



California Independent  
System Operator Corporation

February 27, 2012

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. ER12-1630-\_\_\_\_  
Tariff Amendment**

Dear Secretary Bose:

The California Independent System Operator Corporation (ISO) submits this filing to clarify certain tariff provisions to compensate resources providing regulation pursuant to Commission Order 755.<sup>1</sup> In an order dated September 20, 2012,<sup>2</sup> the Commission accepted the ISO's market design to comply with the directives of Order 755, subject to conditions. The clarifications submitted with this filing propose minor changes to the ISO's Order 755 tariff provisions to align them with business rules implementing the ISO's accepted market design. The ISO requests an effective date for these tariff clarifications of May 1, 2013, and an order on or before April 30, 2013.

## **I. Background**

Over the last year, the ISO has worked to develop and implement tariff revisions to comply with Order 755, which requires the ISO to compensate resources providing regulation service through (1) a capacity payment that reflects the marginal resource's opportunity costs and (2) a performance payment that reflects the quantity of regulation service actually provided by a resource when the resource accurately follows a control signal. In its September 2012 Order, FERC accepted the ISO's market design proposal

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<sup>1</sup> *Frequency Regulation Compensation in the Organized Wholesale Power Markets*, 137 FERC ¶ 61,064 (October 2011) (Order 755); *rehearing denied* 138 FERC ¶ 61,123 (February 2012) (Order 755-A).

<sup>2</sup> *California Independent System Operator Corporation*, 140 FERC ¶ 61,206 (September 2012). The ISO submits this filing in compliance with Order No. 714, *Electronic Tariff Filings*, FERC Stats. & Regs. ¶ 31,276 (2009).

to comply with Order 755, subject to a compliance filing.<sup>3</sup> The ISO submitted its compliance filing in October 2012.<sup>4</sup> That filing remains pending. Separately, the ISO filed a motion to implement its Order 755 tariff provisions on May 1, 2013. The Commission granted that motion.<sup>5</sup>

## II. Tariff Clarifications

During the course of system development and testing, the ISO has identified three clarifications it wishes to make to its Order 755 tariff revisions. The first clarification addresses the process for establishing a system mileage multiplier, which the ISO will use as a variable to establish hourly mileage requirements. The ISO will use mileage requirements to clear mileage bids and self-provisions and develop a market clearing price to calculate performance payments for resources providing regulation.<sup>6</sup> Under the ISO's Order 755 tariff provisions, the ISO will calculate an hourly system mileage multiplier by summing the total mileage from all resources over the week for a given hour and dividing that number by the regulation capacity procured for the week in that hour. The tariff language accepted by the Commission currently provides that the ISO will calculate a system mileage multiplier each week and that, for purposes of this calculation, each week start at the beginning of the hour ending 0100 on Sunday and end at the end of the hour ending 2400 the following Saturday. The ISO is seeking authority to change this calculation to a rolling seven day period, which involves the following change to the second paragraph of tariff section 27.1.3:

The CAISO will calculate a System Mileage Multiplier for Regulation Up by summing the total Mileage provided by all resources with Regulation Up awards each week for a corresponding hour of each Trading Day and then dividing that sum by the Regulation Up capacity procured for that week in that same hour. The CAISO will calculate a System Mileage Multiplier for Regulation Down by summing the total Mileage provided by all resources with Regulation Down awards each week for a corresponding hour of each Trading Day and then dividing that sum by the Regulation Down capacity procured for that week in that same hour. For purposes of these calculations, the CAISO shall calculate each week using a rolling seven-day period. ~~each week shall start at the beginning of the hour~~

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<sup>3</sup> *California Independent System Operator Corporation*, 140 FERC ¶ 61,206 (September 2012).

<sup>4</sup> <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13092508>

<sup>5</sup> *California Independent System Operator Corporation*, 141 FERC ¶ 61,184 (December 2012).

<sup>6</sup> The ISO has provided the Commission a detailed description of its Order 755 market design in this docket. See, Order 755 Compliance Filing of the ISO - Response to Commission June 8, 2012 letter in ER12-1630. <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13024425>

~~ending 0100 on Sunday and end at the end of the hour ending 2400 the following Saturday.~~ The CAISO will use the System Mileage Multiplier to assess Mileage requirements for Regulation Up and Regulation Down capacity.

This approach will create a more dynamic system mileage multiplier than the approach initially proposed by the ISO. The Commission should accept this revision because the calculation will increase the accuracy of the ISO's system mileage multiplier used to establish mileage requirements.<sup>7</sup>

The second clarification concerns the data the ISO will use to calculate resource specific mileage multipliers for resources that have not provided regulation for thirty (30) days or more. Under the ISO's Order 755 tariff provisions, the ISO will calculate resource specific mileage multipliers for all resources that bid to provide regulation capacity and mileage. The resource specific mileage multipliers will reflect resources' historic regulation performance accuracy<sup>8</sup> and certified ten (10) minute ramp capability. The ISO will use the resource specific mileage multipliers to estimate the mileage that a resource can provide from each MW of awarded or self-provided regulation capacity.

The ISO's Order 755 tariff provisions currently state that the ISO will use the simple average historic regulation performance accuracy for all resource as an initial adjustment factor to calculate resource specific mileage multipliers for resources that have not provided regulation for the prior thirty (30) days (including newly certified resources). The ISO plans to continue to use this simple average for resources that are newly certified or recertify to provide regulation. If, however, an existing resource certified to provide regulation does not provide regulation for a thirty (30) day period, the ISO proposes to use the resource's last historic regulation performance accuracy for purposes of calculating resource specific mileage multipliers until the resource develops a new monthly calculation reflecting the accuracy with which it responds to the ISO's control signal. This clarification is consistent with the ISO's Order 755 market design to ensure that there is a default mechanism to ensure the ISO can estimate mileage of

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<sup>7</sup> See e.g., *California Independent System Operator Corporation*, 138 FERC ¶ 61,154 (March 1, 2012) at P 35: "We find CAISO's proposed revisions for implementing dynamic competitive path assessments for the day-ahead market to be just and reasonable and, therefore, accept them. We find that these revisions will improve the accuracy and efficiency of CAISO's local market power mitigation process. CAISO's use of a dynamic, rather than a quarterly, assessment of the competitiveness of certain transmission paths should produce results that more accurately reflect market conditions associated with individual transmission constraints."

<sup>8</sup> The ISO's Order 755 tariff provisions define historic regulation performance accuracy as follows: "The monthly calculation to determine the accuracy of a resource's response to CAISO EMS signals. The CAISO will base this calculation on a thirty (30) day simple average of fifteen (15) minute accuracy measurements. In the event that the resource does not provide Mileage in a fifteen (15) minute interval, the CAISO will not include the fifteen (15) minute interval in calculating the resource's Historic Regulation Performance Accuracy. In the event that a resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor." See ISO tariff, appendix A.

resources submitting regulation capacity bids.<sup>9</sup> For existing certified resources that do not provide regulation for over thirty (30) days, the ISO believes it is more accurate to use resources' last historic regulation performance accuracy for a default value. The ISO proposes, therefore, to clarify the fourth sentence of the third paragraph of Section 27.1.3 and add a new fifth sentence to this paragraph as follows:

In the event that an existing certified resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the resource's last Historic Regulation Performance Accuracy as an adjustment factor ~~the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor.~~ For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor.<sup>10</sup>

The third clarification involves the calculation of a user rate for regulation down and regulation up mileage costs. The ISO proposes to change the calculation of this user rate so that the rate for each settlement period equals the regulation mileage cost (\$) divided by the total regulation ancillary service obligation (MW) for regulation up and regulation down, respectively. This change will ensure that regulation mileage costs are allocated in full to scheduling coordinators' ancillary services obligations. The change is also consistent with the ISO's proposal accepted by the Commission to allocate regulation performance in the same manner that the ISO allocates the costs of regulation up and down capacity payments (i.e. based on a scheduling coordinator's ancillary service obligations).<sup>11</sup>

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<sup>9</sup> Addendum to Draft Final Proposal at 11 [http://www.aiso.com/Documents/Addendum-DraftFinalProposal-Pay\\_PerformanceRegulation.pdf](http://www.aiso.com/Documents/Addendum-DraftFinalProposal-Pay_PerformanceRegulation.pdf)

<sup>10</sup> The ISO is also proposing conforming changes to the definition of historic regulation performance accuracy as follows:

**- Historic Regulation Performance Accuracy**

The monthly calculation to determine the accuracy of a resource's response to CAISO EMS signals. The CAISO will base this calculation on a thirty (30) day simple average of fifteen (15) minute accuracy measurements. In the event that the resource does not provide Mileage in a fifteen (15) minute interval, the CAISO will not include the fifteen (15) minute interval in calculating the resource's Historic Regulation Performance Accuracy. In the event that a resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the resource's last Historic Regulation Performance Accuracy as an adjustment factor. For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor.

<sup>11</sup> Addendum to Draft Final Proposal at 15 [http://www.aiso.com/Documents/Addendum-DraftFinalProposal-Pay\\_PerformanceRegulation.pdf](http://www.aiso.com/Documents/Addendum-DraftFinalProposal-Pay_PerformanceRegulation.pdf)

The ISO, accordingly, requests authority to clarify the calculation of the user rate for regulation down and regulation up mileage costs in sections 11.10.2.1.5 and 11.10.2.2.4 as follows:

#### 11.10.2.1.5 Regulation Down Mileage Costs

The charges a Scheduling Coordinator must pay for Regulation Down Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Down Mileage (\$/MW) for that Settlement Period. The user rate for Regulation Down Mileage is the total cost for Regulation Down Mileage (\$) for each Settlement Period divided by the total Regulation Down Ancillary Service Obligation Mileage-(MW) for each Settlement Period.

#### 11.10.2.2.4 Regulation Up Mileage Costs

The charges a Scheduling Coordinator must pay for Regulation Up Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Up Mileage (\$/MW) in that Settlement Period. The user rate for Regulation Up Mileage is the total cost for Regulation Up Mileage (\$) for each Settlement Period divided by the total Regulation Up Ancillary Service Obligation Mileage-(MW) for each Settlement Period.

### **III. Stakeholder process**

The ISO published these proposed clarifications for stakeholder review on February 14, 2013 and held a stakeholder conference call on February 20, 2013. On that conference call, the ISO explained the purpose of these clarifications and answered stakeholder questions. Some stakeholders expressed support for the ISO's proposal to modify its weekly calculation of a system mileage multiplier. No stakeholder expressed any opposition to the proposed tariff clarifications in this filing.

### **IV. Effective date and request for order**

The ISO requests that the Commission make the tariff revisions contained in this filing effective as of May 1, 2013, consistent with the ISO's implementation date for its Order 755 market design. Accordingly, the ISO requests that the Commission issue an order on or before April 30, 2013.

## V. Communications

Communications regarding this filing should be addressed to the following individuals, whose names should be put on the official service list established by the Commission with respect to this submittal:

Anthony Ivancovich\*  
Deputy General Counsel, Regulatory  
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\* Individuals designated for service pursuant to Rule 203(b)(3).<sup>12</sup>

## VI. Service

The ISO has served copies of this transmittal letter, and all attachments, on the California Public Utilities Commission, the California Energy Commission, the parties with effective scheduling coordinator service agreements under the ISO tariff, and all parties listed on the official service list in the captioned proceedings. In addition, the ISO is posting this transmittal letter and all attachments on the ISO Web site.

## VII. Attachments

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

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

## VIII. Conclusion

The ISO requests that the Commission issue an order accepting this filing on before April 30, 2013. Please contact the undersigned if you have any questions regarding this matter.

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<sup>12</sup> 18 C.F.R. § 385.203(b)(3).

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Respectfully submitted,

**By: /s/ Andrew Ulmer**

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Attorneys for the California Independent  
System Operator Corporation

**Attachment A – Clean Tariff**

**Tariff Revisions - Pay for Performance Regulation  
California Independent System Operator Corporation  
Fifth Replacement FERC Electric Tariff**

**February 27, 2013**

## **11.10.2 Settlement For User Charges For Ancillary Services**

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### **11.10.2.1.5 Regulation Down Mileage Costs**

The charges a Scheduling Coordinator must pay for Regulation Down Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Down Mileage (\$/MW) for that Settlement Period. The user rate for Regulation Down Mileage is the total cost for Regulation Down Mileage (\$) for each Settlement Period divided by the total Regulation Down Ancillary Service Obligation (MW) for each Settlement Period.

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### **11.10.2.2.4 Regulation Up Mileage Costs**

The charges a Scheduling Coordinator must pay for Regulation Up Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Up Mileage (\$/MW) in that Settlement Period. The user rate for Regulation Up Mileage is the total cost for Regulation Up Mileage (\$) for each Settlement Period divided by the total Regulation Up Ancillary Service Obligation (MW) for each Settlement Period.

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## **27.1.3 Regulation Mileage Clearing Price**

As provided in Section 8.3, Regulation Up and Regulation Down are procured and awarded through the Day Ahead Market and Real-Time Market. The CAISO will calculate uniform Mileage clearing prices for Regulation Up and Regulation Down, respectively, based on the intersection of the demand curve for Mileage requirements and supply curve for Bid-in Mileage. These uniform Mileage clearing prices shall apply to the CAISO Expanded System Region.

The CAISO will calculate a System Mileage Multiplier for Regulation Up by summing the total Mileage provided by all resources with Regulation Up awards each week for a corresponding hour of each Trading Day and then dividing that sum by the Regulation Up capacity procured for that week in that same hour.

The CAISO will calculate a System Mileage Multiplier for Regulation Down by summing the total Mileage provided by all resources with Regulation Down awards each week for a corresponding hour of each Trading Day and then dividing that sum by the Regulation Down capacity procured for that week in that same hour. For purposes of these calculations, the CAISO shall calculate each week using a rolling seven-day period. The CAISO will use the System Mileage Multiplier to assess Mileage requirements for Regulation Up and Regulation Down capacity.

The CAISO will calculate resource specific Mileage multipliers and apply these multipliers to resources' Bid-in Regulation Up and Regulation Down capacity. The resource specific Mileage multipliers will reflect resources' Historic Regulation Performance Accuracy and certified 10-minute ramp capability. The CAISO will apply resource specific Mileage multipliers to Bid-in Regulation Up and Regulation Down capacity to determine the expected Mileage. In the event that an existing certified resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the resource's last Historic Regulation Performance Accuracy as an adjustment factor. For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor. Upon request, the CAISO will provide a resource with historical data used to derive its Mileage multipliers. A resource will receive a Mileage award that is at least as much as its self-provided or awarded Regulation Up or Regulation Down capacity, but not more than the product of its resource specific mileage multiplier and its self-provided or awarded capacity. The CAISO may adjust resource specific Mileage multipliers to align a resource's awarded Mileage with the resource's expected Mileage. The CAISO will use Mileage awards to determine a uniform clearing mileage price for Regulation Up and Regulation Down, but the Mileage quantity awards will not be financially binding. Resources will receive payments based upon Instructed Mileage as calculated pursuant to Section 11.10.1.7. The CAISO will publish on OASIS the Mileage clearing prices for each hour of the Day-Ahead Market and each fifteen (15) minute period in Real-Time for the Trading Day.

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**- Historic Regulation Performance Accuracy**

The monthly calculation to determine the accuracy of a resource's response to CAISO EMS signals. The CAISO will base this calculation on a thirty (30) day simple average of fifteen (15) minute accuracy measurements. In the event that the resource does not provide Mileage in a fifteen (15) minute interval, the CAISO will not include the fifteen (15) minute interval in calculating the resource's Historic Regulation Performance Accuracy. In the event that a resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the resource's last Historic Regulation Performance Accuracy as an adjustment factor. For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor.

**Attachment B – Marked Tariff**

**Tariff Revisions - Pay for Performance Regulation**

**California Independent System Operator Corporation**

**Fifth Replacement FERC Electric Tariff**

**February 27, 2013**

## 11.10.2 Settlement For User Charges For Ancillary Services

\* \* \*

### 11.10.2.1.5 Regulation Down Mileage Costs

The charges a Scheduling Coordinator must pay for Regulation Down Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Down Mileage (\$/MW) for that Settlement Period. The user rate for Regulation Down Mileage is the total cost for Regulation Down Mileage (\$) for each Settlement Period divided by the total Regulation Down Mileage-Ancillary Service Obligation (MW) for each Settlement Period.

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### 11.10.2.2.4 Regulation Up Mileage Costs

The charges a Scheduling Coordinator must pay for Regulation Up Mileage in any Settlement Period of the Trading Day are the product of the Scheduling Coordinator's Ancillary Services Obligation percentage in that Settlement Period and the user rate for Regulation Up Mileage (\$/MW) in that Settlement Period. The user rate for Regulation Up Mileage is the total cost for Regulation Up Mileage (\$) for each Settlement Period divided by the total Regulation Up Mileage-Ancillary Service Obligation (MW) for each Settlement Period.

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As provided in Section 8.3, Regulation Up and Regulation Down are procured and awarded through the Day Ahead Market and Real-Time Market. The CAISO will calculate uniform Mileage clearing prices for Regulation Up and Regulation Down, respectively, based on the intersection of the demand curve for Mileage requirements and supply curve for Bid-in Mileage. These uniform Mileage clearing prices shall apply to the CAISO Expanded System Region.

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The CAISO will calculate resource specific Mileage multipliers and apply these multipliers to resources' Bid-in Regulation Up and Regulation Down capacity. The resource specific Mileage multipliers will reflect resources' Historic Regulation Performance Accuracy and certified 10-minute ramp capability. The CAISO will apply resource specific Mileage multipliers to Bid-in Regulation Up and Regulation Down capacity to determine the expected Mileage. In the event that an existing certified resource has not provided Regulation over the prior thirty (30) days, the CAISO will use ~~the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor~~ the resource's last Historic Regulation Performance Accuracy as an adjustment factor. For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor. Upon request, the CAISO will provide a resource with historical data used to derive its Mileage multipliers. A resource will receive a Mileage award that is at least as much as its self-provided or awarded Regulation Up or Regulation Down capacity, but not more than the product of its resource specific mileage multiplier and its self-provided or awarded capacity. The CAISO may adjust resource specific Mileage multipliers to align a resource's awarded Mileage with the resource's expected Mileage. The CAISO will use Mileage awards to determine a uniform clearing mileage price for Regulation Up and Regulation Down, but the Mileage quantity awards will not be financially binding. Resources will receive payments based upon Instructed Mileage as calculated pursuant to Section 11.10.1.7. The CAISO will publish on OASIS the Mileage clearing prices for each hour of the Day-Ahead Market and each fifteen (15) minute period in Real-Time for the Trading Day.

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**- Historic Regulation Performance Accuracy**

The monthly calculation to determine the accuracy of a resource's response to CAISO EMS signals. The CAISO will base this calculation on a thirty (30) day simple average of fifteen (15) minute accuracy measurements. In the event that the resource does not provide Mileage in a fifteen (15) minute interval, the CAISO will not include the fifteen (15) minute interval in calculating the resource's Historic Regulation Performance Accuracy. In the event that a resource has not provided Regulation over the prior thirty (30) days, the CAISO will use the resource's last Historic Regulation Performance Accuracy as an adjustment factor. For newly certified or recertified resources, the CAISO will use the simple average Historic Regulation Performance Accuracy for all resources from the prior thirty (30) days as an initial adjustment factor.

## **CERTIFICATE OF SERVICE**

I hereby certify that I have served the foregoing document upon all 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, CA, this 27<sup>th</sup> day of February, 2013.

*/s/ Sarah Garcia*  
Sarah Garcia