Operations Date, (b) the requirements that are specific solely to Regulation, and (c) the requirements set forth below.

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

4.3 The primary circuit will be T1-class, or equivalent, utilizing the inter-control center communications protocol ("ICCP"). The backup circuit will be diversely routed between

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the Host Balancing Authority Area EMS and the CAISO Balancing Authority Area EMS on separate physical paths and devices.

- 4.4 Dedicated dual redundant communications links between the Host Balancing Authority Area EMS and every Intermediary Balancing Authority Area EMS are required.
- 4.5 The Balancing Authority Area hosting a Dynamic System Resource must have a mechanism implemented to override the associated dynamic signal.
- 4.6 The dynamic signal must be properly incorporated into all involved Balancing Authority Areas' ACE equations.
- 4.7 The System Resource must have communications links with the Host Balancing Authority Area consistent with this Appendix X.

5 LIMITS ON DYNAMIC IMPORTS

- 5.1 The CAISO reserves the right to establish limits applicable to the amount of any Ancillary Services and/or Energy imported into the CAISO Balancing Authority Area, whether delivered dynamically or statically. Such limits may be established based on any one, or a combination, of the following considerations: a percentage of, or a specific import limit applicable to, total CAISO Balancing Authority Area requirements; a percentage at, or a specific import limit applicable to, a particular Scheduling Point or a Transmission Interface; a percentage of, or a specific import limit applicable to, total requirements in a specific Ancillary Service Region; or operating factors which may include, but are not limited to, operating Nomograms, Remedial Action Schemes, protection schemes, scheduling and curtailment procedures, or any potential single points of failure associated with the actual delivery process.
- 5.2 The CAISO may, at its discretion, either limit or forego procuring Ancillary Services at particular Balancing Authority Area Scheduling Points to ensure that Operating Reserves are adequately dispersed throughout the CAISO Balancing Authority Area as required by NERC and WECC reliability standards, including any requirements of the NRC.
- 5.3 A Dynamic System Resource and its Dynamic Schedules must be permanently associated with a particular CAISO Scheduling Point (the CAISO may, from time to time and at its discretion, allow for a change in such pre-established association of the Dynamic System Resource with a particular CAISO Scheduling Point).

6 OPERATING AND SCHEDULING REQUIREMENTS

- 6.1 For any Operating Hour for which Energy and/or Ancillary Services (and associated Energy) is scheduled dynamically to the CAISO from the System Resource, a firm (or non-interruptible for that hour) matching transmission service must be reserved across the entire Dynamic Schedule transmission path external to the CAISO Balancing Authority Area.
- 6.2 All Dynamic Schedules associated with newly implemented Dynamic System Resources must be electronically tagged (by use of an E-Tag).
- 6.3 Formal inter-Balancing Authority Area Dynamic Schedules may be issued only by the Dynamic System Resource's Host Balancing Authority Area and must be routed through the EMSs of all Intermediary Balancing Authority Areas (such schedules would be considered "wheel-through" schedules by Intermediary Balancing Authority Areas).

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- 6.4** The CAISO will treat dynamically scheduled Energy as a resource contingent firm import. The CAISO will procure (or allow for self-provision of) Operating Reserves for Loads served by Dynamic System Resources as required by NERC and WECC reliability standards, including any requirements of the NRC.
- 6.5** All Energy Interchange Schedules associated with dynamically scheduled imports of Spinning Reserve and Non-Spinning Reserve will be afforded similar treatment (i.e., resource contingent firm).
- 6.6** The dynamic signal must be integrated over time by the Host Balancing Authority Area for every Operating Hour.
- 6.7** Notwithstanding any Dispatches of the System Resource in accordance with the CAISO Tariff, the CAISO shall have the right to issue operating orders to the System Resource either directly or through the Host Balancing Authority Area for emergency or contingency reasons, or to ensure the CAISO's compliance with operating requirements based on WECC or NERC requirements and policies (e.g., WECC's Unscheduled Flow Reduction Procedure). However, such operating orders may be issued only within the range of the CAISO-accepted Energy and Ancillary Services, Bids for a given Operating Hour (or the applicable "sub-hour" interval).
- 6.8** If there is no Dynamic Schedule in the CAISO's Day-Ahead Market, or HASP/RTM the dynamic signal must be at "zero" ("0") except when in response to CAISO's Dispatch Instructions associated with accepted Ancillary Services Bids.
- 6.9** The Scheduling Coordinator of the Dynamic System Resource must have the ability to override the associated Dynamic Schedule in order to respond to the operating orders of the CAISO or the Host Balancing Authority.
- 6.10** Unless the Dynamic System Resource (1) is implemented as a directly-telemetered Load following functionality, (2) is base-loaded Regulatory Must-Take Generation, or (3) responds to a CAISO intra-hour Dispatch Instruction, the Dynamic Schedule representing such resource must follow WECC-approved practice of 20-minute ramps centered at the top of the hour. The CAISO does not provide any special Settlements treatment nor offer any CAISO Tariff exemptions for dynamic Load following functionalities.
- 6.11** In Real-Time the Dynamic Schedule may not exceed the maximum value established by the sum of the Day-Ahead Market and HASP/RTM accepted Energy and Ancillary Services Bids plus any response to the CAISO's Real-Time Dispatch Instructions. The composite value of the Dynamic Schedule derived from the Day-Ahead and HASP/RTM accepted Bids plus any Dispatch Instruction response represents not only the estimated Dynamic System Resource's Energy but also the transmission reservation on the associated CAISO Scheduling Point.
- 6.12** Only one Dynamic System Resource may be associated with any one physical generating resource.
- 6.13** If the Scheduling Coordinator for the Dynamic System Resource desires to participate in CAISO's Regulation market, all provisions of the CAISO's Standards for Imports of Regulation shall apply.
- 7** **CERTIFICATION, TESTING, AND PERFORMANCE MONITORING OF DYNAMIC IMPORTS OF ANCILLARY SERVICES**

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Scheduling Coordinators and Host Balancing Authorities that are already certified under the CAISO's Standards for Imports of Regulation will be deemed to have fulfilled the technical implementation requirements of this Appendix X; however, such Scheduling Coordinators and Balancing Authorities must still be certified separately for each non-Regulation Ancillary Service (all presently implemented Regulation import functionalities may be subject to review to ensure consistency between such functionalities and the requirements of this Appendix X). Scheduling Coordinators and Host Balancing Authorities that wish to be certified for imports of Regulation shall be subject to certification under the Standards for Imports of Regulation, subject to verification of consistency with the requirements of this Appendix X.

- 7.1** The Scheduling Coordinator and Host Balancing Authority must jointly request the certification of a System Resource to provide Ancillary Services for the CAISO Balancing Authority Area and cooperate in the testing of such System Resource (see the certification request form attached as Attachment A to this Appendix X).
- 7.2** Only CAISO tested and certified System Resources will be allowed to bid and/or self-provide Ancillary Services into the CAISO Balancing Authority Area.
- 7.3** Dynamic Ancillary Services imports will be certified through testing, in accordance with the relevant sections of the CAISO's Operating Procedure G-213. All requests for certification of dynamic Ancillary Services imports will be reviewed and approved by the CAISO with respect to any technical limitations imposed by existing operational considerations, such as Remedial Action Schemes, operating Nomograms, and scheduling procedures. These reviews may impose certain Ancillary Services import limits in addition to those outlined in Section 4.1 of this Appendix X. Therefore, interested parties are advised and encouraged to contact the CAISO before they begin the process of the necessary systems design, preparation, and implementation for import of Ancillary Services to the CAISO Balancing Authority Area.
- 7.4** The CAISO will measure the performance of the Dynamic Schedule of Energy associated with an accepted Ancillary Services Bid against (1) the awarded range of Ancillary Service capacity; (2) the certified limits; and (3) the bid Ramp Rate, which shall be validated by the CAISO against the certified Ramp Rate.
- 7.5** The Scheduling Coordinator for the System Resource and the Host Balancing Authority must notify the CAISO should any changes, modifications, or upgrades affecting control and/or performance of the System Resource be made. Upon such notification, the CAISO, at its discretion, may require that the System Resource and Host Balancing Authority be re-certified to import Ancillary Services into the CAISO Balancing Authority Area.

8 COMPLIANCE, LOSSES, AND FINANCIAL SETTLEMENTS

- 8.1** Energy delivered in association with Dynamic System Resources will be subject to all provisions of the CAISO's Imbalance Energy markets, including Uninstructed Deviation Penalties (UDP) (just as is the case with CAISO intra- Balancing Authority Area Generating Units of Participating Generators).
- 8.2** Dynamically scheduled and delivered Ancillary Services will be subject to the CAISO's compliance monitoring and remedies, just as any CAISO intra-Balancing Authority Area Generating Units of Participating Generators.
- 8.3** All Day-Ahead Market and HASP/RTM submitted Dynamic Schedules shall be subject to CAISO Congestion Management and as such may not exceed their transmission

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reservations in Real-Time (with the exception of intra-hour Dispatch Instructions of the Energy associated with accepted Ancillary Services Bids).

- 8.4** All Dynamic Scheduling and delivered Energy shall be subject to the standard CAISO Transmission Loss calculation associated with the particular Scheduling Point.
- 8.5** Any transmission losses attributed to the Dynamic Schedule on transmission system(s) external to the CAISO Balancing Authority Area will be the responsibility of the owner(s)/operator(s) of the Dynamic System Resource.
- 8.6** A predetermined, mutually agreed, and achievable "PMax-like" fixed MW value will be established for every Dynamic System Resource to be used as the basis for the UDP calculation. Responsible Scheduling Coordinators will be able to report de-rates affecting the Dynamic System Resource via the CAISO's SLIC Outage reporting system.
- 8.7** Should there be any need or requirement, whether operational or procedural, for the CAISO to make Real-Time adjustments to the CAISO's inter-Balancing Authority Area Interchange Schedules (to include curtailments), Dynamic Schedules shall be treated in the same manner as similarly situated and/or effective static CAISO Interchange Schedules.

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DSP ATTACHMENT A

Scheduling Coordinator & Host Balancing Authority

Request for Certification of

**Imports of Spinning and Non-Spinning Reserves for which the associated Energy is delivered
dynamically from a System Resource**

In accordance with the CAISO Tariff, CAISO Protocols, and the CAISO's Business Practice Manuals and Operating Procedures, _____, as Scheduling Coordinator, and _____, as Host Balancing Authority (as such term is referred to in the CAISO Dynamic Scheduling Protocol), collectively referred to as "Parties," or individually as "Party," hereby request the certification of the Parties and the System Resource(s) identified in the table below as a provider of Ancillary Services and associated Energy to the CAISO Balancing Authority Area subject to the Dynamic Scheduling Protocol, Appendix X of the CAISO Tariff. Further, the Parties acknowledge that their ability to import Ancillary Services and associated Energy will be tested for certification in accordance with CAISO Operating Procedure G-213.

With this request for certification, the Parties recognize that the CAISO Tariff, CAISO Protocols, and applicable agreements require the Host Balancing Authority to issue Dynamic Schedules of Energy to the CAISO based on the Scheduling Coordinator's self-provided or bid external imports of non-Regulation Ancillary Services from the System Resource(s) at any time during the Operating Hour.

With this request for certification, the Host Balancing Authority represents and warrants that it has in place the required communications links with the CAISO Balancing Authority Area in order to facilitate the delivery of Ancillary Services and associated Energy from the System Resource.

With this request for certification, the Scheduling Coordinator represents and warrants that it has made the appropriate arrangements for and has put in place the equipment and services necessary for the delivery of Ancillary Services and associated Energy from the System Resource to the point of Interchange ("Scheduling Point") with the CAISO Balancing Authority Area in accordance with the Dynamic Scheduling Protocol.

The Scheduling Coordinator further certifies that any and all dynamic imports of Energy associated with self-provided or bid imports of non-Regulation Ancillary Services will be deliverable over non-interruptible, non-recallable transmission rights, from the source of the associated Energy to the Scheduling Point with the CAISO Balancing Authority Area.

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System Resource	External Host Balancing Authority Area in which System Resource is Located	Scheduling Point (CAISO Interchange ID)	Maximum Amount of Ancillary Services Capacity to be Certified (MW)	Maximum Ramp Rate to be Certified (MW/minute)
1				
2				
3				
4				
5				

Subsequent to the initial filing of this request for certification with the CAISO, any prospective changes jointly made by the Parties may be filed with the Scheduling Coordinator's CAISO customer service representative, who will acknowledge the receipt of such requested changes and indicate the date on which such changes may be tested and become effective if CAISO testing proves successful. Such changes will be made by the CAISO as soon as practicable, with reasonable efforts made to implement them within sixty (60) days of receipt of the requested changes.

This document _____ (does) _____ (does not) contain requested changes to previously effective certification.

Certification Requested By:

_____, as the Scheduling Coordinator

Name: _____

Title: _____

Date: _____

_____, as the Host Balancing Authority

Name: _____

Title: _____

Date: _____

CERTIFICATION REQUEST ACKNOWLEDGED by:

California Independent System Operator Corporation

Name: _____

Title: _____

Date: _____