

**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

California Independent System            )     Docket No. ER14-\_\_\_\_-000  
Operator Corporation                    )

**Petition of the California Independent System Operator Corporation  
for Limited Waiver of Tariff Provisions**

The California Independent System Operator Corporation (ISO) submits this petition to request a limited waiver of ISO tariff sections that apply a minimum performance threshold to resources certified to provide regulation up and regulation down services, which the ISO uses to balance the grid between each 5-minute dispatch interval, for the period from June 1, 2013 up to and including December 31, 2014. Specifically, the ISO seeks a waiver of tariff sections 8.2.3.1.1 and 8.4.1.1(h) and part A 1.1.5 of tariff appendix K (the ISO's ancillary service requirements protocol), which became effective June 1, 2013.<sup>1</sup>

The Commission approved these tariff sections as part of the ISO's compliance with Order 755, which addressed compensation of resources providing

---

<sup>1</sup> The ISO requests this limited waiver pursuant to Rule 207 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.207. Specifically, the ISO is requesting a waiver of the following language within tariff section 8.2.3.1.1:

A minimum performance threshold of fifty (50) percent will apply for a resource to offer Regulation Up and Regulation Down capacity. If a resource's measured accuracy, based on a simple average of fifteen (15) minute intervals during a calendar month, is less than fifty (50) percent for Regulation Up or Regulation Down, the resource must re-certify to provide the respective service within ninety (90) days from the date the CAISO provides notice to the resource's Scheduling Coordinator of the resource's failure to meet the minimum performance threshold.

The ISO is also requesting that this waiver apply to the following language in tariff section 8.4.1.1(h): "A resource offering Regulation must have the following operating characteristics and technical capabilities: . . . Regulation capacity offered must meet or exceed the minimum performance threshold for responding to the CAISO's EMS control signal." Lastly, the ISO is requesting that the waiver apply to the following language in section A 1.1.5 of tariff appendix K: "the resource must meet or exceed the minimum performance threshold for responding to the CAISO's EMS control signal."

regulation service.<sup>2</sup> The minimum performance threshold complements a new payment stream that compensates resources based on the accuracy of their response to an ISO control signal and requires resources to maintain a 50 percent accuracy measurement during each calendar month. Since implementing its Order 755 market design, a large number of resources certified to provide regulation up and regulation down have failed to meet the minimum performance threshold.

By granting this request, the Commission will permit resources certified to provide regulation up or regulation down to continue to offer regulation capacity without the need to recertify to provide these services, even though these resources have failed to meet the minimum performance threshold. The ISO seeks a waiver so that it can avoid the market disruption that might occur if it required all resources that have failed to meet the minimum performance threshold to recertify to provide regulation service. The waiver will also allow the ISO time to assess the design of the minimum performance threshold. The Commission should grant this waiver because there is good cause for the waiver consistent with Commission precedent, as discussed below.

## **I. Background**

### **A. The ISO's Minimum Performance Threshold for Regulation Up and Regulation Down**

Under the ISO's Commission-approved tariff, regulation up and regulation down are provided by resources certified to respond automatically to control signals in an upward or downward direction to balance demand and supply in real-time. The

---

<sup>2</sup> *Frequency Regulation Compensation in the Organized Wholesale Power Markets*, FERC Stats. & Regs. ¶ 31,324 (2011) (Order 755), *rehearing denied*, 138 FERC ¶ 61,123 (2012) (Order 755-A).

ISO market systems procure regulation up and regulation down for many reasons, including frequency response and market imbalances that occur between 5-minute dispatch intervals as well as for forecast inaccuracies or supply deviations.

In October 2011, the Commission issued Order 755, which adopted a final rule for compensation of frequency regulation in organized wholesale power markets. The Commission determined that the then-effective compensation methods for regulation service in organized markets failed to acknowledge the inherently greater amount of regulation service provided by faster-ramping resources and that certain practices result in economically inefficient dispatch of resources providing regulation service. To remedy these issues, the Commission's final rule required organized markets to compensate regulation resources based on the actual service provided, including a capacity payment that reflects the marginal unit's opportunity costs and a performance payment that reflects the quantity of regulation service actually provided by a resource when the resource accurately follows a dispatch signal. Order 755 required the use of a market-based price rather than an administrative price on which to base performance payments.<sup>3</sup>

In response to the final rule, the ISO developed an Order 755-compliant market design, which the Commission accepted effective June 1, 2013.<sup>4</sup> The design uses a two-part structure to establish capacity and mileage clearing prices for bid-in and self-provided regulation. As part of this structure, the ISO estimates the

---

<sup>3</sup> Order 755 at P 128.

<sup>4</sup> *Cal. Indep. Sys. Operator Corp.*, 140 FERC ¶ 61,206 (2012); *Cal. Indep. Sys. Operator Corp.*, 142 FERC ¶ 61,233 (2013). The Commission originally accepted the market design effective January 1, 2013, but subsequently the Commission granted successive motions for extension of time filed by the ISO to implement the market design effective May 1, 2013 and then effective June 1, 2013. *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,184 (2012); Notice of Extension of Time, Docket Nos. ER12-1630-000, *et al.* (Apr. 30, 2013).

expected mileage from the capacity a resource bids in or self-provides based on that resource's specific mileage multiplier. This expected mileage allows the ISO to optimize capacity offered to satisfy regulation requirements and to establish a market clearing price for performance payments as adjusted for accuracy. Under the ISO's market design, a resource responding to the ISO's control signal receives a performance payment based on the resource's actual movement in response to the control signal. In other words, the ISO adjusts a resource's performance payment based on how accurately it responds to the ISO's control signal.

As part of its design, the ISO also proposed, and the Commission accepted, a minimum performance threshold for resources providing regulation up or regulation down.<sup>5</sup> Under this tariff revision, the ISO applies a minimum performance threshold of 50 percent accuracy in order for a resource to offer regulation up or regulation down capacity.<sup>6</sup> For purposes of this threshold, the ISO measures a resource's accuracy in responding to a 4-second control signal based on a simple average of 15-minute intervals during a calendar month. If the resource fails to meet the minimum performance threshold over the month, the tariff requires the resource to recertify to offer regulation up or regulation down within 90 days from the date the ISO provided notice of the resource's failure to meet the minimum performance threshold.<sup>7</sup>

---

<sup>5</sup> See section 8.4 of February 22, 2012 addendum to draft final proposal, available on the ISO website at [http://www.caiso.com/Documents/Addendum-DraftFinalProposal-Pay\\_PerformanceRegulation.pdf](http://www.caiso.com/Documents/Addendum-DraftFinalProposal-Pay_PerformanceRegulation.pdf). See also *Cal. Indep. Sys. Operator Corp.*, 140 FERC ¶ 61,206, at PP 27, 72-75.

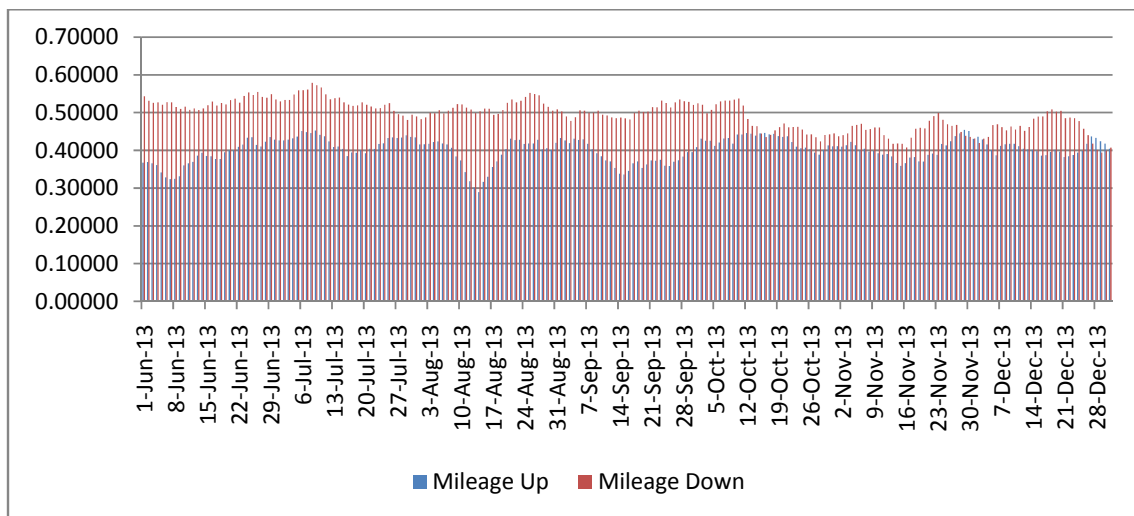
<sup>6</sup> ISO tariff sections 8.2.3.1.1 and 8.4.1.1(h); ISO tariff appendix K, section A 1.1.5.

<sup>7</sup> When it implemented the Order 755 market design, the ISO informed market participants that it would not issue notices regarding a resource's failure to meet the minimum performance standard prior to October 15, 2013.

**B. Many Resources Have Failed to Meet the Minimum Performance Threshold Under the ISO’s Order 755 Market Design**

Since the implementation of its Order 755 market design in June 2013, the ISO has monitored the performance of resources offering regulation up and regulation down. The ISO’s most current data reflect that a large number of resources providing both regulation up and regulation down failed to meet the minimum performance threshold during the calendar months of June through December 2013. Table 1 below reflects the performance of resources across the ISO system providing regulation up and regulation down during that period.

**Table 1- Performance of ISO System for Regulation Up and Regulation Down**



These results suggest that resources are performing below the 50 percent minimum performance threshold across the ISO system, especially for regulation up. The ISO continues to track the accuracy of resources’ response to the ISO’s control signals and has discussed the performance of resources providing regulation with market participants during market update calls. The ISO’s Department of Market Monitoring has also commented on this issue in recent quarterly reports on market

issues and performance.<sup>8</sup> Among other findings, the Department of Market Monitoring has explained that although resources may be failing to meet the ISO's minimum performance threshold, they may still be providing regulation service necessary to maintain system frequency:

[T]he appropriateness of this performance accuracy measure relative to operational needs is currently being reviewed by the ISO since the implications are not supported by operational experience. [The] ISO has not experienced frequency violations in proportion to what would be inferred by the poor performance as measured by the accuracy metric.<sup>9</sup>

The overall performance of resources under the ISO's minimum performance threshold has apparently not impacted the reliable operation of the grid. This raises several questions, including whether the ISO has appropriately designed the minimum performance threshold. For example, the calculation of ISO's minimum performance threshold is based on a simple average of accuracy adjustments across a calendar month. The Department of Market Monitoring has suggested that the ISO might explore using a weighted average of accuracy adjustments across a calendar month.<sup>10</sup> The ISO believes it is worth discussing this enhancement with stakeholders.

Another question is whether less accurate resources are serving to meet the ISO's regulation requirements through self-provisions or low capacity and mileage

---

<sup>8</sup> See ISO Department of Market Monitoring Q3 2013 Report on Market Issues and Performance dated November 14, 2013 at 67. This report is available on the ISO website at [http://www.caiso.com/Documents/2013ThirdQuarterReport-MarketIssues\\_Performance-Nov2013.pdf](http://www.caiso.com/Documents/2013ThirdQuarterReport-MarketIssues_Performance-Nov2013.pdf). See also ISO Department of Market Monitoring Q2 2013 Report on Market Issues and Performance dated August 21, 2013 at 54-55. This report is available on the ISO website at [http://www.caiso.com/Documents/2013SecondQuarterReport-MarketIssues\\_Performance-Aug2013.pdf](http://www.caiso.com/Documents/2013SecondQuarterReport-MarketIssues_Performance-Aug2013.pdf).

<sup>9</sup> ISO Department of Market Monitoring Q3 2013 Report on Market Issues and Performance dated November 14, 2013 at 67.

<sup>10</sup> ISO Department of Market Monitoring Q2 2013 Report on Market Issues and Performance dated August 21, 2013 at 55.

bids. The ISO has reviewed performance accuracy across various resources providing regulation service in the ISO market. Table 2 below reflects the average performance accuracy of various resource types providing regulation down and regulation up in the months of June through December 2013.

**Table 2 - Average Performance Accuracy by Resource Type for June through November 2013<sup>11</sup>**

| Gen Type                        | June     |        | July     |        | Aug      |        | Sep      |        | Oct      |        | Nov      |        | Dec      |        |
|---------------------------------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|
|                                 | Reg Down | Reg Up | Reg Down | Reg Up | Reg Down | Reg Up | Reg Down | Reg Up | Reg Down | Reg Up | Reg Down | Reg Up | Reg Down | Reg Up |
| Combined Cycle                  | 0.4816   | 0.3348 | 0.5056   | 0.3565 | 0.4022   | 0.3232 | 0.3895   | 0.2535 | 0.4321   | 0.3428 | 0.3786   | 0.2938 | 0.3889   | 0.2774 |
| Gas Turbine                     | 0.3111   | 0.7739 | 0.6569   | 0.4068 | 0.5557   | 0.4907 | 0.5418   | 0.4738 | 0.5145   | 0.5974 | 0.6411   | 0.5219 | 0.3887   | 0.6286 |
| Hydro Pump Turbine              | 0.0000   | 0.2917 | 0.6657   | 0.3325 |          | 0.3751 | 0.4038   | 0.3020 | 0.8687   | 0.3459 | 0.1768   | 0.3543 | 0.4700   | 0.4542 |
| Hydro Turbine                   | 0.5240   | 0.3568 | 0.5222   | 0.3903 | 0.4972   | 0.3786 | 0.5094   | 0.3954 | 0.4854   | 0.4091 | 0.4761   | 0.4120 | 0.4215   | 0.3654 |
| Limited Energy Storage Resource |          |        |          |        |          |        | 0.7111   |        | 0.4044   | 0.0000 | 0.8438   | 0.6125 |          |        |
| Steam Turbine                   | 0.3712   | 0.2432 | 0.4320   | 0.2261 | 0.3149   | 0.2428 | 0.2962   | 0.2344 | 0.3314   | 0.1810 | 0.3810   | 0.2015 | 0.1907   | 0.2550 |

The performance of various resource types on average reflects that each category of resource offering regulation has experienced difficulty in meeting the ISO's minimum performance threshold. While it is possible that a specific individual resource may be more accurate than another individual resource, on average, the fleet as a whole is not performing above the minimum performance threshold. There is no evidence that more accurate resources would necessarily be available to supply the ISO's regulation requirements if the ISO required less accurate resources to complete a recertification process. Importantly, the ISO's market optimization assesses regulation capacity and mileage bids and self-provision using resource-specific mileage multipliers in order to procure the most economic mix of capacity and estimated mileage that resources can provide to satisfy regulation up and regulation down requirements.

<sup>11</sup> The averages in Table 2 reflect the simple average of individual resources during a calendar month averaged by resource type.

The ISO, however, believes an assessment of the reasons resources are performing below the minimum performance threshold is worthwhile. Among the issues the ISO will discuss with stakeholders are what, if any, technical limitations exist in resource power control systems that prevent resources from accurately responding to the ISO's control signals. As part of this inquiry, the ISO intends to review the operation of its control signal as well as how resource operators have configured their resources' control systems to respond to ISO control signals and commits to work collaboratively with resource operators to identify means to improve resource performance. The ISO also believes it needs to assess whether resources are only responding to regulation signals in either the up or down direction that are either significant or sustained over multiple operating intervals. Given the fact that the market clearing price for mileage is relatively low,<sup>12</sup> the economic incentive for resources to respond accurately to control signals every 4 seconds may not be sufficient.

**C. The Commission Directed the ISO to Conduct an Assessment of the Minimum Performance Threshold and Other Elements of the Order 755 Market Design After the ISO Collects One Year of Operational Data**

In its order conditionally accepting the ISO's Order 755 compliance filing, the Commission directed the ISO to undertake an operational review of its Order 755 market design after collecting a year of data and file an informational report.<sup>13</sup> The Commission explained that this review must address, among other things, the ISO minimum performance threshold:

---

<sup>12</sup> ISO Department of Market Monitoring Q3 2013 Report on Market Issues and Performance dated November 14, 2013 at 63-65.

<sup>13</sup> *Cal. Ind. Sys. Operator Corp.* 140 FERC ¶ 61,206 at P 75.



[i]t is prudent to conduct an operational review based on one year of data after this proposal is implemented to evaluate CAISO's design. This review should include the appropriateness of the minimum performance threshold level, the historical data used to calculate the mileage multiplier, whether the regulation capacity procurement target should reflect historical accuracy of resources, the level of the mileage maximum bid price and mileage scarcity price, and any other analysis CAISO considers appropriate. After that operational review, the CAISO should propose software or market rule changes that are appropriate as a result of its operational review. CAISO should continue to monitor its market design to evaluate whether further proposed software or market rule changes are appropriate. Additionally, we will require CAISO to submit, in the informational report directed below, additional information regarding the operational review based on one year of experience with the proposal. CAISO should file the informational report within 14 months of the effective date of the proposed tariff revisions.

After gathering one year of data, followed by review and evaluation of the data to determine the impact and value of the current minimum performance threshold, the ISO will make a recommendation regarding whether to modify its Order 755 market design under Section 205 of the Federal Power Act. The ISO expects to submit any such tariff change to the Commission later this year and is, therefore, requesting a waiver of the current obligation to enforce the minimum performance threshold until December 31, 2014. If the Commission approves a modification to these tariff sections before that date, the waiver will no longer have any force or effect.

## **II. Good Cause Exists for Waiver**

The Commission has granted waivers when good cause for a waiver of limited scope exists, when there are no undesirable consequences, and the benefits to customers are evident.<sup>14</sup> The ISO's request for a limited waiver meets these criteria.

---

<sup>14</sup> *Southern Cal. Edison Co.*, 125 FERC ¶ 61,009, at P 17 (2008) (citing *Cal. Ind. Sys. Operator Corp.*, 124 FERC ¶ 61,031 (2008), and *Cal. Ind. Sys. Operator Corp.*, 118 FERC ¶ 61,226 (2007)).

Under the ISO's existing tariff rules, resources that do not meet the minimum performance threshold face potential disqualification from providing regulation up and regulation down if they do not take the steps to recertify to provide those services. If large numbers of resources cease to provide regulation up and regulation down, this outcome could lead to market and operational instability. And, based on the data cited above, even if resources that fail to meet the minimum performance threshold did recertify to provide regulation, a large number of these resources may immediately fail to meet the minimum performance threshold in the next calendar month. Undertaking a continual re-testing process for regulation when no apparent reliability concerns exist to justify re-testing is not a reasonable use of the ISO's or market participants' resources.

The ISO's request for a limited waiver neither financially nor operationally disadvantages any resources. Instead, it allows all resources to continue to offer their certified capacity as regulation. During the waiver period, resources with higher accuracy will continue to benefit from accuracy-based regulation performance payments. The ISO will also continue to assess the accuracy of resources' responses to control signals in evaluating capacity bids and self-provisions. The waiver period will allow the ISO more time to assess whether to revise the minimum performance threshold and, if so, in what manner. Stakeholders have expressed support for this approach.<sup>15</sup>

---

<sup>15</sup> The ISO discussed the possibility of requesting a waiver with stakeholders on a market update conference call held in December 2013. Both Pacific Gas and Electric Company and the California Department of Water Resources submitted written comments to the ISO supporting the ISO's proposal to request a waiver. Southern California Edison Company also expressed support for the waiver on the ISO's market update conference call. No party expressed any opposition to the ISO seeking a waiver.

**A. The Waiver Request Is Limited in Scope**

The waiver will apply for a limited time – for the period from June 1, 2013 up to and including December 31, 2014. This limited timeframe will permit the ISO to complete its review of the Order 755 market design based on one year of operational data as directed by the Commission and then to propose any changes to that market design. This timeframe will encompass any applicable notice period for tariff revisions to modify the minimum performance threshold under Section 205 of the Federal Power Act.

The waiver does not change the overall Order 755 market design under which resources receive performance payments based on the accuracy of their responses to control signals. Instead, the ISO will continue to assess capacity bids and self-provisions of resources that are certified to provide regulation up or regulation down based on their resource-specific mileage multipliers. Resources that respond more accurately to ISO control signals will receive higher performance payments than those that respond less accurately. The scope of the waiver only extends to the ISO's enforcement of the minimum performance threshold. If the Commission grants the waiver, resources already eligible to provide regulation up or regulation down will simply not need to recertify if they perform at an accuracy rate of less than 50 percent over a calendar month.

**B. Granting the Waiver Will Not Result in Undesirable Consequences**

The ISO's request for a waiver will not result in undesirable consequences. The request will allow all resources to continue to offer their certified capacity as regulation. The ISO has not experienced any reliability issues as a result of resources not meeting the minimum performance threshold, but requiring all

resources to re-test after each month in which they do not meet the threshold could create market and operational disruptions. Granting the waiver will allow the ISO to continue to rely on a large and vital group of resources certified to provide regulation that have historically supported the reliable operation of the balancing area and, thus, the ISO's compliance with control performance standards.

Compensation for providing regulation, moreover, will remain subject to accuracy adjustments and the ISO will continue to assess the accuracy of resources' responses to control signals in evaluating capacity bids and self-provisions. These rules will apply to all resources providing regulation. As a result, the core of the ISO's Order 755 market design will remain in place.

### **C. Granting the Waiver Will Provide Benefits to Customers**

The ISO's requested waiver will allow resources certified to provide regulation to continue to do so without undertaking a new certification test that may disrupt resources' operation or multiple recertification tests if the resource continues to fail to meet the minimum performance threshold. The waiver is appropriate given that the ISO plans to assess how its Order 755 market design, including its minimum performance threshold, is functioning in practice. The waiver will provide time for the ISO and stakeholders to assess the operational data the ISO is collecting on resource performance before making any recommended design changes.

The waiver will also permit the ISO to allow resources to continue supporting the safe and reliable operation of the grid, while offering the market a liquid supply of regulation services. This should result in lower overall regulation prices, thereby benefiting scheduling coordinators with ancillary service obligations.

In contrast to these benefits, the ISO does not believe the waiver will create substantial prejudice for any party. During the waiver period, regulation resources that perform with higher accuracy will continue to benefit from the accuracy-based regulation mileage payments.

### **III. Conclusion**

For the reasons set forth herein, the ISO respectfully requests that the Commission grant a limited waiver of tariff sections 8.2.3.1.1 and 8.4.1.1(h) and section A 1.1.5 of tariff appendix K, for the period from June 1, 2013 up to and including December 31, 2014.

Dated: January 10, 2014

Respectfully submitted,

**By: /s/ Andrew Ulmer**

Nancy Saracino

General Counsel

Roger Collanton

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](mailto:aulmer@caiso.com)

Attorneys for the California Independent  
System Operator Corporation