

California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

**Table of Contents**

<u>25.</u>	<u>Interconnection of Generating Units and Facilities</u>	<u>2</u>
<u>25.1</u>	<u>Applicability</u>	<u>2</u>
<u>25.1.1</u>	<u>Interconnection Request and Generating Unit Requirements</u>	<u>3</u>
<u>25.1.2</u>	<u>Affidavit Requirements</u>	<u>3</u>
<u>25.2</u>	<u>Interconnection to the Distribution System</u>	<u>5</u>
<u>25.3</u>	<u>Maintenance of Encumbrances</u>	<u>5</u>
<u>25.4</u>	<u>Asynchronous Generating Facilities</u>	<u>5</u>
<u>25.4.1</u>	<u>Asynchronous Generating Facilities-Reactive Power</u>	<u>6</u>
<u>25.4.2</u>	<u>Asynchronous Generating Facilities – GIA Technical Criteria</u>	<u>6</u>
<u>25.5</u>	<u>Modifications to Generating Facilities</u>	<u>7</u>
<u>25.5.1</u>		<u>7</u>
<u>25.5.2</u>		<u>7</u>
<u>25.5.3</u>		<u>8</u>

## **25. Interconnection of Generating Units and Facilities**

### **25.1 Applicability**

This Section 25 and Appendix U (the Standard Large Generator Interconnection Procedures (LGIP)), Appendix Y (the Generator Interconnection Procedures (GIP)), Appendix S (the Small Generator Interconnection Procedures (SGIP)), Appendix W, or Appendix DD (the Generator Interconnection and Deliverability Allocation Procedures (GIDAP)), as applicable, shall apply to:

- (a) each new Generating Unit that seeks to interconnect to the CAISO Controlled Grid;
- (b) each existing Generating Unit connected to the CAISO Controlled Grid that will be modified with a resulting increase in the total capability of the power plant;
- (c) each Generating Unit connected to the CAISO Controlled Grid that will be modified without increasing the total capability of the power plant but has change the electrical characteristics of the power plant such that its re-energization may violate Applicable Reliability Criteria.
- (d) each existing Generating Unit connected to the CAISO Controlled Grid whose total Generation was previously sold to a Participating TO or on-site customer but whose Generation, or any portion thereof, will now be sold in the wholesale market, subject to Section 25.1.2;
- (e) each existing Generating Unit that is a Qualifying Facility and that is converting to a Participating Generator without repowering or reconfiguring the existing Generating Unit, subject to Section 25.1.2;
- (f) each existing Generating Unit connected to the CAISO Controlled Grid that proposes to repower its Generating Unit pursuant to Section 25.1.2; and
- (g) Generating Units interconnecting to the CAISO Controlled Grid over a Subscriber Participating TO transmission facilities using Subscriber Rights are required to apply for TP Deliverability under Section 25.1 once (1) the Subscriber Participating TO transmission facilities have completed their transmission interconnection studies with all interconnecting Transmission Owner(s), (2) Subscriber(s) have executed the Generator Interconnection Agreement, (3) the Subscriber Participating TO has committed to

California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

proceed with Construction Activities regarding the Subscriber Participating TO transmission facilities, and (4) the applicant provides a notice in writing to the applicable interconnecting Transmission Owners that it is proceeding with Construction Activities.

Once these criteria have been completed, the Generating Unit must apply as follows:

- (1) each Generating Unit possessing Subscriber Rights and receiving Deliverability from TPP-approved Network Upgrades shall apply for TP Deliverability allocation through the submission of a Subscriber Participating TO-specific deliverability allocation request subject to Appendix DD, Section 8.9 and does not submit an Interconnection Request under Section 25;
- (2) each Generating Unit that does not meet the criteria under Section 25.1(g)(1) shall be treated in accordance with Section 25.1(a).

#### **25.1.1 Interconnection Request and Generating Unit Requirements**

The owner of a Generating Unit described in Section 25.1 (a), (b), or (c), or its designee, shall be an Interconnection Customer required to submit an Interconnection Request and comply with Appendix DD.

#### **25.1.2 Affidavit Requirements**

If the owner of a Generating Unit described in Section 25.1(d), (e), or (f) or its designee, represents that the total generating capability and electrical characteristics of the Generating Unit will be substantially unchanged, then that entity must submit an affidavit to the CAISO and the applicable Participating TO representing that the total generating capability and electrical characteristics of the Generating Unit have remained substantially unchanged. However, if there is any change to the total generating capability and electrical characteristics of the Generating Unit, the affidavit shall include supporting information describing any such changes and a \$50,000 deposit for the study. The CAISO, in coordination with the applicable Participating TO, will evaluate whether the total generating capability or electrical characteristics of the Generating Unit have substantially changed or will substantially change. The CAISO may engage the services of the applicable Participating TO in conducting such verification activities. Costs incurred by the CAISO and Participating TO (if any) shall be borne by the party making the request under Section 25.1.2, and such costs shall be included in a CAISO invoice for verification activities.

California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

**25.1.2.1** If the CAISO and the applicable Participating TO confirm that the electrical characteristics are substantially unchanged, then that request will not be placed into the interconnection queue. However, the owner of the Generating Unit, or its designee, will be required to execute a CAISO Generator Interconnection Agreement, as applicable. All Generation Units described in Section 25.1(d), (e), and (f) will be required to comply with the CAISO's new resource implementation process to ensure compliance with applicable tariff provisions and Applicable Reliability Criteria, as specified in the Business Practice Manuals.

**25.1.2.2** If the CAISO and the applicable Participating TO cannot confirm that the total capability and electrical characteristics are and will be substantially unchanged, then the owner of the Generating Unit, or its designee, shall be an Interconnection Customer required to submit an Interconnection Request and comply with Appendix DD.

**25.1.2.3** Upon receipt of the affidavit, the complete technical data, and the deposit, the CAISO will issue a draft study plan to the Generating Unit owner within thirty (30) days. Upon receipt of an executed study plan the CAISO will commence the study. The CAISO will complete the study within ninety (90) calendar days from the date the CAISO receives the signed study plan. If the CAISO cannot complete the study within that time period, the CAISO shall notify the Generating Unit owner and provide an estimated completion date and an explanation of the reasons why additional time is required. The CAISO will issue a final study report to the Generating Unit owner upon completion of the study. Any and all costs of the study shall be borne by the Generating Unit owner requesting the study.

**25.1.2.4** The Generating Unit owner will be responsible for the actual costs incurred by the CAISO and applicable Participating TO(s) in conducting the study. If the actual costs of the study are less than the deposit provided by the Generating Unit owner, the Generating Unit owner will be refunded the balance. If the actual costs of the study are greater than the deposit provided by the Generating Unit owner, the Generating Unit owner shall pay the balance within thirty (30) days of being invoiced by the CAISO. The Participating TO(s) shall invoice the CAISO for any study work within seventy-five (75) calendar days of completion of the study, and, within thirty (30) days of payment of the Participating TO(s) invoice, the CAISO shall issue an invoice or refund to the Generating Unit owner, as applicable, based upon such

submitted Participating TO invoices and the CAISO's costs for the study.

### **25.2 Interconnection to the Distribution System**

Any proposed interconnection by the owner of a planned Generating Unit, or its designee, to connect that Generating Unit to a Distribution System of a Participating TO will be processed, as applicable, pursuant to the Wholesale Distribution Access Tariff or CPUC Rule 21, or other Local Regulatory Authority requirements, if applicable, of the Participating TO; provided, however, that the owner of the planned Generating Unit, or its designee, shall be required to mitigate any adverse impact on reliability of the CAISO Controlled Grid consistent with Appendix DD. In addition, each Participating TO will provide to the CAISO a copy of the system impact study used to determine the impact of a planned Generating Unit on the Distribution System and the CAISO Controlled Grid pursuant to a request to interconnect under the applicable Wholesale Distribution Access Tariff or CPUC Rule 21, or other Local Regulatory Authority requirements, if applicable.

### **25.3 Maintenance of Encumbrances**

No new Generating Unit shall adversely affect the ability of the applicable Participating TO to honor its Encumbrances existing as of the time an Interconnection Customer submits its Interconnection Request to the CAISO. The applicable Participating TO, in consultation with the CAISO, shall identify any such adverse effect on its Encumbrances in the applicable Interconnection Study. To the extent the applicable Participating TO determines that the connection of the new Generating Unit will have an adverse effect on Encumbrances, the Interconnection Customer shall mitigate such adverse effect.

### **25.4 Asynchronous Generating Facilities**

Asynchronous Generating Facilities that are the subject of Interconnection Requests in a serial study queue and for which a Large Generator Interconnection Agreement has not been executed or tendered for signature as of July 2, 2010 shall be subject to the Large Generator Interconnection Agreement set forth in Appendix BB. Asynchronous Generating Facilities that are the subject of Interconnection Requests in a Queue Cluster Window and for which a Large Generator Interconnection Agreement has not been executed or tendered for signature as of July 3, 2010 shall be subject to the Large Generator Interconnection Agreement set forth in Appendix CC. Asynchronous Generating Facilities that have been or should have been tendered a Large Generator Interconnection Agreement as of July 3, 2010 shall be

subject to the Large Generator Interconnection Agreement set forth in Appendix Z.

#### **25.4.1 Asynchronous Generating Facilities-Reactive Power**

The reactive power requirements set forth in FERC's Order No. 827 will apply to: 1) the entirety of an existing Asynchronous Generating Facility in the event such Generating Facility makes modifications that require the submission of a new Interconnection Request, and a subsequent Interconnection Study finds that the reactive power requirement is necessary to ensure system safety or reliability; 2) new Asynchronous Electric Generating Units, when an existing Generating Facility replaces Electric Generating Units with new Asynchronous Electric Generating Units, whether or not submission of a new Interconnection Request is required. Under these requirements, the Asynchronous Electric Generating Facility or Asynchronous Electric Generating Unit, as applicable, will maintain a composite power delivery at continuous rated power output at the high-side of the generator substation at a power factor within the range of 0.95 leading to 0.95 lagging, unless the CAISO has established a different power factor range that applies to all Asynchronous Generating Facilities on a comparable basis. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors or reactors, or a combination of the two.

After September 21, 2016, an existing Asynchronous Generating Facility making upgrades to its Generating Unit(s) through the Fast Track Process will maintain a composite power delivery at continuous rated power output at the high-side of the generator substation at a power factor within the range of 0.95 leading to 0.95 lagging, unless the CAISO has established a different power factor range that applies to all Asynchronous Generating Facilities on a comparable basis. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors or reactors, or a combination of the two.

#### **25.4.2 Asynchronous Generating Facilities – GIA Technical Criteria**

The technical requirements for Asynchronous Generating Facilities set forth in Appendix H to Appendix EE to the CAISO tariff and Attachment 7 to Appendix FF to the CAISO tariff, or applicable successor

California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

requirements, apply to existing individual Generating Units to the extent the Generating Facility makes modifications that replace its Generating Unit(s) or any inverter(s), even where a new Interconnection Request is not required or the Interconnection Customer is subject to an earlier SGIA or LGIA. The same technical requirements will not apply where the Generating Facility replaces an inverter as part of routine maintenance or repairs due to malfunction or failure.

### **25.5 Modifications to Generating Facilities**

Pursuant to Article 5.19 of the Large Generator Interconnection Agreement set forth in Appendices V, BB, CC, and EE, or Article 1.3.4 of the Small Generator Interconnection Agreement set forth in Appendices T and FF, Generating Facilities that have achieved their Commercial Operation Date may make modifications to their Generating Facilities where the CAISO and the Participating TO are notified at least ninety (90) calendar days in advance of commencement of work and sufficient information is provided such that the CAISO and the Participating TO(s) have determined that Section 25.1 does not apply to the modification.

#### **25.5.1**

Prior to making any modification after the Generating Facility's Commercial Operation Date, the Generating Unit owner must first request that the CAISO evaluate whether Section 25.1 would apply to the modification. In response to the Generating Unit owner's request, the CAISO, in coordination with the affected Participating TO, will evaluate the proposed modification. The CAISO may engage the services of the applicable Participating TO to assess the modification. The CAISO will inform the Generating Unit owner in writing whether Section 25.1 would apply to the modification and therefore be denied. Costs incurred by the Participating TO and the CAISO (if any) shall be borne by the party making the request under Section 25.5, and such costs shall be included in any CAISO invoice for modification assessment activities.

#### **25.5.2**

The Generating Unit owner will provide the CAISO a \$50,000 deposit for repowering requests, or a \$30,000 deposit for all other modification assessments at the time the request is submitted. Except as provided below, any modification assessment will be concluded, and a response provided to the Generating Unit owner in writing, within sixty (60) calendar days from the date the CAISO receives all of

California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

the following: the Generating Unit owner's written notice to modify the project, technical data required to assess the request, and payment of the applicable deposit. If the modification assessment cannot be completed within that time period, the CAISO will notify the Generating Unit owner and provide an estimated completion date and an explanation of the reasons why additional time is required.

**25.5.3**

The Generating Unit owner will be responsible for the actual costs incurred by the CAISO and applicable Participating TO(s) in conducting the modification assessment. If the actual costs of the modification assessment are less than the deposit provided by the Generating Unit owner, the Generating Unit owner will be refunded the balance. If the actual costs of the modification assessment are greater than the deposit provided by the Generating Unit owner, the Generating Unit owner will pay the balance within thirty (30) days of being invoiced. The CAISO will coordinate the modification request with the Participating TO(s). The Participating TO(s) will invoice the CAISO for any assessment work within seventy-five (75) calendar days of completion of the assessment, and, within thirty (30) days of payment of the Participating TO(s) invoice, the CAISO will issue an invoice or refund to the Generating Unit owner, as applicable, based upon such submitted Participating TO invoices and the CAISO's own costs for the assessment.