



September 9, 2010

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

**Re: California Independent System Operator Corporation
Multi-Stage Generating Resource Amendment
Docket Nos. ER10-1360-000, ER10-2159-000 and ER10-2560-000**

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d, and Part 35 of the Federal Energy Regulatory Commission's (Commission) regulations, 18 C.F.R. Part 35, and consistent with Order No. 714 regarding electronic filing of tariff submittals, the California Independent System Operator Corporation (ISO) hereby submits a filing to amend certain existing tariff provisions and request a later effective date of the ISO FERC Electric Tariff provisions filed previously in the above referenced dockets that enable the implementation of the ISO's new Multi-Stage Generating Resources functionality. The proposed changes do not alter the substance of the tariff provisions previously filed in the above referenced dockets; if accepted by the Commission, the changes will facilitate the implementation of the Multi-Stage Generating Resources functionality on November 15, 2010.

I. Background

On May 27, 2010, the ISO filed tariff sheets requesting authority to implement its new Multi-Stage Generating Resource functionality on October 1, 2010. The May 27 proposal was the result of a robust stakeholder process that spanned over almost a year to consider the elements of a proposal for better modeling of resources with multiple generating modes such as combined cycle units. The May 27 filing was also in compliance with the Commission's September 21, 2006 order, which in accepting the ISO's new tariff provisions enabling the implementation of the ISO's new Locational Marginal Price-based energy markets, directed the ISO to work with its software vendors to develop an application that would accurately account for the characteristics

of combined-cycle units.¹ The Commission directed the CAISO to file a proposal for review no later than MRTU Release 2, which was scheduled to occur no later than three years following the implementation of the ISO's new market design.²

The ISO's May 27 filing proposed an amendment to its tariff to incorporate new market rules that support the implementation of Multi-Stage Generating Resource modeling. On July 30, 2010, the Commission accepted the proposed tariff revisions submitted by the ISO for resources that intend to register, qualify, and participate in the ISO's Multi-Stage Generating Resource Modeling market simulation and production functionality.³ The Commission also accepted the tariff revisions proposed in Appendix AA, and the tariff revisions containing the registration and qualification requirements, to become effective August 2, 2010 and October 1, 2010, respectively as requested by the ISO. Finally, the Commission accepted the remaining proposed tariff revisions concerning implementation of the Multi-Stage Generating Resource Modeling proposal and suspended them for a nominal period, to become effective October 1, 2010, subject to refund, compliance filing, and further Commission order.

On July 29, 2010, the ISO filed additional tariff amendments in FERC Docket No. ER10-2056 to establish a methodology for the determination and mitigation of Transition Costs, which the ISO will provide compensation to Multi-Stage Generating Resources for their transition from one operational configuration to another if committed by the ISO. The ISO requested an effective date of October 1, 2010 for the transition costs provisions, and requested an order by the Commission no later than September 27, 2010, to ensure successful launch for the new functionality on October 1, 2010.

On August 6, 2010, the ISO submitted a compliance filing in response to the Commission's order on July 30, 2010, regarding the ISO's proposal to implement the Multi-Stage Generating Resource functionality.⁴ The Commission's order mandated that the ISO resubmit through the Commission's electronic tariff filing system the proposed tariff language that was accepted by the Commission in Docket No. ER10-1360.⁵ In the time between the ISO's submission of the initial tariff sheets in Docket ER10-1360 and the Commission's July 30 order accepting the tariff sheets, the Commission implemented its electronic tariff filing system. The re-submittal was necessary to ensure that the new tariff language would be included in the electronic version of the ISO's Fifth Replacement FERC Electric Tariff. However, due to a software anomaly, the tariff records associated with the compliance filing submitted on August 6 inadvertently were not processed. Consequently, on September 8, 2010, the ISO resubmitted the compliance filing to include the tariff records that previously did not transfer correctly into the electronic tariff filing system through the the August 6 filing.

¹ *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274, at P 573 (2006) (September 2006 Order).

² *Id.* P 33

³ *Cal. Indep. Sys. Operator Corp.*, 132 FERC ¶ 61,087 (2010) (July 30 Order).

⁴ *Id.*

⁵ *Id.*, at P 1.

II. Discussion

In this filing, the ISO respectfully requests that the Commission accept:

(1) A later effective date of the tariff provisions enabling the implementation of the ISO's Multi-Stage Generating Resources functionality from the current October 1, 2010 effective date to November 15, 2010.

(2) Changes to the currently effective Appendix AA provisions to enable new entrants prior to the November 15, 2010, as well as changes to the existing registered attributes of resources already registered as Multi-Stage Generating Resources for a limited time prior to the start of the new market functionality.

(3) Changes to the pre-go live freeze of all changes, fundamental or otherwise, from 30 days to 21 days.

(4) Changes to timing of post-go live changes to fundamental changes, including new entrants of Multi-Stage Generating Resources.

The Commission's acceptance of these changes will enable participants to adopt any fine tuning type changes of their already registered attributes, including new entrants while ensuring readiness for a successful launch of the functionality.

A. Effective Date of New Functionality

Since the May 27, 2010 filing, the ISO has made substantial progress in testing and market simulation activities related to the implementation of the new Multi-Stage Generating Resource functionality. During the months of July through August, the ISO was able to successfully complete eight weeks of market simulation, having conducted seven of ten structured scenarios during that timeframe, including the publication of eleven settlement statements. However, towards the end of August and in early September, it became apparent that as the result of outstanding software variances found through market simulation and ISO testing, the full MSG functionality would not be available by the end the scheduled market simulation. On September 2, 2010, after further discussions with stakeholders, the ISO announced its intent to delay the implementation of the start of the new market feature to November 15, 2010.

Currently, the tariff provisions enabling the implementation of the new Multi-Stage Generating Resources functionality are accepted and suspended by the Commission until October 1, 2010.⁶ To provide additional testing and market simulation

⁶ See July 30 Order.

opportunity, the ISO proposes that effective date for these changes and all provisions enabling the new functionality, except for the provisions in Appendix AA, become effective November 15, 2010.

B. Changes in Pre-Go Live Timing of Fundamental Changes to Registered Attributes of Resources, Including New Entrants

Under the current tariff provisions in Appendix AA of the ISO tariff, only resources for which Scheduling Coordinators successfully submitted their registration materials as of sixty days prior to the launch of the new functionality can be registered to function as Multi-Stage Generating Resources as of the start of this new functionality.⁷ This restriction was necessary prior to the launch of the new Multi-Stage Generating Resource functionality to ensure that the ISO could successfully validate and register resources prior to the launch of the new functionality. With the delay of the start of this new functionality, the ISO proposes to retain a pre-implementation deadline but now proposes a slightly shorter time period of 54 days prior to the implementation of the new functionality. Accordingly, the ISO proposes to amend Appendix AA to provide for registration of new entrants, provided such participants successfully submit their registration materials at least 54 days prior (*i.e.*, September 22, 2010) to the effective date of new Multi-Stage Generating Resources functionality (*i.e.*, November 15, 2010).

This current sixty-day restriction also applies to changes to the fundamental features of Multi-Stage Generating Resources.⁸ In light of the delayed implementation, the ISO proposes to amend Appendix AA to enable Scheduling Coordinators for existing Multi-Stage Generating Resources to also modify any of the fundamental features prior to fifty-four days prior to the start of the launch of the new market feature.

Under the proposed tariff changes, new entrants and existing Multi-Stage Generating Resources that intend to modify any of their registered fundamental features must submit the appropriate registration materials prior to September 22, 2010.

The currently effective Appendix AA also restricts any changes, fundamental or otherwise, after thirty days prior to the effective date of the tariff provisions enabling the

⁷ See Appendix AA.

⁸ As discussed in Appendix AA of the ISO tariff, the fundamental features consist of: (a) Register a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource; (b) Change the registered MSG Configurations for a Multi-Stage Generating Resource, which includes the: (1) addition of new MSG Configurations, and (2) removal of an existing MSG Configuration; (c) a change to the definition of a registered MSG Configuration, which includes: (1) a change in the physical units supporting the MSG Configuration, (2) a change to the MSG Configuration Start Up and Shut Down flags, and (3) adding or removing a MSG Transition to the Transition Matrix; (d) a material change in the Transition Times contained in the Master File, which consists of a change that more than doubles a Transition Time or reduces it to less than half; and (e) a material change to the maximum Ramp Rate of the MSG Configuration(s) contained in the Master File, which consists of a change that more than doubles the maximum Ramp Rate or reduces it to less than half.

adoption of the new Multi-Stage Generating Resources functionality. With the proposed delay of implementation to November 15, 2010, this freeze would start on October 15, 2010. The ISO proposes to provide participants with an additional week for such changes and proposes to amend the thirty (30) day freeze currently in the tariff to a twenty-one (21) day pre-go live freeze.

After the freeze, participants will be required to go live with their registered attributes, fundamental or otherwise, but may change their non-fundamental changes after November 15, 2010, as discussed further below. In addition, participants will continue to have the option to opt out of Multi-Stage Generating Resource status at any time, subject to the master file changes timeline.

C. Changes to Post Go-Live Fundamental Changes to Registered Attributes of Resources, Including New Entrants

In its May 27 filing the ISO proposed and the Commission approve a post-go live timeline for changes to the registered attributes of Multi-Stage Generating Resources, including new entrants. This timeline restricts fundamental changes, including new entrants, for 45 days after go live for the first batch of such changes, and 110 days for the second batch of such changes. This time line is necessary to ensure that the ISO can adequately model fundamental changes, and to avoid random and unnecessary changes that could stress the system.⁹ The dates also took into consideration the two holidays that will occur after the launch of the new functionality. The delay to a November 15, 2010, start date requires a slight modification to this post-go live timeline.

Accordingly, whereas the current Section 27.8.3 stipulates that the first batch of changes may come forty-five (45) days after the effective date of that section, the ISO proposes to modify that timing to sixty (60) days after go live. This would enable the new batch or changes to fundamental attributes of Multi-Stage Generating Resources as of January 15, 2011, fifteen days later than the current timeline. The ISO proposes to modify the existing one hundred and ten (110) days after go live timeframe for the second batch of new entrants or changes to fundamental changes to one hundred and five days (105) after the effective date of the new market features. This would enable the second new batch and changes to fundamental attributes on March 1, 2011, five days earlier than the current timeline. The ISO does not propose any changes to the sixty day (60) time frame for any such changes after that time already reflected in Section 27.8.3.

⁹ See May 27 Transmittal Letter at p. 17.

III. Stakeholder Process

To ensure adequate time for the processing of the proposed tariff changes, the ISO has prepared and made this filing as expeditiously as possible. Consequently, the ISO was not able to follow its normal lengthier stakeholder process prior to this filing. However, within the time frame available after it determined the need for a delay, to the best of its ability, the ISO shared the changes proposed in the instant filing with stakeholders prior to filing.

On September 2, 2010, during its regularly scheduled market performance meetings, the ISO announced to stakeholders the need for a delay of the implementation date. Through this stakeholder meeting and the ISO's outreach efforts, the ISO was able to determine that the stakeholder community overwhelmingly supports the delay. During the September 2, 2010, market performance meeting, the ISO committed to discuss the timeline implications of this delay during its weekly scheduled market simulation meeting. At the September 9, 2010, market simulation meeting the ISO informed participants the proposed changes to the implementation schedule as well as the proposed additional flexibility for new entrants and changes to fundamental changes. Participants did not express any objections to the ISO's proposed changes.

IV. Effective Dates and Waiver of Notice Requirements

The ISO respectfully requests that the tariff language previously filed in the above referenced dockets, with the additional changes proposed in this instant filing to Section 27.8.3, except for the tariff provisions submitted in Appendix AA, be made effective on November 15, 2010.

With respect to the proposed changes to Appendix AA, the ISO respectfully requests that the Commission make these changes effective on September 22, 2010. Because the instant filing only modifies the proposed timing requirements for prior to the launch of the new functionality slightly to provide participants additional opportunity for changes, and does not modify the substance of the provisions contained therein, the ISO respectfully requests that the Commission grant any waivers or exceptions necessary for the tariff language associated with this filing to be given the effective date of September 22, 2010.

Finally, because an adverse order regarding the proposed changes would require the ISO and participants to reconstruct their systems to preclude the additional flexibility for changes proposed in the instant filing, the ISO respectfully requests that the Commission provide an order in a slightly expedited basis by November 4, 2010, so that there is adequate time prior to November 15, 2010, to consider any impact of the Commission's order.

V. Communications

Communications regarding this filing should be addressed to the following individuals, whose names should be placed on the official service list established by the Secretary with regard to this submittal:

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VI. Service

The ISO has served copies of this transmittal letter, and all attachments, on the California Public Utilities Commission, the California Energy Commission, and all parties to Docket Nos. ER10-1360-000, ER10-2159-000, and ER10-2560-000. In addition, the ISO is posting this transmittal letter and all attachments on the ISO website.

VII. Materials Provided in the Instant Amended Compliance Filing

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

Attachment A	Clean sheets incorporating the red-lined changes contained in Attachment B
Attachment B	Red-lined changes to the ISO Tariff to implement the revisions contained in this filing

VIII. Conclusion

The ISO respectfully requests that the Commission accept the instant filing.

Respectfully submitted,

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Attachment A – Clean Tariff
Multi-Stage Generating Resource Amendment
California Independent System Operator Corporation
Fifth Replacement FERC Electric Tariff

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27.8.3 Changes in Status and Configurations of Resource

Scheduling Coordinators may seek modifications to the Multi-Stage Generating Resource attributes listed below consistent with the process and timing requirements specified in Section 27.8.1 and the additional requirements discussed below in this Section 27.8.3:

- (1) Registration and qualification of a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource.
- (2) Changes to the MSG Configurations attributes, which include:
 - a. addition of new MSG Configurations;
 - b. removal of an existing MSG Configuration;
 - c. a change in the physical units supporting the MSG Configuration;
 - d. a change to the MSG Configuration Start Up and Shut Down flags;
 - e. adding or removing an MSG Transition to the Transition Matrix;
 - f. a material change in the Transition Times contained in the Master File, which consists of a change that more than doubles the Transition Times or reduces it to less than half; and
 - g. a material change to the maximum Ramp Rate of the MSG Configuration(s) contained in the Master File, which consists of a change that more than doubles the maximum Ramp Rate or reduces it to less than half.

When transitioning to implement these changes across the midnight hour, for any Real-Time Market run in which the changes specified in this Section 27.8.3 are to take effect within the Time Horizon of any of the Real-Time Market runs, the CAISO will Schedule, Dispatch, or award resources consistent with either the prior or new status and definitions, as appropriate, and required by any Real-Time conditions regardless of the resource's state scheduled or awarded in the immediately preceding Day-Ahead Market. A Scheduling Coordinator may unregister a Generating Unit or Dynamic Resource-Specific System Resource from its Multi-Stage Generating Resource status subject to the timing requirements for

Master File changes, and such changes are not subject to the timing requirements in Section 27.8.3. For the first sixty (60) days after the effective date of this Section, Scheduling Coordinators may not change any of Multi-Stage Generating Resource attributes listed above in this Section. On the sixty-first (61st) day following the effective day of this Section, changes to the attributes listed above in this Section may take effect, including the registration of new Multi-Stage Generating Resources, provided Scheduling Coordinators have previously followed the registration process requirements listed in Section 27.8.1. Subsequently, further changes to the attributes listed above in this Section 27.8.3 may not take effect until after the one hundred-and fifth (105th) day following the effective date of this Section, subject to the procedures described in Section 27.8.1. As of the one hundred-fifth (105th) day following the effective date of this Section, changes to these attributes may only be made every sixty (60) days after the day on which any such changes have taken effect.

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Appendix AA

Transition Plan for Multi-Stage Generating Resources

This Appendix AA describes the registration and qualification requirements for Generating Units and Dynamic Resource-Specific System Resources that intend to qualify and participate in the CAISO Markets as Multi-Stage Generating Resources as of the first day on which the Multi-Stage Generating Resource CAISO Tariff provisions are effective.

No later than fifty-four (54) days prior to effective date of the CAISO Tariff provisions enabling the Multi-Stage Generating Resource functionality, Scheduling Coordinators shall commence the registration process to register and qualify Generating Units or Dynamic Resource-Specific System Resources as Multi-Stage Generating Resources, or any other change to the fundamental attributes as described below, as of the effective date of the CAISO Tariff provisions for the Multi-Stage Generating Resource functionality. The registration process commences with the submission by the responsible Scheduling Coordinator of the completed Multi-Stage Generating Resource registration form and the resource data template for Generating Unit or Dynamic Resource-Specific System Resource, which the CAISO provides as part of the registration process. After such submission, the CAISO will coordinate with the responsible Scheduling Coordinator to validate that the resource qualifies as a Multi-Stage Generating Resource, and

that all the requisite information has been successfully provided to the CAISO. Successful completion of the registration process will occur upon the CAISO's notification to the responsible Scheduling Coordinator that the resource has been successfully qualified as a Multi-Stage Generating Resource. Once the CAISO has provided such notice, the resource will be registered and qualified to participate as a Multi-Stage Generating Resource as of the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality. Scheduling Coordinators may register the number of MSG Configurations as are reasonably appropriate for the unit based on the operating characteristics of the unit, which may not, however, exceed a total of ten MSG Configurations and cannot be fewer than two MSG Configurations. The resource will be successfully registered and qualified for the requested status and MSG Configuration definitions on the date that the CAISO sends the notification to the responsible Scheduling Coordinator that the resource has been successfully qualified. If the CAISO has reason to believe that the resource's operating and technical characteristics are not consistent with the registered and qualified attributes, the CAISO may request that the Scheduling Coordinator provide additional information necessary to support their registered status and, if appropriate, may require that the resource be registered and qualified more consistent with the resource's operating and technical characteristics, including the revocation of its status as a Multi-Stage Generating Resource. Failure to provide such information may be grounds for revocation of Multi-Generating Resource status.

As part of the registration process, the Scheduling Coordinators must submit to the CAISO a Transition Matrix, which contains the cost and operating constraints associated with feasible transitions between MSG Configurations. The responsible Scheduling Coordinator shall submit for each MSG Configuration a single segment Operational Ramp Rate, and as applicable an Operating Reserves Ramp Rate and Regulating Reserves Ramp Rate. The Scheduling Coordinator must establish the default MSG Configuration and its associated Default Resource Adequacy Path that apply to Multi-Stage Generating Resources that are subject to Resource Adequacy must-offer obligations as part of the resource data template provided in the registration process. The MSG Configurations and operational characteristics submitted to and accepted by the CAISO during this registration process will be in effect until the sixtieth (60th) day following the effective date of Section 27.8 of the CAISO Tariff, unless modified as specified below. Prior to that date, the Scheduling Coordinators may not make the following changes to a

Generating Unit's or Dynamic Resource-Specific System Resource's attributes, which for the purposes of this Appendix AA are described as the fundamental attributes:

- (a) Register a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource;
- (b) Change the registered MSG Configurations for a Multi-Stage Generating Resource, which includes the:
 - (a) addition of new MSG Configurations;
 - (b) removal of an existing MSG Configuration;
 - (c) a change to the definition of a registered MSG Configuration, which includes:
 - (1) a change in the physical units supporting the MSG Configuration;
 - (2) a change to the MSG Configuration Start Up and Shut Down flags; and
 - (3) adding or removing a MSG Transition to the Transition Matrix;
 - (d) a material change in the Transition Times contained in the Master File, which consists of a change that more than doubles a Transition Time or reduces it to less than half; and
 - (e) a material change to the maximum Ramp Rate of the MSG Configuration(s) contained in the Master File, which consists of a change that more than doubles the maximum Ramp Rate or reduces it to less than half.

Scheduling Coordinators may make any other changes to their non-fundamental attributes, until twenty-one days prior to the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality, subject to the timing requirements of the Master File time line. After the twenty-first (21st) day prior to the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality, no changes may be made to any of the Multi-Stage Generating Resource attributes, fundamental or otherwise, except that the resources can drop out Multi-Stage Generating Resource status subject to the timing requirements of the Master file

time line. When transitioning to implement these changes across the midnight hour, for any Real-Time Market run in which the changes specified above are to take effect within the Time Horizon of any of the Real-Time Market runs, the CAISO will Schedule, Dispatch, or award resources consistent with either the prior or new status and definitions, as appropriate and required by any Real-Time conditions regardless of the resource's state Scheduled or awarded in the immediately preceding Day-Ahead Market.

Resources that will be participating in the CAISO Markets as Multi-Stage Generating Resources when the CAISO Tariff Multi-Stage Generating Resource provisions become effective must submit all Outages reports required in Section 9 of the CAISO Tariff consistent with the registered MSG Configurations for such resources no later than forty-eight hours prior to the start of the first hour of the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality.

Definitions

Default Resource Adequacy Path

The registered sequence of MSG Configurations a Multi-Stage Generating Resource has to Start-Up and transition from off-line to reach the default Resource Adequacy MSG Configuration.

Multi-Stage Generating Resources

A Generating Unit or Dynamic Resource-Specific System Resource that for reasons related to its technical characteristics can be operated in various MSG Configurations such that only one such MSG Configuration can be operated in any given Dispatch Interval. In addition, subject to the requirements in Section 27.8, the following technical characteristics qualify a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource if the resource; (1) is a combined cycle gas turbine resource; (2) is a Generating Unit or Dynamic Resource-Specific System Resources with multiple operating or regulating ranges but which can operate in only one of these ranges at any given time; or (3) has one or more Forbidden Operating Regions. Metered Subsystems, Pumped-Storage Hydro Units, and Pumping Loads, and System Resources that are not Dynamic Resource-Specific System Resources do not qualify as Multi-Stage Generating Resources.

MSG Configuration

A qualified and registered operating mode of a Multi-Stage Generating Resource, with a distinct set of operating characteristics. All MSG

Configurations for Multi-Stage Generating Resources are operable on-line modes.

Transition Matrix

A matrix that, for Multi-State Generating Resources defines the possible MSG Transitions between all online MSG Configurations including the Transition Times and Transition Costs.

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Attachment B – Marked Tariff
Multi-Stage Generating Resource Amendment
California Independent System Operator Corporation
Fifth Replacement FERC Electric Tariff

27.8.3 Changes in Status and Configurations of Resource

Scheduling Coordinators may seek modifications to the Multi-Stage Generating Resource attributes listed below consistent with the process and timing requirements specified in Section 27.8.1 and the additional requirements discussed below in this Section 27.8.3:

- (1) Registration and qualification of a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource.
- (2) Changes to the MSG Configurations attributes, which include:
 - a. addition of new MSG Configurations;
 - b. removal of an existing MSG Configuration;
 - c. a change in the physical units supporting the MSG Configuration;
 - d. a change to the MSG Configuration Start Up and Shut Down flags;
 - e. adding or removing an MSG Transition to the Transition Matrix;
 - f. a material change in the Transition Times contained in the Master File, which consists of a change that more than doubles the Transition Times or reduces it to less than half; and
 - g. a material change to the maximum Ramp Rate of the MSG Configuration(s) contained in the Master File, which consists of a change that more than doubles the maximum Ramp Rate or reduces it to less than half.

When transitioning to implement these changes across the midnight hour, for any Real-Time Market run in which the changes specified in this Section 27.8.3 are to take effect within the Time Horizon of any of the Real-Time Market runs, the CAISO will Schedule, Dispatch, or award resources consistent with either the prior or new status and definitions, as appropriate, and required by any Real-Time conditions regardless of the resource's state scheduled or awarded in the immediately preceding Day-Ahead Market. A Scheduling Coordinator may unregister a Generating Unit or Dynamic Resource-Specific System Resource from its Multi-Stage Generating Resource status subject to the timing requirements for

Master File changes, and such changes are not subject to the timing requirements in Section 27.8.3. For the first ~~sixty (60)~~~~forty-five (45)~~ days after the effective date of this Section, Scheduling Coordinators may not change any of Multi-Stage Generating Resource attributes listed above in this Section. On the ~~sixty-first (61st)~~~~forty-sixth (46)~~ day following the effective day of this Section, changes to the attributes listed above in this Section may take effect, including the registration of new Multi-Stage Generating Resources, provided Scheduling Coordinators have previously followed the registration process requirements listed in Section 27.8.1. Subsequently, further changes to the attributes listed above in this Section 27.8.3 may not take effect until after the one hundred-~~and fifth (105th)~~~~tenth (110)~~ day following the effective date of this Section, subject to the procedures described in Section 27.8.1. As of the one hundred-~~fifth (105th)~~~~tenth (110)~~ day following the effective date of this Section, changes to these attributes may only be made every sixty (60) days after the day on which any such changes have taken effect.

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Appendix AA

Transition Plan for Multi-Stage Generating Resources

This Appendix AA describes the registration and qualification requirements for Generating Units and Dynamic Resource-Specific System Resources that intend to qualify and participate in the CAISO Markets as Multi-Stage Generating Resources as of the first day on which the Multi-Stage Generating Resource CAISO Tariff provisions are effective.

No later than ~~fifty-four (54)~~~~sixty (60)~~ days prior to effective date of the CAISO Tariff provisions enabling the Multi-Stage Generating Resource functionality, Scheduling Coordinators shall commence the registration process to register and qualify Generating Units or Dynamic Resource-Specific System Resources as Multi-Stage Generating Resources, or any other change to the fundamental attributes as described below, as of the effective date of the CAISO Tariff provisions for the Multi-Stage Generating Resource functionality. The registration process commences with the submission by the responsible Scheduling Coordinator of the completed Multi-Stage Generating Resource registration form and the resource data template for Generating Unit or Dynamic Resource-Specific System Resource, which the CAISO provides as part of the registration process. After such submission, the CAISO will coordinate with the responsible Scheduling Coordinator to validate that the resource qualifies as a Multi-Stage Generating Resource, and

that all the requisite information has been successfully provided to the CAISO. Successful completion of the registration process will occur upon the CAISO's notification to the responsible Scheduling Coordinator that the resource has been successfully qualified as a Multi-Stage Generating Resource. Once the CAISO has provided such notice, the resource will be registered and qualified to participate as a Multi-Stage Generating Resource as of the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality. Scheduling Coordinators may register the number of MSG Configurations as are reasonably appropriate for the unit based on the operating characteristics of the unit, which may not, however, exceed a total of ten MSG Configurations and cannot be fewer than two MSG Configurations. The resource will be successfully registered and qualified for the requested status and MSG Configuration definitions on the date that the CAISO sends the notification to the responsible Scheduling Coordinator that the resource has been successfully qualified. If the CAISO has reason to believe that the resource's operating and technical characteristics are not consistent with the registered and qualified attributes, the CAISO may request that the Scheduling Coordinator provide additional information necessary to support their registered status and, if appropriate, may require that the resource be registered and qualified more consistent with the resource's operating and technical characteristics, including the revocation of its status as a Multi-Stage Generating Resource. Failure to provide such information may be grounds for revocation of Multi-Generating Resource status.

As part of the registration process, the Scheduling Coordinators must submit to the CAISO a Transition Matrix, which contains the cost and operating constraints associated with feasible transitions between MSG Configurations. The responsible Scheduling Coordinator shall submit for each MSG Configuration a single segment Operational Ramp Rate, and as applicable an Operating Reserves Ramp Rate and Regulating Reserves Ramp Rate. The Scheduling Coordinator must establish the default MSG Configuration and its associated Default Resource Adequacy Path that apply to Multi-Stage Generating Resources that are subject to Resource Adequacy must-offer obligations as part of the resource data template provided in the registration process. The MSG Configurations and operational characteristics submitted to and accepted by the CAISO during this registration process will be in effect until the sixtieth (~~60th forty fifth (45th)~~) day following the effective date of Section 27.8 of the CAISO Tariff, unless modified as specified below. Prior to that date, the Scheduling Coordinators may not make the following changes

to a Generating Unit's or Dynamic Resource-Specific System Resource's attributes, which for the purposes of this Appendix AA are described as the fundamental attributes:

- (a) Register a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource;
- (b) Change the registered MSG Configurations for a Multi-Stage Generating Resource, which includes the:
 - (a) addition of new MSG Configurations;
 - (b) removal of an existing MSG Configuration;
 - (c) a change to the definition of a registered MSG Configuration, which includes:
 - (1) a change in the physical units supporting the MSG Configuration;
 - (2) a change to the MSG Configuration Start Up and Shut Down flags; and
 - (3) adding or removing a MSG Transition to the Transition Matrix;
 - (d) a material change in the Transition Times contained in the Master File, which consists of a change that more than doubles a Transition Time or reduces it to less than half; and
 - (e) a material change to the maximum Ramp Rate of the MSG Configuration(s) contained in the Master File, which consists of a change that more than doubles the maximum Ramp Rate or reduces it to less than half.

Scheduling Coordinators may make any other changes to their non-fundamental attributes, until twenty-one days prior to the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality, subject to the timing requirements of the Master File time line. After the twenty-first (21st ~~Thirty (30)~~ days prior to before the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality, no changes may be made to any of the Multi-Stage Generating Resource attributes, fundamental or otherwise, except that the resources can drop out Multi-Stage Generating Resource status subject to the timing

requirements of the Master file time line. When transitioning to implement these changes across the midnight hour, for any Real-Time Market run in which the changes specified above are to take effect within the Time Horizon of any of the Real-Time Market runs, the CAISO will Schedule, Dispatch, or award resources consistent with either the prior or new status and definitions, as appropriate and required by any Real-Time conditions regardless of the resource's state Scheduled or awarded in the immediately preceding Day-Ahead Market.

Resources that will be participating in the CAISO Markets as Multi-Stage Generating Resources when the CAISO Tariff Multi-Stage Generating Resource provisions become effective must submit all Outages reports required in Section 9 of the CAISO Tariff consistent with the registered MSG Configurations for such resources no later than forty-eight hours prior to the start of the first hour of the effective date of the CAISO Tariff provisions enabling the implementation of the Multi-Stage Generating Resource functionality.

Definitions

Default Resource Adequacy Path

The registered sequence of MSG Configurations a Multi-Stage Generating Resource has to Start-Up and transition from off-line to reach the default Resource Adequacy MSG Configuration.

Multi-Stage Generating Resources

A Generating Unit or Dynamic Resource-Specific System Resource that for reasons related to its technical characteristics can be operated in various MSG Configurations such that only one such MSG Configuration can be operated in any given Dispatch Interval. In addition, subject to the requirements in Section 27.8, the following technical characteristics qualify a Generating Unit or Dynamic Resource-Specific System Resource as a Multi-Stage Generating Resource if the resource; (1) is a combined cycle gas turbine resource; (2) is a Generating Unit or Dynamic Resource-Specific System Resources with multiple operating or regulating ranges but which can operate in only one of these ranges at any given time; or (3) has one or more Forbidden Operating Regions. Metered Subsystems, Pumped-Storage Hydro Units, and Pumping Loads, and System Resources that are not Dynamic Resource-Specific System Resources do not qualify as Multi-Stage Generating Resources.

MSG Configuration

A qualified and registered operating mode of a Multi-Stage Generating

Resource, with a distinct set of operating characteristics. All MSG Configurations for Multi-Stage Generating Resources are operable on-line modes.

Transition Matrix

A matrix that, for Multi-State Generating Resources defines the possible MSG Transitions between all online MSG Configurations including the Transition Times and Transition Costs.

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