

October 17, 2016

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

**Re: California Independent System Operator Corporation
Errata to Compliance Filing with Order No. 827 and Order No. 828
ER17-114-_____**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits this notice of errata to correct errors in its October 14, 2016, Compliance filing with Commission Order No. 827¹ and No. 828².

Due to a clerical error, there was a typographical error in the heading of section 25.4.1. The correct heading should read *Asynchronous Generating Facilities-Reactive Power*. This change is being reflected in the clean and marked tariff records (Attachments A and B), and this correction is also being submitted to the Commission *via* the eTariff system to correct the eTariff record.

There is a typographical error in both Attachments A and B of the Compliance Filing in Appendix T. However, the error was not made in the eTariff record, so the CAISO is not submitting a new eTariff record for Appendix T.

Lastly, the CAISO is submitting a correction to proposed revisions to Appendix EE, Article 9. This error is presented in both the clean and marked tariff record attachments (Attachments A and B to the transmittal letter). Furthermore, this clerical error is also noted in the eTariff record.

¹ *Reactive Power Requirements for Non-Synchronous Generation*, 155 FERC ¶ 61,277 (2016) (Order No. 827). Published in the Federal Register on June 23, 2016. Federal Register Vol. 81, No. 121, pp. 40793-40809.

² *Requirements for Frequency and Voltage Ride Through Capability of Small Generating Facilities*, 156 FERC ¶ 61,062 (July 2016) (Order No. 828). Published in the Federal Register on August 1, 2016. Federal Register Vol. 81, No. 147, pp. 50290-50298.

Respectfully submitted,

/s/ Andrew Ulmer

Roger E. Collanton

General Counsel

Anthony Ivancovich

Deputy General Counsel

Andrew Ulmer

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California Independent System Operator
Corporation

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CERTIFICATE OF SERVICE

I certify that I have served the foregoing document upon the parties listed on the official service list in the captioned 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 17th day of October, 2016.

/s/ Grace Clark

Grace Clark

Attachment A – Clean Tariff Records

Errata to Compliance Order No. 827 and Order No. 828

California Independent System Operator Corporation

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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 PTO or, from time to time, 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 shall maintain the CAISO specified voltage schedule if required under their 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, while operating within the power factor range specified in their interconnection agreements, or, for Regulatory Must-Take Generation with Existing QF Contracts or Amended QF Contracts, 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.

* * * *

25.4.1 Asynchronous Generating Facilities—Reactive Power

After September 21, 2016, an existing Asynchronous Generating Facility making upgrades to its Generating Unit(s) that require a new Interconnection Request under Section 25 will provide reactive power capability as described in Section 25.4.1.

The Generating Unit 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.

After September 21, 2016, an existing Asynchronous Generating Facility making upgrades to its Generating Unit(s) that does not require a new Interconnection Request under Section 25 will provide reactive power capability consistent with requirements of its existing Generator Interconnection Agreement.

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Appendix T

1.5 Responsibilities of the Parties

- 1.5.7 For Interconnection Customers that execute or request the executed filing of an SGIA on or after October 5, 2016, the Interconnection Customer shall ensure “frequency ride-through” capability and “voltage ride through” capability of its Small Generating Facility.

Frequency Conditions. The CAISO Controlled Grid is designed to automatically activate a load-shed program as required by the Applicable Reliability Standards and the Applicable Reliability Council in the event of an under-frequency system disturbance. The Interconnection Customer shall implement under-frequency and over-frequency protection set points for the Small Generating Facility as required by Applicable Reliability Standards and the Applicable Reliability Council to ensure “ride through” capability. Small Generating Facility response to

frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with the Participating TO and CAISO in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the CAISO Controlled Grid during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice. Asynchronous Generating Facilities are subject to the frequency ride through requirements set forth in Attachment 7.

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1.8 Reactive Power

- 1.8.1 The Interconnection Customer shall design its Small Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of each generating unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all similarly situated generators in the CAISO Balancing Authority Area on a comparable basis. The requirements of this paragraph shall not apply to asynchronous generators and the requirements of Attachment 7 shall apply instead. For Asynchronous Generating Facilities, executing a Facilities Study Agreement on or after September 21, 2016, the Interconnection Customer shall design the Small Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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Appendix V

Standard Large Generator Interconnection Agreement

STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT (LGIA)

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9.6 Reactive Power.

9.6.1 Power Factor Design Criteria. The Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all generators in the Balancing Authority Area on a comparable basis. Power factor design criteria for wind generators are provided in Appendix H of this LGIA.

For Asynchronous Generating Facilities submitting a written request to continue a re-study under Section 6.4 of Appendix U of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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CAISO TARIFF APPENDIX BB

Standard Large Generator Interconnection Agreement

ARTICLE 9. OPERATIONS

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9.6 Reactive Power.

9.6.1 **Power Factor Design Criteria.** For all Generating Facilities other than Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all

generators in the Balancing Authority Area on a comparable basis. For Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria in accordance with Appendix H of this LGIA.

For Asynchronous Generating Facilities submitting a written request to continue a re-study under Section 6.4 of Appendix U of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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Appendix EE
Large Generator Interconnection Agreement
for Interconnection Requests Processed under the Generator Interconnection and Deliverability
Allocation Procedures (Appendix DD of the CAISO Tariff)

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9.6 Reactive Power.

9.6.1 Power Factor Design Criteria. For all Generating Facilities other than Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all generators in the Balancing Authority Area on a comparable basis. For Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria in accordance with Appendix H of this LGIA except in the following cases: (a) an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016; or (b) an Interconnection Customer that submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016.

When an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016 the Interconnection Customer will design the Large Generator Facility to 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 and reactors, or a combination of the two.

When an Interconnection Customer submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer will design the Large Generating Facility to 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 and reactors, or a combination of the two.

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Appendix FF

Small Generator Interconnection Agreement for Interconnection Requests Processed Under the Generator Interconnection and Deliverability Allocation Procedures (Appendix DD to the CAISO Tariff)

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1.5 Responsibilities of the Parties

- 1.5.7 For Interconnection Customers that execute or request the executed filing of an SGIA on or after October 5, 2016, the Interconnection Customer shall ensure “frequency ride-through” capability and “voltage ride through” capability of its Small Generating Facility.

Frequency Conditions. The CAISO Controlled Grid is designed to automatically activate a load-shed program as required by the Applicable Reliability Standards and the Applicable Reliability Council in the event of an under-frequency system disturbance. The Interconnection Customer shall implement under-frequency and over-frequency protection set points for the Small Generating Facility as required by Applicable Reliability Standards and the Applicable Reliability Council to ensure “ride through” capability. Small Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with the Participating TO and CAISO in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the CAISO Controlled Grid during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice. Asynchronous Generating Facilities are subject to the frequency ride through requirements set forth in Attachment 7.

Voltage Conditions. The Interconnection Customer shall ensure “voltage ride through” capability of its Small Generating Facility. The Interconnection Customer shall enable these capabilities such that its Small Generating Facility shall not disconnect automatically or instantaneously from the system or equipment of the CAISO and any Affected Systems for an under-voltage or over-voltage condition, as tested pursuant to section 2.1 of this Agreement. The defined conditions shall be in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the Balancing Authority Area on a comparable basis. Asynchronous Generating Facilities are subject to the voltage ride through requirements set forth in Attachment 7.

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1.8 Reactive Power

- 1.8.1 For synchronous Generating Facilities, the Interconnection Customer shall design its Small Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of each generating unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all similarly situated generators in the CAISO Balancing Authority Area on a comparable basis. The requirements of this paragraph shall not apply to Asynchronous Generating Facilities and the requirements of Attachment 7 shall apply instead except in the following cases: (a) an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016; or (b) an Interconnection Customer that submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 16, 2016.

When an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016, the Interconnection Customer will design the Small Generating Facility to 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 and reactors, or a combination of the two.

When an Interconnection Customer submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer will design the Small Generating Facility to 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 and reactors, or a combination of the two.

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Attachment B – Marked Tariff Records
Errata to Compliance Order No. 827 and Order No. 828
California Independent System Operator Corporation

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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 PTO or, from time to time, 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 their 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 with Existing QF Contracts or Amended QF Contracts, 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.

* * * *

25.4.1 Asynchronous Generating Facilities–Reactive Power

After September 21, 2016, an existing Asynchronous Generating Facility making upgrades to its Generating Unit(s) that require a new Interconnection Request under Section 25 will provide reactive

power capability as described in Section 25.4.1.

The Generating Unit 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.

After September 21, 2016, an existing Asynchronous Generating Facility making upgrades to its Generating Unit(s) that does not require a new Interconnection Request under Section 25 will provide reactive power capability consistent with requirements of its existing Generator Interconnection Agreement.

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Appendix T

1.5 Responsibilities of the Parties

- 1.5.7 ~~[This provision is intentionally omitted.]~~ For Interconnection Customers that execute or request the executed filing of an SGIA on or after October 5, 2016, the Interconnection Customer shall ensure “frequency ride-through” capability and “voltage ride through” capability of its Small Generating Facility.

Frequency Conditions. The CAISO Controlled Grid is designed to automatically activate a load-shed program as required by the Applicable Reliability Standards and the Applicable Reliability Council in the event of an under-frequency system

disturbance. The Interconnection Customer shall implement under-frequency and over-frequency protection set points for the Small Generating Facility as required by Applicable Reliability Standards and the Applicable Reliability Council to ensure "ride through" capability. Small Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with the Participating TO and CAISO in accordance with Good Utility Practice. The term "ride through" as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the CAISO Controlled Grid during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice. Asynchronous Generating Facilities are subject to the frequency ride through requirements set forth in Attachment 7.

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1.8 Reactive Power

- 1.8.1 The Interconnection Customer shall design its Small Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of each generating unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all similarly situated generators in the CAISO Balancing Authority Area on a comparable basis. The requirements of this paragraph shall not apply to asynchronous generators and the requirements of Attachment 7 shall apply instead. For Asynchronous Generating Facilities, executing a Facilities Study Agreement on or after September 21, 2016, the Interconnection Customer shall design the Small Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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Appendix V

Standard Large Generator Interconnection Agreement

STANDARD LARGE GENERATOR INTERCONNECTION AGREEMENT (LGIA)

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9.6 Reactive Power.

9.6.1 Power Factor Design Criteria. The Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all generators in the Balancing Authority Area on a comparable basis. Power factor design criteria for wind generators are provided in Appendix H of this LGIA.

For Asynchronous Generating Facilities submitting a written request to continue a re-study under Section 6.4 of Appendix U of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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CAISO TARIFF APPENDIX BB

Standard Large Generator Interconnection Agreement

ARTICLE 9. OPERATIONS

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9.6 Reactive Power.

9.6.1 **Power Factor Design Criteria.** For all Generating Facilities other than Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all

generators in the Balancing Authority Area on a comparable basis. For Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria in accordance with Appendix H of this LGIA.

For Asynchronous Generating Facilities submitting a written request to continue a re-study under Section 6.4 of Appendix U of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria to 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 and reactors, or a combination of the two.

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Appendix EE
Large Generator Interconnection Agreement
for Interconnection Requests Processed under the Generator Interconnection and Deliverability
Allocation Procedures (Appendix DD of the CAISO Tariff)

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9.6 Reactive Power.

9.6.1 Power Factor Design Criteria. For all Generating Facilities other than Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of the Electric Generating Unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all generators in the Balancing Authority Area on a comparable basis. For Asynchronous Generating Facilities, the Interconnection Customer shall design the Large Generating Facility to maintain power factor criteria in accordance with Appendix H of this LGIA except in the following cases: (a) an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016; or (b) an Interconnection Customer that submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016.

When an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016 the Interconnection Customer will design the Large Generator Facility to 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 and reactors, or a combination of the two.

When an Interconnection Customer submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer will design the Large Generating Facility to 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 and reactors, or a combination of the two.

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Appendix FF

Small Generator Interconnection Agreement for Interconnection Requests Processed Under the Generator Interconnection and Deliverability Allocation Procedures (Appendix DD to the CAISO Tariff)

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1.5 Responsibilities of the Parties

- 1.5.7 [This provision is intentionally left blank.] For Interconnection Customers that execute or request the executed filing of an SGIA on or after October 5, 2016, the Interconnection Customer shall ensure “frequency ride-through” capability and “voltage ride through” capability of its Small Generating Facility.

Frequency Conditions. The CAISO Controlled Grid is designed to automatically activate a load-shed program as required by the Applicable Reliability Standards and the Applicable Reliability Council in the event of an under-frequency system disturbance. The Interconnection Customer shall implement under-frequency and over-frequency protection set points for the Small Generating Facility as required by Applicable Reliability Standards and the Applicable Reliability Council to ensure “ride through” capability. Small Generating Facility response to frequency deviations of pre-determined magnitudes, both under-frequency and over-frequency deviations, shall be studied and coordinated with the Participating TO and CAISO in accordance with Good Utility Practice. The term “ride through” as used herein shall mean the ability of a Generating Facility to stay connected to and synchronized with the CAISO Controlled Grid during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice. Asynchronous Generating Facilities are subject to the frequency ride through requirements set forth in Attachment 7.

Voltage Conditions. The Interconnection Customer shall ensure “voltage ride through” capability of its Small Generating Facility. The Interconnection Customer shall enable these capabilities such that its Small Generating Facility shall not disconnect automatically or instantaneously from the system or equipment of the CAISO and any Affected Systems for an under-voltage or over-voltage condition, as tested pursuant to section 2.1 of this Agreement. The defined conditions shall be in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the Balancing Authority Area on a comparable basis. Asynchronous Generating Facilities are subject to the voltage ride through requirements set forth in Attachment 7.

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1.8 Reactive Power

1.8.1 For synchronous Generating Facilities, The Interconnection Customer shall design its Small Generating Facility to maintain a composite power delivery at continuous rated power output at the terminals of each generating unit at a power factor within the range of 0.95 leading to 0.90 lagging, unless the CAISO has established different requirements that apply to all similarly situated generators in the CAISO Balancing Authority Area on a comparable basis. The requirements of this paragraph shall not apply to ~~a~~Asynchronous Generating Facilities generators and the requirements of Attachment 7 shall apply instead except in the following cases: (a) an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016; or (b) an Interconnection Customer that submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 16, 2016.

When an Interconnection Customer posts Interconnection Financial Security for an Asynchronous Generating Facility pursuant to Appendix DD of the CAISO Tariff Section 11.2.2 on or after September 21, 2016, the Interconnection Customer will design the Small Generating Facility to 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 and reactors, or a combination of the two.

When an Interconnection Customer submits an Interconnection Request for an Asynchronous Generating Facility under the Fast Track Process pursuant to Appendix DD of the CAISO Tariff on or after September 21, 2016, the Interconnection Customer will design the Small Generating Facility to 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 and reactors, or a combination of the two.

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