

January 11, 2017

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

**Re: California Independent System Operator Corporation  
Filing to Comply with Order No. 825  
Docket No. ER17-\_\_\_\_\_-000**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO)<sup>1</sup> submits this filing in compliance with the Federal Energy Regulatory Commission's (Commission) Order No. 825.<sup>2</sup> As explained below, the CAISO's existing tariff provisions satisfy all of the requirements set forth in Order No. 825. Therefore, the Commission should accept this filing as complying with the requirements of the order.

## **I. Background**

In Order No. 825, the Commission revised its regulations to address certain practices that fail to compensate resources at prices that reflect the value of the service resources provide to the system, thereby distorting price signals, and in certain instances, creating a disincentive for resources to respond to dispatch signals.<sup>3</sup> To address these practices, the Commission required each Commission-approved independent system operator (ISO) and regional transmission organization (RTO), including the CAISO, to:

- (1) settle energy transactions in its real-time markets at the same time interval it

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<sup>1</sup> Capitalized terms not otherwise defined in this filing have the meanings set forth in appendix A to the CAISO tariff. References in this filing to section numbers are references to sections of the current CAISO tariff unless otherwise stated.

<sup>2</sup> *Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 825, FERC Stats. & Regs. ¶ 31,384 (2016). (Order No. 825)

<sup>3</sup> *Id.* at PP 1-16.

dispatches energy;<sup>4</sup>

- (2) settle operating reserves transactions in its real-time markets at the same time interval it prices operating reserves;<sup>5</sup>
- (3) settle intertie transactions at the same time interval it schedules intertie transactions, or demonstrate that its settlement and scheduling of intertie transactions is consistent with or superior to the Commission's intertie reforms;<sup>6</sup> and
- (4) trigger shortage pricing for any interval in which a shortage of energy or operating reserves is indicated during the pricing of resources for that interval.<sup>7</sup>

The Commission directed each ISO and RTO to submit, by January 11, 2017, a compliance filing that includes tariff changes adopting the requirements in Order No. 825, or demonstrating how the ISO or RTO already complies with the order.<sup>8</sup> The Commission also noted that the CAISO (and other parties) previously submitted comments regarding these matters that were raised in the NOPR that culminated in

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<sup>4</sup> *Id.* at PP 53-68. This requirement applies only to internal energy transactions, not to intertie transactions. In the Notice of Proposed Rulemaking (NOPR) that led to the issuance of Order No. 825, the Commission stated that it “does not propose to extend the reforms [set forth in the NOPR] to intertie transactions.” NOPR, FERC Stats. & Regs. ¶ 32,710, at P 39 (2015). The reforms set forth in the NOPR included requirements (1) and (2) listed above. *Id.* at P 34. With regard to intertie transactions, however, the Commission sought comment on whether: (i) “settlement reforms are appropriate for intertie transactions that are scheduled on intervals different from the intervals on which RTOs/ISOs dispatch internal real-time energy”; and (ii) “it is necessary to align the settlement interval for intertie transactions with external scheduling intervals, *i.e.*, fifteen minutes.” *Id.* In Order No. 825, the Commission declined to adopt settlement reforms for intertie transactions scheduled on intervals different from the intervals on which RTOs/ISOs dispatch internal real-time energy, but it adopted settlement reforms regarding the alignment of the settlement interval for intertie transactions with external scheduling intervals. See Order No. 825 at P 88. The settlement reforms for intertie transactions the Commission adopted are reflected in requirement (3) listed above.

<sup>5</sup> *Id.* at PP 69-73.

<sup>6</sup> *Id.* at PP 88-91.

<sup>7</sup> *Id.* at PP 161-80. The four requirements of Order No. 825 listed above are also reflected in Sections 35.28(g)(1)(iv)(A) and -(vi) of the Commission's regulations, 18 C.F.R. §§ 35.28(g)(1)(iv)(A), -(vi).

<sup>8</sup> The Commission directed each ISO and RTO to submit its compliance filing within 120 days after the effective date of Order No. 825. Order No. 825 at PP 8, 205, 232. The effective date of Order No. 825 was 75 days after the order was published in the Federal Register. *Id.* at P 243. Because Order No. 825 was published in the Federal Register on June 30, 2016 (see 81 Fed. Reg. 42881), the effective date of the order occurring 75 days later was September 13, 2016, and the due date for submitting the compliance filings is 120 days after September 13, 2016, *i.e.*, January 11, 2017.

issuance of Order No. 825 (CAISO NOPR Comments).<sup>9</sup>

After the Commission issued Order No. 825, the CAISO reviewed its tariff to determine whether the tariff already satisfies all the requirements in the order or whether tariff revisions might be necessary. Based on its review, the CAISO determined that its tariff satisfies all the requirements and, thus, complies with Order No. 825, for the reasons explained below.

## **II. Compliance with Order No. 825**

### **A. The CAISO Settles Energy Transactions in Its Real-Time Markets at the Same Time Interval It Internally Dispatches Energy.**

In Order No. 825, the Commission required each ISO and RTO to settle internal energy transactions in its real-time markets at the same time interval it dispatches energy.<sup>10</sup> The Commission recognized that the CAISO performs both internal real-time dispatch and real-time settlement at the same five-minute time interval.<sup>11</sup> In other words, the Commission recognized that the CAISO already satisfies this requirement in Order No. 825.

The CAISO's real-time market (RTM) includes the fifteen minute market (FMM) and the real-time dispatch (RTD).<sup>12</sup> The FMM dispatches energy on a 15-minute basis, and the RTD dispatches energy on a five-minute basis. As discussed further below, the CAISO tariff already specifies that both these processes produce financially binding dispatches and prices at the same time intervals in which they are settled, which applies equally to all internal and external resources, and to generation and demand response-type resources, dispatched in the respective intervals.

Section 34.4 of the CAISO tariff specifies that the FMM "determine[s] financially binding FMM Schedules and corresponding LMPs [Locational Marginal Prices] for all Pricing Nodes." Similarly, section 34.5.1 provides that the real-time economic dispatch (*i.e.*, the real-time market process that dispatches resource on a five-minute basis) produces binding dispatches and LMPs for the relevant dispatch interval. Section

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<sup>9</sup> Order No. 825 at Appendix. The CAISO NOPR Comments were filed in Docket No. RM15-24-000 on November 30, 2015.

<sup>10</sup> *Id.* at PP 53-68.

<sup>11</sup> *Id.* at P 22 (citing tariff sections 11.5 and 34.5, and tariff appendix A (definition of "Settlement Interval")). *See also id.* at P 234 n.366 (stating that the CAISO currently aligns real-time settlement with dispatch intervals).

<sup>12</sup> The CAISO's real-time market also includes the CAISO's hour-ahead scheduling process, real-time unit commitment, and short-term unit commitment. Tariff section 34.

27.1.1 further specifies that:

The FMM calculates distinct financially binding fifteen-minute LMPs for each of the four fifteen-minute intervals within a Trading Hour. The Real-Time Dispatch runs every five (5) minutes throughout each Trading Hour and calculates five-minute LMPs for the next Dispatch Interval. The CAISO uses the FMM or RTD LMPs for Settlements of the Real-Time Market.

Further, tariff sections 11.5.1.1 and 11.5.1.2 provide that energy resulting from the FMM and RTD are settled separately for each applicable settlement interval.

Pursuant to the existing tariff provisions discussed above, the CAISO settles energy in its dispatches in the FMM at 15-minute prices and settles five-minute dispatched energy at five-minute prices. The Commission should find that the CAISO satisfies this requirement of Order No. 825, as the Commission previously recognized in the order.

**B. The CAISO Settles Operating Reserves Transactions in Its Real-Time Markets at the Same Time Interval It Prices Operating Reserves.**

In Order No. 825, the Commission required each ISO and RTO to settle operating reserves transactions in its real-time markets at the same time interval it prices operating reserves.<sup>13</sup>

The CAISO already satisfies this requirement because it prices and settles ancillary services transactions, including operating reserves transactions, in its real-time markets on the same 15-minute time interval.<sup>14</sup> Section 34.4.1 of the CAISO tariff states that the CAISO procures ancillary services in the real-time on a 15-minute basis, and the FMM will produce 15-minute ancillary service marginal prices (ASMPs) that are also used for settlement of the 15-minute ancillary services awards. Section 11.10.1.3 specifies that the CAISO settles the 15-minute awards (for both internal resources and

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<sup>13</sup> Order No. 825 at PP 69-73. The Commission noted that “[o]perating reserves refer to certain ancillary services procured in the wholesale market, although they are often defined differently in each RTO/ISO.” *Id.* at P 1 n.3.

<sup>14</sup> The CAISO tariff defines ancillary services as operating reserves (*i.e.*, spinning reserve and non-spinning reserve), regulation, voltage support, and black start, together with such other interconnected operation services as the CAISO may develop in cooperation with market participants to support the transmission of energy. Tariff appendix A, definitions of “Ancillary Services” and “Operating Reserve.”

external resources procured at the interties<sup>15</sup>) based on the 15-minute ASMP.<sup>16</sup>

The CAISO may also procure ancillary reserves from resources that are external to the CAISO balancing authority area through its interties.<sup>17</sup> The CAISO can procure operating reserves from static resources (*i.e.*, resources that are not dispatchable on a five-minute basis), but the CAISO can only procure regulation from external resources that are dynamically scheduled.<sup>18</sup> Section 34.2.1 of the CAISO tariff specifies that the CAISO may accept hourly self-schedules or economic bids for hourly ancillary services blocks. Section 34.4 further specifies that the FMM determines financially binding awards for ancillary services from interties and produces the corresponding prices. Section 11.10.1.2 provides that the ancillary services block schedules established through the hourly scheduling process are settled at the simple average of the ASMPs established by the FMM. The CAISO conducts the hourly scheduling process as part of the market procedures that are executed for each 15-minute interval.

This is consistent with Order No. 825 because the CAISO settles the hourly ancillary services blocks at the same intervals that it prices the reserves. The megawatts for each of the 15-minute intervals for each hour are constrained to be the same for the hourly block. The FMM optimizes this constraint in the FMM and prices the blocks in the same optimization run that it considers all other schedules and bids (internal and external). The simple average of the prices from each 15-minute interval reflects the price signal for those schedules because it reflects the cost of maintaining the block amount. Using the 15-minute price for the hour is the appropriate price signal because it reflects the cost of maintaining the block constraint.

Pursuant to the existing tariff provisions discussed above, the CAISO settles operating reserves at the same intervals in which it prices the reserves. The Commission should find that the CAISO satisfies this requirement of Order No. 825.

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<sup>15</sup> The tariff defines the intertie locations at which parties can submit bids and schedules as Scheduling Points. For purposes of the discussion in this compliance filing, the term intertie refers to such locations generically.

<sup>16</sup> Tariff section 11.10.1.3 states that the “[s]uppliers of Ancillary Services from resources awarded in FMM are paid a price equal to one-quarter of the fifteen (15) minute ASMP (in \$/MW/h) in each fifteen (15) minute interval of the applicable Trading Hour in which the capacity is procured for each Ancillary Service times the amount of the capacity awarded (MW) for the Ancillary Service in the relevant Ancillary Services Region for the applicable trading hour in which the capacity is procured.”

<sup>17</sup> See tariff section 8.3.2.

<sup>18</sup> Ancillary services transactions at the interties compete with the capacity available at the interties and must be supported by transmission rights represented through eTags required as by the North American Electric Reliability Corporation (NERC).

### **C. The CAISO Satisfies the Commission's Requirements Regarding Scheduling and Settlement of Intertie Transactions.**

In Order No. 825, the Commission directed each ISO and RTO to settle intertie transactions at the same time interval it schedules intertie transactions.<sup>19</sup> The Commission also stated, however, that if an ISO or RTO engages in an alternative practice (*e.g.*, settles intertie transactions using a shorter time interval than that by which it schedules such transactions), the ISO or RTO could demonstrate that doing so is consistent with or superior to the directives in Order No. 825.<sup>20</sup>

As explained below, the CAISO satisfies the Commission's requirements regarding scheduling and settlement of intertie transactions under Order No. 825.

#### **1. Background**

In November 2013, the CAISO filed a tariff amendment to implement real-time market design enhancements related to Commission Order No. 764,<sup>21</sup> including implementing a 15-minute market that established scheduling and settlement on a 15-minute basis for both internal and intertie transactions (November 2013 Tariff Amendment).<sup>22</sup> Pursuant to the tariff amendment as approved by the Commission,<sup>23</sup> market participants have the following six bidding and scheduling options for transacting on the interties:<sup>24</sup>

- (1) Market participants can submit economic bids (either linked to a variable

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<sup>19</sup> Order No. 825 at PP 88-91. The Commission explained that intertie transactions are transactions across ISO/RTO borders, including imports, exports, and wheel-through transactions. *Id.* at P 1 n.4.

<sup>20</sup> *Id.* at P 90. In addition, the Commission declined to grant the CAISO's requested clarification that the availability of hourly intertie options would not violate the settlement intervals requirement for interties. The Commission stated that such a determination would be more appropriately made upon reviewing the CAISO's compliance filing, and the CAISO should justify its treatment of intertie transactions there. *Id.* at P 91.

<sup>21</sup> *Integration of Variable Energy Resources*, Order No. 764, FERC Stats. & Regs. ¶ 31,331, *order on reh'g and clarification*, Order No. 764-A, 141 FERC ¶ 61,232, *order on clarification and reh'g*, Order No. 764-B, 144 FERC ¶ 61,222 (2013).

<sup>22</sup> The CAISO filed the November 2013 Tariff Amendment in Docket No. ER14-480, and soon afterwards filed another tariff amendment in Docket No. ER14-495 to comply with Order No. 764. Both tariff amendments went into effect on May 1, 2014. As discussed further below, prior to the November 2013 Tariff Amendment, intertie transactions were scheduled and settled on an hourly basis pursuant to the hour-ahead scheduling process then in effect.

<sup>23</sup> *See Cal. Indep. Sys. Operator Corp.*, 146 FERC ¶ 61,204 (March 2014 Order), *order conditionally accepting compliance filing*, 148 FERC ¶ 61,023 (2014); letter order accepting further compliance filing, Docket No. ER14-480-002 (Nov. 13, 2014).

<sup>24</sup> Tariff sections 30.5.1(q)-(u). *See also* transmittal letter for November 2013 Tariff Amendment at 21-22, 28-32; attachment J to November 2013 Tariff Amendment (Declaration of Donald Tretheway) at 19-30.

energy resource forecast or not) that the CAISO can schedule in 15-minute intervals based on the bid components. The CAISO settles these transactions on a 15-minute basis.

- (2) Market participants can submit self-schedules linked to a variable energy resource forecast on a 15-minute basis that are also settled every 15 minutes.
- (3) Market participants can engage in dynamic transfers on a five-minute basis that are also settled every five minutes.<sup>25</sup>
- (4) Market participants can submit self-schedules that are fixed for an hour. The CAISO settles these self-schedules at the four 15-minute prices over the hour.
- (5) Market participants can submit economic bids that are fixed for an hour. The CAISO settles these transactions at the four 15-minute prices over the hour.
- (6) Market participants can submit economic bids for an hour that can be changed once per hour if the 15-minute prices are less than an import's bid price or greater than an export's bid price. The CAISO settles these transactions on a 15-minute basis.

The CAISO provides options (4) through (6) listed above in recognition of the fact that, over the next few years, many transmission reservations and energy transactions within the Western Interconnection are likely to remain hourly while other balancing authorities in the West transition to 15-minute scheduling. Thus, providing market participants with options (4) through (6) ensures that the CAISO's FMM design does not create significant seams issues with the rest of the Western Interconnection.<sup>26</sup>

Prior to the November 2013 Tariff Amendment, the CAISO markets included a different hour-ahead scheduling process with hourly pricing followed by the real-time market, which resulted in different prices for settlement of internal and intertie transactions. The CAISO's previous dual real-time market structure caused revenue imbalances that necessitated uplift charges, in the form of real-time imbalance energy offset, to demand.<sup>27</sup> The bifurcated settlement structure under the CAISO's prior hour-ahead scheduling process resulted in a variety of inefficiencies, including the mismatch

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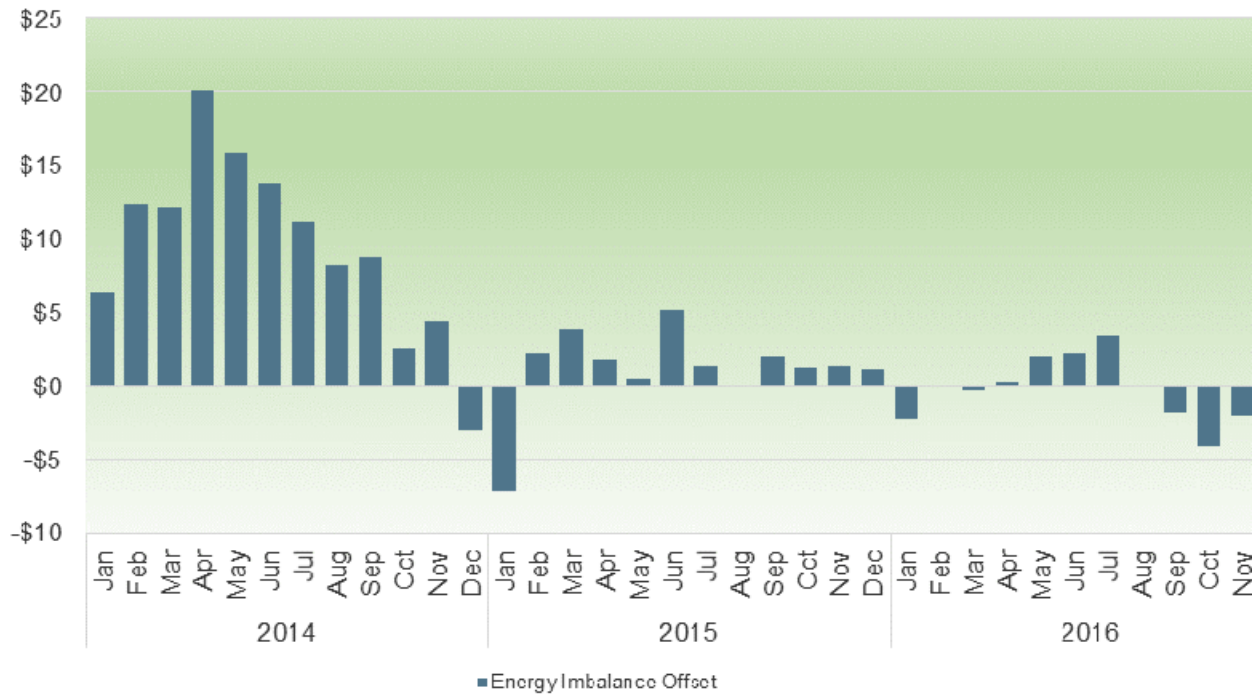
<sup>25</sup> This pre-existed the implementation of the FMM.

<sup>26</sup> Transmittal letter for November 2013 Tariff Amendment at 28-29.

<sup>27</sup> Real-time imbalance energy offset is a real-time neutrality account used to reconcile settlement dollar values for all real-time energy charge codes for all energy bought and sold in the real-time market. This ensures that, after the CAISO calculates all payments and charges, there is neither a shortage nor a surplus of revenue. The CAISO allocates surpluses or shortages to scheduling coordinators based on a pro rata share of their measured demand (*i.e.*, metered load and exports).

created when the CAISO market systems bought or sold intertie energy on an hourly basis based on predicted prices and then sold or bought the same quantity back from internal generation at five-minute prices. The bifurcated settlement structure also inappropriately encouraged market participants – individually and collectively – to submit virtual bids for supply on interties that were offset by virtual demand bids at locations within the CAISO balancing authority area.<sup>28</sup>

The CAISO eliminated these inefficiencies when it moved to the FMM and the current enhanced real-time market. As shown in the diagram below, the alignment of dispatch and settlement of internal and intertie transactions has resulted in a significant decline in real-time energy imbalance offset costs (shown in the vertical axis of the diagram) since the November 2013 Tariff Amendment went into effect on May 1, 2014.



In its March 2014 order conditionally accepting the November 2013 Tariff Amendment, the Commission recognized that the CAISO’s real-time market enhancements, including its provision of the intertie options listed above, would benefit market participants:

We find that CAISO’s proposal to establish 15-minute scheduling and settlement for all transactions, both internal and at the interties, offers numerous benefits in addition to complying with the minimum requirements of Order No. 764. These benefits include: more efficient

<sup>28</sup> Transmittal letter for November 2013 Tariff Amendment at 9-11.



scheduling of all resources due to more granular forecasts and shortened lead times, consistent settlements of internal and intertie transactions in one market at one price, options for retaining hourly scheduling on the interties to avoid seams issues while other balancing authorities in the West transition to 15-minute scheduling, and more appropriate treatment of VERs [variable energy resources] than the existing participating intermittent resource program.

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We find that the proposed market design should enhance price convergence between the markets due to the use of shorter lead times, more granular forecasts, and the elimination of the dual market settlement structure between the HASP [hour-ahead scheduling process] and real-time market.<sup>29</sup>

## **2. The CAISO Satisfies the Commission's Requirements**

For intertie transactions under options (1) through (3) above, the CAISO schedules the transactions at the same time interval it settles the transactions, in accordance with Order No. 825. The same is also true for intertie transactions under options (4) through (6) above, except that market participants can choose to have their self-schedules or economic bids amounts fixed for an hour under these options.

As discussed above, the CAISO's real-time market optimization operates on a 15-minute (not an hourly) basis. The 15-minute run optimizes all energy, internal and external, as well as ancillary services, which includes the hourly self-schedules and economic bids scheduled in the hour-ahead scheduling process run. The hourly scheduling process consists of one of the 15-minute intervals market processes conducted more than one hour ahead of the trading hour, and produces schedules approximately 45 minutes before the trading hour.<sup>30</sup> The CAISO then settles the hourly self-schedules and economic bids based on the simple average of the four 15-minute settlement interval prices.<sup>31</sup> The resulting

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<sup>29</sup> March 2014 Order at PP 53, 55.

<sup>30</sup> Tariff section 34.2.

<sup>31</sup> Tariff section 11.5 (stating that "FMM Instructed Imbalance Energy is settled pursuant to Section 11.5.1.1 [discussed above in this compliance filing], including any Energy related with HASP Intertie Block Schedules cleared through the FMM"); tariff section 11.10.1.2 (stating that "[t]he CAISO pays Scheduling Coordinators that supply Ancillary Services from HASP Block Intertie Schedules an amount equal to the product of the simple average of the ASMPs computed for the four FMM Intervals for each Ancillary Service . . . and the quantity of the capacity awarded for the Ancillary Service in the Settlement Period"); tariff appendix A, definition of "HASP Block Intertie Schedule" (stating that hourly self-schedules and intertie bids "are settled at the applicable FMM LMP and FMM ASMPs)." In Order No. 825, the Commission recognized that the CAISO "settles its intertie interchange transactions on fifteen-minute intervals." Order No. 825 at P 22 n.33.

hourly settlement price is consistent with Order No. 825 because it coordinates the scheduling and settlement of intertie transactions, and discourages inefficient practices such as the chasing of inaccurate intertie prices.

The hour-ahead scheduling process does not itself produce settlement prices for energy or ancillary services. The CAISO also only settles the hourly schedules produced in the hour-ahead scheduling process based on schedules and awards produced in the FMM that are fixed for the four 15-minute intervals for the hour. As discussed above, the hourly schedules are re-optimized in the FMM subject to a constraint that the hourly amounts scheduled in the hour-ahead scheduling process are kept constant over the four 15-minute intervals run for the entire hour. Market participants may choose to select options (4)-(6), and if they do so they are notified that these options will require that the CAISO add a constraint in the FMM to hold the schedule at the same level for the remainder of the operating hour, in which they are re-optimized. Hourly self-schedules always clear in the FMM unless there is insufficient available transmission and all self-schedules must be curtailed. Hourly economic intertie bids that clear because they are economic and hourly self-schedules are paid or charged for their hourly block based on the four 15-minute prices for that hour. Therefore, the prices produced by the FMM reflect the actual cost of re-dispatch to accommodate the fixed hourly schedule. This meets or exceeds the Commission requirement because while the hourly schedules are issued in the hourly process, they are ultimately cleared and scheduled through the FMM. Therefore, pricing them based on the simple average of the four 15-minute interval prices is appropriate.

Consistent with the discussion above, the Commission recognized in its March 2014 Order that the November 2013 Tariff Amendment “establish[ed] 15-minute scheduling and settlement for all transactions, *both internal and at the interties*.”<sup>32</sup> The Commission also acknowledged that the benefits of the tariff amendment included “consistent settlements of internal and intertie transactions in one market at one price” and “options for retaining hourly scheduling on the interties to avoid seams issues while other balancing authorities in the West transition to 15-minute scheduling.”<sup>33</sup> Further, the Commission recognized that the tariff amendment “should enhance price convergence between the markets due to . . . the elimination of the dual market settlement structure between the HASP and real-time market.”<sup>34</sup>

For the reasons explained above and consistent with its findings in the March 2014 Order, the Commission should find that the CAISO settles all intertie transactions – including transactions under options (4) through (6) – at the same time interval it schedules those transactions. Alternatively, the Commission should find that the CAISO’s treatment of intertie transactions is consistent with or superior to the directives in Order No. 825.

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<sup>32</sup> March 2014 Order at P 53 (emphasis added).

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at P 55.

A finding that options (4) through (6) do not satisfy the requirements of Order No. 825 and that the CAISO can no longer offer those options to market participants, would inappropriately harm the market. Market participants in the West that have not yet made the transition to 15-minute scheduling would either be unable to participate in CAISO intertie transactions, or their hourly CAISO intertie transactions would create the seams issues the Commission found should be avoided in the March 2014 Order. The CAISO does not believe this would be a just and reasonable result.

On the other hand, if the Commission were to find that the CAISO must revert to scheduling and settling intertie transactions on an hourly basis, as the CAISO did prior to the November 2013 Tariff Amendment, that would require the CAISO to return to using the bifurcated settlement structure that the Commission eliminated pursuant to the March 2014 Order. The result would be a return to the inefficiencies and increased real-time imbalance energy offset costs caused by the bifurcated market structure. That result would not be just and reasonable.

For the aforementioned reasons, the Commission should either find that the CAISO's current tariff provisions satisfy this requirement of Order No. 825 or are consistent with or superior to such requirement.

**D. The CAISO Triggers Shortage Pricing for Any Interval in Which a Shortage of Energy or Operating Reserves Is Indicated During the Pricing of Resources for That Interval.**

In Order No. 825, the Commission required each ISO and RTO to trigger shortage pricing for any interval in which a shortage of energy or operating reserves is indicated during the pricing of resources for that interval.<sup>35</sup> The Commission stated that this requirement applies to any shortage regardless of the duration or cause of the shortage.<sup>36</sup>

The CAISO satisfies this requirement. The CAISO tariff includes pricing provisions to address shortages of energy and operating reserves, including immediately triggering price caps for energy,<sup>37</sup> and immediately using scarcity reserve demand curves for operating reserves (and other ancillary services), regardless of the duration or cause of such shortages.<sup>38</sup>

Pursuant to these tariff provisions, in any 15-minute interval of the fifteen minute market, the CAISO's market systems will co-optimize the procurement of energy and

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<sup>35</sup> Order No. 825 at PP 161-80.

<sup>36</sup> *Id.* at P 162. The Commission also clarified that shortage pricing need not apply if a shortage occurs during an interval for which the prices and dispatch decisions have already been set. *Id.* at P 167.

<sup>37</sup> Tariff section 27.4.3.

<sup>38</sup> Tariff section 27.1.2.

ancillary services based on submitted supply bids and the forecast of demand and its ancillary services requirements. In any given interval, if effective supply bids are insufficient to clear forecasted demand, scarcity pricing will immediately trigger, thereby indicating a shortage of supply for that applicable interval. Similarly, if ancillary services bids are insufficient to meet the ancillary services procurement target, ancillary services scarcity pricing will immediately trigger for that interval. Thus, the CAISO's market systems immediately trigger shortage pricing for any interval in which there is a shortage of energy or operating reserves, as required by Order No. 825.

### **III. Communications**

Pursuant to Rule 203(b)(3) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.203(b)(3), please provide communications regarding this filing to the following individuals, whose names should appear on the official service list established by the Commission with respect to this submittal:

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### **IV. Service**

The CAISO has served copies of this filing on the California Public Utilities Commission, the California Energy Commission, and all parties with scheduling coordinator agreements under the CAISO tariff. In addition, the CAISO has posted a copy of the filing on the CAISO website.

**V. Conclusion**

For the reasons set forth in this filing, the CAISO respectfully requests that the Commission accept this filing as compliant with Order No. 825, and accept the tariff clarifications proposed herein.

Respectfully submitted,

**/s/ Anna A. McKenna**

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