

September 2, 2014

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. ER14-639
Order 784 Compliance Filing**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits this filing in compliance with the Federal Energy Regulatory Commission's Order No. 784¹ and the Commission's Order on Compliance issued on August 11, 2014 in the captioned docket.² The CAISO requests that the Commission accept its proposed tariff revisions as compliant with these orders.

I. Background

A. Order 784

On July 18, 2013, the Commission issued a final rule - Order 784 - revising its regulations governing the sale of ancillary services at market-based rates to public utility transmission providers as well as accounting and financial reporting for new electric storage technologies. As part of its final rule, the Commission directed that each public utility transmission provider add to its open access transmission tariff a statement that it will take into account the speed and accuracy of regulation resources in determining of reserve requirements for regulation and frequency response service, including whether a self-supplying customer has made "alternative comparable arrangements" as required by the schedule.³

¹ *Third-Party Provision of Ancillary Services; Accounting and Financial Reporting for New Electric Storage Technologies*, (2013) (Order 784).

² *Cal. Indep. Sys. Operator Corp.*, 148 FERC ¶ 61,111 (2014) (Order on Compliance).

³ Order 784 at P 111.

The final rule also requires each public utility transmission provider to post historical one minute and ten minute area control error data on OASIS to facilitate this requirement.⁴ The final rule states that the purpose of this data release requirement is to aid transmission customers' ability to make comparisons of the transmission provider's regulation resources versus its own resources that it might use to self-supply its regulation requirements.⁵ The final rule states that historical data for the most recent calendar year, updated once per year, should satisfy this requirement.⁶

B. Order on Compliance

On December 17, 2013, the CAISO submitted a filing to comply with Order 784. In that filing, the CAISO argued that its existing tariff provisions regarding compensation of resources providing regulation up and regulation down was consistent with or superior to the Commission's directives in Order 784. The CAISO also explained that it would annually post historical one-minute and ten-minute ACE data on OASIS for the most recent calendar year.

The CAISO explained that resources that respond faster to a control signal can offer more of their capacity as regulation and resources that respond with greater accuracy will also receive higher performance payments under the ISO's regulation market design. In its Order on Compliance, the Commission determined that the CAISO did not provide sufficient detail to explain how it accounts for speed and accuracy in determining its reserve requirements for regulation.⁷ Instead, the Commission determined that the CAISO bases its capacity requirements on a system-wide mileage multiplier that estimates the performance of resources with regulation up or regulation down capacity awards.⁸ The Commission stated that in the event the CAISO projects that regulation resources will have relatively low speed and/or accuracy in responding to control signals, the Commission expects the CAISO would adjust the system-wide mileage multiplier to produce relatively higher regulation capacity requirements.⁹ Likewise, the Commission stated that when the CAISO projects

⁴ *Id.*

⁵ *Id.* at P 116.

⁶ *Id.*

⁷ Order on Compliance at P 15.

⁸ *Id.*

⁹ *Id.* at P 16.

that regulation resources will have higher speeds and/or accuracy in response to control signals, the Commission expects the CAISO will adjust the system-wide mileage multiplier to produce relatively lower regulation capacity requirements.¹⁰

II. The CAISO establishes regulation up and regulation down capacity requirements separately from regulation up and regulation down mileage requirements.

Under the CAISO's Commission-approved tariff, the CAISO procures four ancillary services through its markets: regulation up, spinning reserve, non-spinning reserve, and regulation down.¹¹ The CAISO establishes minimum procurement requirements for these ancillary services in order to meet applicable reliability standards, but may also establish more stringent criteria for the procurement of ancillary services or procure additional ancillary services as conditions warrant.¹² Scheduling coordinators submit bids and self-provide ancillary services from resources that meet technical certification requirements. The CAISO attempts to procure 100 percent of its ancillary services requirements in the day-ahead market based on the CAISO's day-ahead demand forecast net of self-provided ancillary services.¹³ The CAISO market pays a marginal clearing price for ancillary service awards and reduces to a scheduling coordinator's ancillary service payment obligations based on the market value of the scheduling coordinator's accepted self-provided ancillary services.

Resources certified to respond automatically to control signals in an upward or downward direction provide regulation up and regulation down to balance demand and resources in real-time. The CAISO day-ahead market procures regulation up and regulation down for frequency response and variations between supply and demand that occur within 5 minute dispatch intervals. The CAISO market also procures incremental regulation up and regulation down in the real time unit commitment process.

The Commission's finding that the CAISO determines capacity requirements based on a system-wide mileage multiplier that estimates the performance of resources with regulation up or regulation down capacity awards, is not entirely accurate.¹⁴ Under the CAISO's regulation market design

¹⁰ *Id.*

¹¹ See generally CAISO tariff section 8.1 *et seq.*

¹² See CAISO tariff section 8.2.3, 8.2.3.1, and 8.2.3.2.

¹³ See CAISO tariff section 8.3.1.

¹⁴ The Order on Compliance ascribes this statement to the CAISO. In its previous compliance filing, the CAISO stated: "The ISO establishes capacity requirements that are

approved by the Commission, the CAISO establishes separate requirements for capacity and mileage in order to develop market clearing prices for each.¹⁵

The CAISO establishes regulation up and regulation down capacity requirements for the CAISO system and also imposes requirements in ancillary service sub-regions. The CAISO calculates these capacity requirements based on the maximum regulation up and regulation down capacity ramping needs projected to occur in each operating hour.¹⁶ These are Megawatt values. The CAISO uses these values to clear bids and self-schedules for regulation up and regulation down.

The CAISO also establishes hourly mileage requirements for regulation up and regulation down based on the minimum of three variables.¹⁷

- The first variable reflects the mileage the CAISO expects from resources based on the relationship between historical awards and self-provisions of regulation capacity and mileage. The CAISO calculates the hourly system mileage multiplier by summing the total mileage it obtained from all resources (both self-supplied and procured in the CAISO market) over the prior week for the given hour and dividing that number by the regulation capacity procured for the week in that hour.
- The second variable is based on the mileage the CAISO actually instructed in the prior calendar week. This variable seeks to capture an approximate mileage requirement based on current system conditions given the time of year.
- The third variable is the product of a resource-specific mileage multiplier and a resource's self-provided or bid-in regulation capacity, which number is then summed for all resources. This variable reflects the maximum mileage in either the up or down direction that the CAISO expects self-provided and bid-in regulation capacity can provide.

informed by a system wide mileage multiplier that estimates the performance of resources with a regulation up or regulation down capacity award." Accordingly, if the system wide mileage multiplier is consistently low, the CAISO may increase its regulation capacity requirements.

¹⁵ *Cal. Indep. Sys. Operator Corp.*, 140 FERC ¶ 61,206 (2012) at PP 12-16

¹⁶ The CAISO has published a technical bulletin describing the CAISO procurement of regulation that describes that the calculation for Regulation Up and Regulation Down requirements reflects the coincidental 10 minute peak Regulation Up and Regulation Down need separately for each Operating Hour. <http://www.aiso.com/Documents/TechnicalBulletin-ASProcurement-Regulation.pdf>

¹⁷ See CAISO Tariff section 8.2.3.1

If the CAISO repeatedly does not obtain sufficient mileage from capacity that clears its market processes, the CAISO will establish a higher capacity requirement.¹⁸ More accurate and faster resources (i.e. resources with higher resource-specific mileage multipliers) can help mitigate the need for the CAISO to procure additional regulation up or regulation down capacity to meet the mileage requirements. In this way, the CAISO's regulation market design takes into account the speed and accuracy of regulation resources in its determination of capacity requirements for regulation up and regulation down. With respect to scheduling coordinator obligations for regulation, if scheduling coordinators elect to self-provide capacity from fast-ramping or accurate resources, then they can reduce the need for the CAISO to procure additional capacity to meet system mileage requirements. As a result, scheduling coordinators can help reduce their exposure to additional capacity cost obligations.

III. Proposed Tariff Revisions to Comply with Order 784

In its Order on Compliance, the Commission directs that the CAISO to include the following language in its tariff:

The Transmission Provider will take into account the speed and accuracy of regulation resources in its determination of Regulation and Frequency Response reserve requirements, including as it reviews whether a self-supplying Transmission Customer has made alternative comparable arrangements. Upon request by the self-supplying Transmission Customer, the Transmission Provider will share with the Transmission Customer its reasoning and any related data used to make the determination of whether the Transmission Customer has made alternative comparable arrangements.¹⁹

The CAISO proposes to include this language in the first paragraph of section 8.3.2.1 of its tariff in order to comply with Order 784. The variations in the CAISO's proposed language reflect the fact that the CAISO tariff refers to the *CAISO* instead of *Transmission Provider* and *Scheduling Coordinator* instead of *Transmission Customer*. The CAISO tariff also allows for scheduling coordinators to *self-provide* regulation service as opposed to *self-supply*. For all practical purposes, however, the language is the same. Underscored language reflects additions to existing tariff section 8.2.3.1:

¹⁸ CAISO tariff section 8.2.3 requires the CAISO to procure ancillary services to meet applicable reliability standards but does not limit the CAISO to procure additional regulation capacity as conditions warrant.

¹⁹ Order on Compliance at PP 15-16.

8.2.3.1 Regulation Service

The CAISO shall maintain sufficient resources immediately responsive to the CAISO's EMS control in order to provide sufficient Regulation service to allow the CAISO Balancing Authority Area to meet NERC and WECC reliability standards and any requirements of the NRC by continuously balancing resources to meet deviations between actual and scheduled Demand and to maintain Interchange Schedules. The quantity of Regulation Down and Regulation Up capacity needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall be determined by the CAISO as a percentage of the applicable CAISO Forecast of CAISO Demand for the Day-Ahead and Real-Time Markets. In HASP, the amount of advisory Regulation from Dynamic System Resources required for each Settlement Period in the next Trading Hour is also determined based on the CAISO Forecast of CAISO Demand. The advisory awards of Regulation from Dynamic System Resources in HASP are not binding and are re-optimized through the FMM and RTD processes in the Real-Time Market. The CAISO's determination is based upon its need to meet the NERC and WECC reliability standards and any requirements of the NRC. The CAISO will take into account the speed and accuracy of regulation resources in its determination of Regulation requirements, including as it qualifies self-provided Regulation. Upon request of a Scheduling Coordinator, the CAISO will share with the Scheduling Coordinator its reasoning and any related data used to make the determination of whether the Scheduling Coordinator's self-provided Regulation capacity meets its regulation obligation.

As explained, more accurate and faster resources (i.e. resources with higher resource-specific mileage multipliers) can help mitigate the need for the CAISO to procure additional regulation up or regulation down capacity to meet mileage requirements. In this way, the CAISO's regulation market design takes into account the speed and accuracy of regulation resources in determining capacity requirements for regulation up and regulation down. The CAISO intends to update its applicable Business Practice Manual to provide an explanation of how it will apply the tariff language set forth above.

III. Effective Date

The CAISO requests that the Commission accept the tariff revisions contained in this compliance filing effective as of September 2, 2014.

IV. Attachments

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

Attachment A Revised CAISO Tariff Sheets – Clean

Attachment B Revised CAISO Tariff Sheets – Blackline

V. Conclusion

The CAISO requests that the Commission accept this filing as complying with the directives of the Commission's Order 784.

Please contact the undersigned if you have any questions.

Respectfully submitted,

By: /s/ Andrew Ulmer

Roger E. Collanton

General Counsel

Anthony Ivancovich

Deputy General Counsel

Andrew Ulmer

Director, Federal Regulatory Affairs

California Independent System

Operator Corporation

250 Outcropping Way

Folsom, CA 95630

Tel: (202) 239-3947

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 all of the parties listed on the official service list for the captioned proceeding, 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 2nd day of September, 2014.

/s/ Sarah M. Garcia
Sarah M. Garcia

Attachment A – Clean Tariff Sheets

Order 784 Compliance Filing

California Independent System Operator Corporation

8.2.3.1 Regulation Service

The CAISO shall maintain sufficient resources immediately responsive to the CAISO's EMS control in order to provide sufficient Regulation service to allow the CAISO Balancing Authority Area to meet NERC and WECC reliability standards and any requirements of the NRC by continuously balancing resources to meet deviations between actual and scheduled Demand and to maintain Interchange Schedules. The quantity of Regulation Down and Regulation Up capacity needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall be determined by the CAISO as a percentage of the applicable CAISO Forecast Of CAISO Demand for the Day-Ahead and Real-Time Markets. In HASP, the amount of advisory Regulation from Dynamic System Resources required for each Settlement Period in the next Trading Hour is also determined based on the CAISO Forecast Of CAISO Demand. The advisory awards of Regulation from Dynamic System Resources in HASP are not binding and are re-optimized through the FMM and RTD processes in the Real-Time Market. The CAISO's determination is based upon its need to meet the NERC and WECC reliability standards and any requirements of the NRC. The CAISO will take into account the speed and accuracy of regulation resources in its determination of Regulation requirements, including as it qualifies self-provided Regulation. Upon request of a Scheduling Coordinator, the CAISO will share with the Scheduling Coordinator its reasoning and any related data used to make the determination of whether the Scheduling Coordinator's self-provided Regulation capacity meets its regulation obligation.

The requirement for Regulation Down or Regulation Up needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall each be accompanied by a requirement for Mileage as determined by the CAISO. The CAISO shall determine the Mileage requirements in any Settlement Period based on Regulation capacity requirements as well as the Bid-in Regulation capacity for that Settlement Period. Subject to operator adjustment, the Mileage requirement for either Regulation Up or Regulation Down will reflect the minimum of (a) the product of the respective Regulation capacity requirement and the System Mileage Multiplier; (b) the average Instructed Mileage for the applicable Trading Hour

from the prior seven (7) days; or (c) the product of each resource's resource specific Mileage multiplier(s) and its Bid-in Regulation capacity summed for all resources.

The CAISO will publish on OASIS the estimated quantity, or the percentage used to determine the estimated quantity, of Regulation Reserves required for each hour of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time for the Trading Day. The CAISO will publish on OASIS the Mileage requirements for each hour of the Day-Ahead Market and each fifteen (15) minute period in Real-Time for the Trading Day. The CAISO will also publish on OASIS the average Instructed Mileage from the prior seven (7) days for each hour of a Trading Day no later than seven (7) calendar days after the applicable Trading Day.

Attachment B – Marked Tariff Sheets

Order 784 Compliance Filing

California Independent System Operator Corporation

8.2.3.1 Regulation Service

The CAISO shall maintain sufficient resources immediately responsive to the CAISO's EMS control in order to provide sufficient Regulation service to allow the CAISO Balancing Authority Area to meet NERC and WECC reliability standards and any requirements of the NRC by continuously balancing resources to meet deviations between actual and scheduled Demand and to maintain Interchange Schedules. The quantity of Regulation Down and Regulation Up capacity needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall be determined by the CAISO as a percentage of the applicable CAISO Forecast Of CAISO Demand for the Day-Ahead and Real-Time Markets. In HASP, the amount of advisory Regulation from Dynamic System Resources required for each Settlement Period in the next Trading Hour is also determined based on the CAISO Forecast Of CAISO Demand. The advisory awards of Regulation from Dynamic System Resources in HASP are not binding and are re-optimized through the FMM and RTD processes in the Real-Time Market. The CAISO's determination is based upon its need to meet the NERC and WECC reliability standards and any requirements of the NRC. The CAISO will take into account the speed and accuracy of regulation resources in its determination of Regulation requirements, including as it qualifies self-provided Regulation. Upon request of a Scheduling Coordinator, the CAISO will share with the Scheduling Coordinator its reasoning and any related data used to make the determination of whether the Scheduling Coordinator's self-provided Regulation capacity meets its regulation obligation.

The requirement for Regulation Down or Regulation Up needed for each Settlement Period of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time shall each be accompanied by a requirement for Mileage as determined by the CAISO. The CAISO shall determine the Mileage requirements in any Settlement Period based on Regulation capacity requirements as well as the Bid-in Regulation capacity for that Settlement Period. Subject to operator adjustment, the Mileage requirement for either Regulation Up or Regulation Down will reflect the minimum of (a) the product of the respective Regulation capacity requirement and the System Mileage Multiplier; (b) the average Instructed Mileage for the applicable Trading Hour

from the prior seven (7) days; or (c) the product of each resource's resource specific Mileage multiplier(s) and its Bid-in Regulation capacity summed for all resources.

The CAISO will publish on OASIS the estimated quantity, or the percentage used to determine the estimated quantity, of Regulation Reserves required for each hour of the Day-Ahead Market and in each fifteen (15) minute period in Real-Time for the Trading Day. The CAISO will publish on OASIS the Mileage requirements for each hour of the Day-Ahead Market and each fifteen (15) minute period in Real-Time for the Trading Day. The CAISO will also publish on OASIS the average Instructed Mileage from the prior seven (7) days for each hour of a Trading Day no later than seven (7) calendar days after the applicable Trading Day.