

December 19, 2011

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: California Independent System Operator Corporation
Docket No. ER10-1706-_____**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits this filing in compliance with the Federal Energy Regulatory Commission's November 17, 2011 order denying rehearing and conditionally accepting compliance filing in the above-referenced proceeding.¹ In its *November 2011 Order*, the Commission conditionally accepted the CAISO's September 30, 2010 compliance filing in this matter relating to interconnection requirements for asynchronous generating facilities. The Commission, however, directed that the CAISO submit a further compliance filing within 30 days.

I. Background

On July 2, 2010, the CAISO submitted proposed tariff revisions relating to interconnection requirements for large asynchronous generating facilities. The CAISO's proposed requirements included capabilities for low voltage ride-through and frequency ride-through, power factor design and reactive power, voltage regulation and generator power management. The majority of the CAISO's proposed tariff changes appeared in two new large generator interconnection agreements that would apply to interconnection customers in the serial study group (appendix BB to the CAISO tariff) and interconnection customers subject to a cluster study group (appendix CC to the CAISO tariff). The CAISO requested an effective date of July 3, 2010 for these requirements, which would apply to interconnection customers that either had not executed or had not been tendered a large generator interconnection agreement by this date. The CAISO also requested that the Commission exempt interconnection customers from the new low voltage ride-through requirements if those customers could demonstrate, as of May 18, 2010, a binding commitment to

¹ *California Indep. Sys. Operator Corp.*, 137 FERC ¶ 61,143 (2011) (*November 2011 Order*). The CAISO is submitting this filing in compliance with Order No. 714, *Electronic Tariff Filings*, FERC Stats. & Regs. ¶ 31,276 (2009).

purchase inverters for thirty percent or more of the facility's maximum generating capacity that are incapable of complying with the new low voltage ride through requirements.

In August 2010, the Commission accepted the CAISO's proposed tariff revisions regarding frequency and low voltage ride-through requirements applicable to asynchronous generating facilities but rejected the CAISO's proposal to exempt interconnection customers who demonstrate, as of May 18, 2010, a binding commitment to purchase inverters for thirty percent or more of the facility's maximum generating capacity that are incapable of complying with these requirements.² The *August 2010 Order* directed the CAISO to change its proposed May 18, 2010 date to July 3, 2010. The Commission also accepted the CAISO's proposed tariff revisions to exempt asynchronous generating facilities from the requirement to provide power system stabilizers and to specify that interconnection customers provide standard study models to the extent such models are available. The *August 2010 Order* granted a waiver of prior notice requirements for the accepted tariff provisions and authorized an effective date for those provisions of July 3, 2010. The Commission rejected without prejudice a number of the CAISO's other proposed interconnection requirements, including requirements related to power factor design and operation, voltage regulation and reactive power control, and generator power management.³

The CAISO submitted revised tariff language on September 30, 2010 in compliance with the Commission's *August 2010 Order*. The California Wind Energy Association submitted comments in response to the CAISO's compliance filing arguing, among other things, that the CAISO should clarify that generators need not comply with specific low voltage ride-through requirements if clearing a fault effectively disconnects the generator from the system. The CAISO agreed to make this change if the Commission directed it to do so. As part of the *November 2011 Order*, the Commission directed the CAISO to make this change.⁴ The Commission also directed the CAISO to make additional revisions to tariff sections 8.2.3.3 and 25.4 to conform the tariff to the *August 2010 Order* and to include a revised table of contents for appendices BB and CC to the CAISO tariff to reflect the deletion of section 9.6.2.2, as approved by the *August 2010 Order*.⁵

² *California Indep. Sys. Operator Corp.*, 132 FERC ¶ 61,196 (2010) (*August 2010 Order*) at PP 66-72.

³ *August 2010 Order* at PP 45-48, 54-55, 87-89.

⁴ *November 2011 Order* at PP 40-42.

⁵ *Id.* at PP 43-46.

II. Proposed Tariff Modifications on Compliance

Pursuant to the Commission's *August 2010 Order*, the CAISO proposes the following changes to its tariff:

- Revisions to appendix H, sections A(i)(1) and (2) of appendices BB and CC to clarify that low voltage ride-through requirements do not apply to large asynchronous generating facilities, if clearing a fault effectively disconnects the generator from the system.
- Revisions to section 8.2.3.3 to reflect the elimination of appendix H section A.iv, voltage and reactive power control requirements in appendices BB and CC. Consistent with these revisions, the CAISO may still require participating generators that operate asynchronous generating facilities subject to the large generator interconnection agreement set forth in Appendix BB or CC to maintain voltage schedules, if the CAISO's phase II interconnection study shows that such a requirement is necessary to ensure safety or reliability. This is consistent with provisions of CAISO tariff appendix H, section A.iii and Commission Order 661-A.⁶
- Revisions to section 25.4 to clarify that an exemption from the provisions of appendices BB and CC applies to any interconnection customer that has been or should have been tendered a large generator interconnection agreement prior to July 3, 2010 pursuant to the CAISO's large generator interconnection procedures. These revisions provide that 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 of the CAISO tariff.
- Revisions to the table of contents for appendices BB and CC to reflect the deletion of section 9.6.2.2. As part of these revisions, the CAISO is submitting a new table of contents for appendix CC, which is missing from the CAISO's filed tariff.

III. Attachments

The following attachments, in addition to this transmittal letter, support the instant filing:

⁶ *Interconnection for Wind Energy*, Order No. 661, FERC Stats. & Regs. ¶ 31,186, *order on reh'g*, Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 (2005) at P 50.

Attachment A	Revised CAISO tariff sheets that incorporate the proposed changes described above
Attachment B	The proposed changes to the CAISO tariff shown in black-line format

IV. Conclusion

The CAISO asks that the Commission accept the proposed tariff modifications contained in the instant filing. Please contact the undersigned if you have any questions regarding this matter.

Respectfully submitted,

By: /s/ Andrew Ulmer

Nancy Saracino
General Counsel
Sidney M. Davies
Assistant General Counsel
Andrew Ulmer
Director, Federal Regulatory Affairs
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7209
Fax: (916) 608-7222
aulmer@caiso.com

Attorneys for the California Independent
System Operator

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 19th day of December, 2011.

Anna Pascuzzo
Anna Pascuzzo

California Independent System Operator Corporation

Fifth Replacement FERC Electric Tariff

Attachment A - Clean Tariff

IRRP Compliance Filing

December 19, 2011

8.2.3.3 Voltage Support

The CAISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards and any requirements of the NRC using a power flow study based on the quantity and location of scheduled Demand. The CAISO shall issue daily voltage schedules (Dispatch Instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the CAISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC. All Participating Generators that operate Asynchronous Generating Facilities subject to the Large Generator Interconnection Agreement set forth in Appendix BB or CC shall maintain the CAISO specified voltage schedule if required under Appendix H of the Large Generator Interconnection Agreement, while operating within the power factor range specified in their interconnection agreements. For all other Generating Units, Participating Generators shall maintain the CAISO specified voltage schedule at the Generating Unit terminals to the extent possible, while operating within the power factor range specified in their interconnection agreements, or, for Regulatory Must-Take Generation, Regulatory Must-Run Generation and Reliability Must-Run Generation, consistent with existing obligations. For Generating Units that do not operate under one of these agreements, the minimum power factor range will be within a band of 0.90 lag (producing VARs) and 0.95 lead (absorbing VARs) power factors. Participating Generators with Generating Units existing at the CAISO Operations Date that are unable to meet this operating power factor requirement may apply to the CAISO for an exemption. Prior to granting such an exemption, the CAISO shall require the Participating TO, UDC, or other utility to whose system the relevant Generating Units are interconnected to notify it of the existing contractual requirements for Voltage Support established prior to the CAISO Operations Date for such Generating Units. Such requirements may be contained in CPUC Electric Rule 21 or the Interconnection Agreement with the Participating TO, UDC, or other utility. The CAISO shall not grant any exemption under this Section from

such existing contractual requirements. The CAISO shall be entitled to instruct Participating Generators to operate their Generating Units at specified points within their power factor ranges. Participating Generators shall receive no compensation for operating within these specified ranges.

If the CAISO requires additional Voltage Support, it shall procure this either through Reliability Must-Run Contracts or, if no other more economic sources are available, by instructing a Generating Unit to move its MVar output outside its mandatory range. Only if the Generating Unit must reduce its MW output in order to comply with such an instruction will it be eligible to recover its opportunity cost in accordance with Section 11.10.1.4.

All Loads directly connected to the CAISO Controlled Grid shall maintain reactive flow at grid interface points within a specified power factor band of 0.97 lag to 0.99 lead. Loads shall not be compensated for the service of maintaining the power factor at required levels within the bandwidth. A UDC interconnecting with the CAISO Controlled Grid at any point other than a Scheduling Point shall be subject to the same power factor requirement.

The CAISO will establish voltage control standards with UDCs and the operators of other Balancing Authority Areas and will enter into operational agreements providing for the coordination of actions in the event of a voltage problem occurring.

* * *

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.

* * *

CAISO TARIFF APPENDIX BB

Standard Large Generator Interconnection Agreement

**for Interconnection Requests in a Serial Study Group that are tendered or execute a Large
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STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT

[INTERCONNECTION CUSTOMER]

[PARTICIPATING TO]

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

THIS STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT ("LGIA") is made and entered into this ____ day of _____ 20____, by and among _____, a _____ organized and existing under the laws of the State/Commonwealth of _____ ("Interconnection Customer" with a Large Generating Facility), _____, a corporation organized and existing under the laws of the State of California ("**Participating TO**"), and **California Independent System Operator Corporation**, a California nonprofit public benefit corporation organized and existing under the laws of the State of California ("**CAISO**"). Interconnection Customer, Participating TO, and CAISO each may be referred to as a "Party" or collectively as the "Parties."

RECITALS

WHEREAS, CAISO exercises Operational Control over the CAISO Controlled Grid; and

WHEREAS, the Participating TO owns, operates, and maintains the Participating TO's Transmission System; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this LGIA; and

WHEREAS, Interconnection Customer, Participating TO, and CAISO have agreed to enter into this LGIA for the purpose of interconnecting the Large Generating Facility with the Participating TO's Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this LGIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used.

* * *

**Appendix H
To LGIA**

INTERCONNECTION REQUIREMENTS FOR AN ASYNCHRONOUS GENERATING FACILITY

Appendix H sets forth interconnection requirements specific to all Asynchronous Generating Facilities. Existing individual generating units of an Asynchronous Generating Facility that are, or have been,

interconnected to the CAISO Controlled Grid at the same location are exempt from the requirements of this Appendix H for the remaining life of the existing generating unit. Generating units that are replaced, however, shall meet the requirements of this Appendix H.

A. Technical Requirements Applicable to Asynchronous Generating Facilities

i. Low Voltage Ride-Through (LVRT) Capability

An Asynchronous Generating Facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the requirements below.

1. An Asynchronous Generating Facility shall remain online for the voltage disturbance caused by any fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, having a duration equal to the lesser of the normal three-phase fault clearing time (4-9 cycles) or one-hundred fifty (150) milliseconds, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum normal clearing time associated with any three-phase fault location that reduces the voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

2. An Asynchronous Generating Facility shall remain online for any voltage disturbance caused by a single-phase fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, with delayed clearing, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum backup clearing time associated with a single point of failure (protection or breaker failure) for any single-phase fault location that reduces any phase-to-ground or phase-to-phase voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

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CAISO TARIFF APPENDIX CC

Large Generator Interconnection Agreement for Interconnection Requests in a Queue Cluster Window

that are tendered a Large Generator Interconnection Agreement on or after July 3, 2010

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LARGE GENERATOR INTERCONNECTION AGREEMENT

[INTERCONNECTION CUSTOMER]

[PARTICIPATING TO]

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

THIS LARGE GENERATOR INTERCONNECTION AGREEMENT (“LGIA”) is made and entered into this ____ day of _____, 20____, by and among _____, a _____ organized and existing under the laws of the State/Commonwealth of _____ (“Interconnection Customer” with a Large Generating Facility), _____, a corporation organized and existing under the laws of the State of California (“**Participating TO**”), and **California Independent System Operator Corporation**, a California nonprofit public benefit corporation organized and existing under the laws of the State of California (“CAISO”). Interconnection Customer, Participating TO, and CAISO each may be referred to as a “Party” or collectively as the “Parties.”

RECITALS

WHEREAS, CAISO exercises Operational Control over the CAISO Controlled Grid; and

WHEREAS, the Participating TO owns, operates, and maintains the Participating TO’s Transmission System; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this LGIA; and

WHEREAS, Interconnection Customer, Participating TO, and CAISO have agreed to enter into this LGIA for the purpose of interconnecting the Large Generating Facility with the Participating TO’s Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this LGIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used.

* * *

Appendix H To LGIA

INTERCONNECTION REQUIREMENTS FOR AN ASYNCHRONOUS GENERATING FACILITY

Appendix H sets forth interconnection requirements specific to all Asynchronous Generating Facilities. Existing individual generating units of an Asynchronous Generating Facility that are, or have been, interconnected to the CAISO Controlled Grid at the same location are exempt from the requirements of this Appendix H for the remaining life of the existing generating unit. Generating units that are replaced, however, shall meet the requirements of this Appendix H.

A. Technical Requirements Applicable to Asynchronous Generating Facilities

i. Low Voltage Ride-Through (LVRT) Capability

An Asynchronous Generating Facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the requirements below.

1. An Asynchronous Generating Facility shall remain online for the voltage disturbance caused by any fault on the transmission grid, or within the Asynchronous Generating Facility between the

Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, having a duration equal to the lesser of the normal three-phase fault clearing time (4-9 cycles) or one-hundred fifty (150) milliseconds, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum normal clearing time associated with any three-phase fault location that reduces the voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

2. An Asynchronous Generating Facility shall remain online for any voltage disturbance caused by a single-phase fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, with delayed clearing, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum backup clearing time associated with a single point of failure (protection or breaker failure) for any single-phase fault location that reduces any phase-to-ground or phase-to-phase voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

* * *

California Independent System Operator Corporation

Fifth Replacement FERC Electric Tariff

Attachment B - Marked Tariff

IRRP Compliance Filing

December 19, 2011

8.2.3.3 Voltage Support

The CAISO shall determine on an hourly basis for each day the quantity and location of Voltage Support required to maintain voltage levels and reactive margins within NERC and WECC reliability standards and any requirements of the NRC using a power flow study based on the quantity and location of scheduled Demand. The CAISO shall issue daily voltage schedules (Dispatch Instructions) to Participating Generators, Participating TOs and UDCs, which are required to be maintained for CAISO Controlled Grid reliability. All other Generating Units shall comply with the power factor requirements set forth in contractual arrangements in effect on the CAISO Operations Date, or, if no such contractual arrangements exist and the Generating Unit exists within the system of a Participating TO, the power factor requirements applicable under the Participating TO's TO Tariff or other tariff on file with the FERC. All Participating Generators that operate Asynchronous Generating Facilities subject to the Large Generator Interconnection Agreement set forth in Appendix BB or CC shall maintain the CAISO specified voltage schedule ~~if required for those facilities at the Point of Interconnection to the extent possible, except as permitted~~ under Appendix H of the Large Generator Interconnection Agreement, while operating within the power factor range specified in their interconnection agreements. For all other Generating Units, Participating Generators shall maintain the CAISO specified voltage schedule at the Generating Unit terminals to the extent possible, while operating within the power factor range specified in their interconnection agreements, or, for Regulatory Must-Take Generation, Regulatory Must-Run Generation and Reliability Must-Run Generation, consistent with existing obligations. For Generating Units that do not operate under one of these agreements, the minimum power factor range will be within a band of 0.90 lag (producing VARs) and 0.95 lead (absorbing VARs) power factors. Participating Generators with Generating Units existing at the CAISO Operations Date that are unable to meet this operating power factor requirement may apply to the CAISO for an exemption. Prior to granting such an exemption, the CAISO shall require the Participating TO, UDC, or other utility to whose system the relevant Generating Units are interconnected to notify it of the existing contractual requirements for Voltage Support established prior to the CAISO Operations Date for such Generating Units. Such requirements may be contained in CPUC Electric Rule 21 or the Interconnection Agreement with the Participating TO, UDC, or

other utility. The CAISO shall not grant any exemption under this Section from such existing contractual requirements. The CAISO shall be entitled to instruct Participating Generators to operate their Generating Units at specified points within their power factor ranges. Participating Generators shall receive no compensation for operating within these specified ranges.

If the CAISO requires additional Voltage Support, it shall procure this either through Reliability Must-Run Contracts or, if no other more economic sources are available, by instructing a Generating Unit to move its MVar output outside its mandatory range. Only if the Generating Unit must reduce its MW output in order to comply with such an instruction will it be eligible to recover its opportunity cost in accordance with Section 11.10.1.4.

All Loads directly connected to the CAISO Controlled Grid shall maintain reactive flow at grid interface points within a specified power factor band of 0.97 lag to 0.99 lead. Loads shall not be compensated for the service of maintaining the power factor at required levels within the bandwidth. A UDC interconnecting with the CAISO Controlled Grid at any point other than a Scheduling Point shall be subject to the same power factor requirement.

The CAISO will establish voltage control standards with UDCs and the operators of other Balancing Authority Areas and will enter into operational agreements providing for the coordination of actions in the event of a voltage problem occurring.

* * *

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.

CAISO TARIFF APPENDIX BB

Standard Large Generator Interconnection Agreement

**for Interconnection Requests in a Serial Study Group that are tendered or execute a Large
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Appendix H Interconnection Requirements for an Asynchronous Generating Facility

STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT

[INTERCONNECTION CUSTOMER]

[PARTICIPATING TO]

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

THIS STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT ("LGIA") is made and entered into this ____ day of _____ 20____, by and among _____, a _____ organized and existing under the laws of the State/Commonwealth of _____ ("Interconnection Customer" with a Large Generating Facility), _____, a corporation organized and existing under the laws of the State of California ("**Participating TO**"), and **California Independent System Operator Corporation**, a California nonprofit public benefit corporation organized and existing under the laws of the State of California ("CAISO"). Interconnection Customer, Participating TO, and CAISO each may be referred to as a "Party" or collectively as the "Parties."

RECITALS

WHEREAS, CAISO exercises Operational Control over the CAISO Controlled Grid; and

WHEREAS, the Participating TO owns, operates, and maintains the Participating TO's Transmission System; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this LGIA; and

WHEREAS, Interconnection Customer, Participating TO, and CAISO have agreed to enter into this LGIA for the purpose of interconnecting the Large Generating Facility with the Participating TO's Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this LGIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used.

* * *

**Appendix H
To LGIA**

INTERCONNECTION REQUIREMENTS FOR AN ASYNCHRONOUS GENERATING FACILITY

Appendix H sets forth interconnection requirements specific to all Asynchronous Generating Facilities. Existing individual generating units of an Asynchronous Generating Facility that are, or have been, interconnected to the CAISO Controlled Grid at the same location are exempt from the requirements of this Appendix H for the remaining life of the existing generating unit. Generating units that are replaced, however, shall meet the requirements of this Appendix H.

A. Technical Requirements Applicable to Asynchronous Generating Facilities

i. Low Voltage Ride-Through (LVRT) Capability

An Asynchronous Generating Facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the requirements below.

1. An Asynchronous Generating Facility shall remain online for the voltage disturbance caused by any fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, having a duration equal to the lesser of the normal three-phase fault clearing time (4-9 cycles) or one-hundred fifty (150) milliseconds, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum normal clearing time associated with any three-phase fault location that reduces the voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.
2. An Asynchronous Generating Facility shall remain online for any voltage disturbance caused by a single-phase fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, with delayed clearing, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum backup clearing time associated with a single point of failure (protection or breaker failure) for any single-phase fault location that reduces any phase-to-ground or phase-to-phase voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

* * *

CAISO TARIFF APPENDIX CC

Large Generator Interconnection Agreement for Interconnection Requests in a Queue Cluster Window

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LARGE GENERATOR INTERCONNECTION AGREEMENT

[INTERCONNECTION CUSTOMER]

[PARTICIPATING TO]

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

THIS LARGE GENERATOR INTERCONNECTION AGREEMENT (“LGIA”) is made and entered into this ____ day of _____, 20____, by and among _____, a _____ organized and existing under the laws of the State/Commonwealth of _____ (“Interconnection Customer” with a Large Generating Facility), _____, a corporation organized and existing under the laws of the State of California (“**Participating TO**”), and **California Independent System Operator Corporation**, a California nonprofit public benefit corporation organized and existing under the laws of the State of California (“CAISO”). Interconnection Customer, Participating TO, and CAISO each may be referred to as a “Party” or collectively as the “Parties.”

RECITALS

WHEREAS, CAISO exercises Operational Control over the CAISO Controlled Grid; and

WHEREAS, the Participating TO owns, operates, and maintains the Participating TO’s Transmission System; and

WHEREAS, Interconnection Customer intends to own, lease and/or control and operate the Generating Facility identified as a Large Generating Facility in Appendix C to this LGIA; and

WHEREAS, Interconnection Customer, Participating TO, and CAISO have agreed to enter into this LGIA for the purpose of interconnecting the Large Generating Facility with the Participating TO’s Transmission System;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein, it is agreed:

When used in this LGIA, terms with initial capitalization that are not defined in Article 1 shall have the meanings specified in the Article in which they are used.

* * *

Appendix H To LGIA

INTERCONNECTION REQUIREMENTS FOR AN ASYNCHRONOUS GENERATING FACILITY

Appendix H sets forth interconnection requirements specific to all Asynchronous Generating Facilities. Existing individual generating units of an Asynchronous Generating Facility that are, or have been, interconnected to the CAISO Controlled Grid at the same location are exempt from the requirements of this Appendix H for the remaining life of the existing generating unit. Generating units that are replaced, however, shall meet the requirements of this Appendix H.

A. Technical Requirements Applicable to Asynchronous Generating Facilities

i. Low Voltage Ride-Through (LVRT) Capability

An Asynchronous Generating Facility shall be able to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in the requirements below.

1. An Asynchronous Generating Facility shall remain online for the voltage disturbance caused by any fault on the transmission grid, or within the Asynchronous Generating Facility between the

Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, having a duration equal to the lesser of the normal three-phase fault clearing time (4-9 cycles) or one-hundred fifty (150) milliseconds, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum normal clearing time associated with any three-phase fault location that reduces the voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

2. An Asynchronous Generating Facility shall remain online for any voltage disturbance caused by a single-phase fault on the transmission grid, or within the Asynchronous Generating Facility between the Point of Interconnection and the high voltage terminals of the Asynchronous Generating Facility's step up transformer, with delayed clearing, plus any subsequent post-fault voltage recovery to the final steady-state post-fault voltage unless clearing the fault effectively disconnects the generator from the system. Clearing time shall be based on the maximum backup clearing time associated with a single point of failure (protection or breaker failure) for any single-phase fault location that reduces any phase-to-ground or phase-to-phase voltage at the Asynchronous Generating Facility's Point of Interconnection to 0.2 per-unit of nominal voltage or less, independent of any fault current contribution from the Asynchronous Generating Facility.

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