UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	**)** **)**	**Docket No. ER19-2497-000**

MOTION TO INTERVENE AND COMMENTS
OF THE DEPARTMENT OF MARKET MONITORING
OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

Pursuant to Rules 212 and 214 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("FERC" or "Commission"), 18 C.F.R. §§385.212, 385.214, the Department of Market Monitoring ("DMM"), acting in its capacity as the Independent Market Monitor for the California Independent System Operator Corporation ("CAISO"), submits this motion to intervene and comment in the above-captioned proceeding.

In this tariff amendment the CAISO proposes two changes to the calculation of real-time imbalance energy offset ("RTIEO") settlements. First, the CAISO proposes changes to correct the accounting of energy imbalance market ("EIM") transfers within RTIEO calculations. Second, the CAISO proposes eliminating the "EIM transfer adjustment" which alters the allocation of RTIEO charges and credits among balancing authority areas. DMM supports the CAISO's proposals for the reasons stated below.

I. MOTION TO INTERVENE

DMM respectfully requests that the Commission afford due consideration to these comments and motion to intervene, and afford DMM full rights as a party to this proceeding. The mission of DMM, as prescribed in the CAISO tariff pursuant to the Commission's Order 719, is as follows:

> To provide independent oversight and analysis of the CAISO Markets for the protection of consumers and Market Participants by the identification and reporting of market design flaws, potential market rule violations, and market power abuses.[1]

The CAISO tariff further states that "DMM shall review existing and proposed market rules, tariff provisions, and market design elements and recommend proposed rule and tariff changes to the CAISO, the CAISO Governing Board, FERC staff, the California Public Utilities Commission, Market Participants, and other interested entities."[2] As this proceeding involves CAISO tariff provisions which affect the efficiency of the CAISO markets, it implicates matters within DMM's purview.

II. COMMENTS

A. Accounting for EIM Transfer Value within RTIEO Calculations

In this tariff filing, the CAISO proposes correcting the RTIEO account's calculation of EIM transfer values. This correction will stop inadvertent revenue shifts between BAAs caused by the current RTIEO calculation. DMM supports this correction. This section provides a simplified overview of the real-time imbalance energy offset ("RTIEO") accounts, the calculation of the EIM transfer value within the RTIEO accounts, and the effect of GHG prices on the calculation of RTIEO. The overview illustrates the importance of the CAISO's proposed change to the EIM transfer value calculation.

Calculating RTIEO before EIM

The CAISO must remain revenue neutral—i.e. the total payments and charges moving through the CAISO settlements must sum to zero. In practice the payments and

[1] CAISO Tariff Appendix P, Section 1.2.

[2] CAISO Tariff Appendix P, Section 5.1.

charges for transactions within the CAISO markets often do not sum to zero. The CAISO neutrality accounts calculate what additional charges (or payments) are needed to offset revenue deficits (or surpluses) to maintain revenue neutrality.

The RTIEO account is the revenue neutrality account for energy transaction imbalances. Other potential imbalances, such as for congestion and losses, have separate neutrality accounts. To calculate the RTIEO, the CAISO first sums all the real-time energy schedules multiplied by the energy price. If there is a real-time energy revenue deficit the CAISO must collect additional charges to offset the imbalance and maintain revenue neutrality. If there is a revenue surplus, the CAISO must make additional payments to offset the imbalance.

The energy imbalance offset is the calculated energy revenue imbalance multiplied by negative one (-1), as shown below:

1) Real-time energy revenue imbalance + Real-time imbalance energy offset = 0; therefore
2) –1 x Real-time energy revenue imbalance = Real-time imbalance energy offset

To illustrate how the revenue imbalance is calculated for RTIEO purposes consider a simple example with two generators (Generator 1 and Generator 2) and 100 MW of load. Generator 1 produces 60 MW and Generator 2 produces 40 MW. The energy price is $10 per MWh. The imbalance value is the sum of the energy transactions across the entire CAISO market:

Imbalance = Price*(Load – Generation)
Imbalance = $10*(100 – 60 – 40) = $0

In this example, revenues sum to $0 because the market transactions are in fact balanced. Therefore, no offset is needed and the RTIEO is zero ($0). In all of the following

examples, the actual revenue will be also balanced in order to highlight the effects of the EIM transfer value calculations on the calculated imbalance.

Need to Account for the EIM Transfer Value when Calculating RTIEO

With the start of the EIM, the real-time market transactions are no longer summed across the entire market, but instead by balancing authority area ("BAA"). Consider the same example as above but with Generator 1 in BAA 1, Generator 2 in BAA 2, and load evenly split with 50 MW in each BAA.

Generator 1 produces 60 MW, which is 10 MW more than the 50 MW load in BAA 1. Generator 2 produces 40 MW which is 10 MW less than the 50 MW load in BAA 2. The extra 10 MW of generation in BAA 1 is an EIM transfer to BAA 2. Both the BAAs are balanced for energy when accounting for total generation, load and EIM transfers between BAAs. If we calculate the BAA specific imbalances values as we did above, without accounting for the EIM transfer value, they would be:

BAA Imbalance = Price*(Load – Generation)
BAA 1 Imbalance = $10*(50 – 60) = –$100
BAA 2 Imbalance = $10*(50 – 40) = $100

Without accounting for the EIM transfer value, it *appears* that BAA 1 has a deficit of $100 and BAA 2 has a surplus of $100. In reality, the extra $100 collected in BAA 2 is used to pay the generation in BAA 1 that serves BAA 2 load through the EIM transfer. There is no actual market revenue imbalance. Allocating the apparent $100 deficit back to BAA 1, and the apparent $100 surplus back to BAA 2 through the RTIEO neutrality account would effectively reverse the market settlements for the EIM transfer. To avoid this the CAISO imbalance calculation accounts for the value of EIM transfers as shown in bold below:

BAA Imbalance = Price*(Load – Generation) **+ Price*(EIM Transfer)**

BAA 1 Imbalance = $10*(50 – 60) **+ $10*(10)** = $0

BAA 2 Imbalance = $10*(50 – 40) **+ $10*(–10)** = $0

As illustrated by this example, with the value of EIM transfers properly accounted for, the RTIEO account does not inadvertently reverse the EIM transfer settlements.

Accounting for the Effect of the GHG Prices on EIM Transfer Value Calculation

Currently the CAISO values EIM transfers in the RTIEO calculations at the system marginal energy cost ("SMEC"). At first glance, valuing EIM transfers at the SMEC appears correct. However, as the CAISO has pointed out, this does not account for greenhouse gas ("GHG") compliance pricing.

GHG compliance obligations are issued to cover transfers into EIM BAAs that have GHG programs. Entities are allowed to receive payment to take GHG obligations because they may need to obtain allowances for potential GHG emissions. The EIM sets GHG prices based on bids submitted by participants to take on GHG obligations. When the GHG prices are non-zero, the price paid in the BAA with the GHG program must be higher than the price in the BAAs without GHG programs so that rent can be collected to pay the GHG obligations.

In the EIM implementation, the CAISO BAA is used as the reference BAA. The energy price within the CAISO BAA is the SMEC. Because the CAISO BAA has a GHG compliance program, the CAISO BAA's energy price (and therefore the SMEC) includes the GHG costs. For the CAISO BAA price to be above prices in BAAs without GHG programs, the GHG price is negative and lowers the energy prices in the non-GHG program BAAs.

As the CAISO has shown, using the SMEC to value EIM transfers between BAAs

without GHG programs or obligations incorrectly accounts for the transfer values in the RTIEO accounts causing inadvertent revenue shifts between the BAAs.

Expanding the above examples, assume that both BAA 1 and BAA 2 do not participate in a GHG program. The only EIM transfer affecting these BAAs is from BAA 1 to BAA 2. The SMEC is $10 and the GHG Price is –$2. The energy price in the BAAs is therefore $8 = $10 –$2. The BAA specific imbalances would currently be calculated as:

BAA Imbalance = Price*(Load – Generation) + SMEC*(EIM Transfer)
BAA 1 Imbalance = $8*(50 – 60) + $10*(10) = $20
BAA 2 Imbalance = $8*(50 – 40) + $10*(–10) = –$20

This calculation shows a $20 surplus in BAA 1 and a $20 deficit in BAA 2 even though the market revenues are actually balanced (as shown in the examples above). The resulting $20 RTIEO payment to BAA 1 and $20 RTIEO charge to BAA 2 is an inadvertent revenue shift to BAA 1 from BAA 2 which was not specifically discussed and intended as part of the EIM design.

In this filing, the CAISO proposes correcting the calculation of EIM transfer values to avoid inadvertent revenue shifts between BAAs. Below is a simplified version of the correction applied to our example which has only non-GHG BAA transfers.

BAA Imbalance = Price*(Load – Generation) + (SMEC **+ GHG Price**)*(EIM Transfer)
BAA 1 RTIEO = $8*(50 – 60) + ($10 **– $2**)*(10) = $0
BAA 2 RTIEO = $8*(50 – 40) + ($10 **– $2**)*(–10) = $0

The actual change to the RTIEO calculations, as described in the CAISO's filing, is more complicated and accounts for multiple combinations of GHG and non-GHG BAA transfer settlements, and an accounting of the GHG award payments. This correction will stop the inadvertent revenue shifts between BAAs caused by the current RTIEO calculation.

B. Eliminating the EIM Transfer Adjustment to RTIEO Allocation

The CAISO also proposes eliminating the EIM Transfer adjustment currently made to the RTIEO allocation. After the RTIEO is calculated by BAA, the transfer adjustment shifts the allocation of RTIEO among BAAs. In the past DMM has questioned whether the transfer adjustment was consistent with cost causation and recommended the ISO "eliminate reallocating revenue imbalances according to this proportional transfer ratio if problems are detected."[3]

As explained in the CAISO's filling, the CAISO has determined that real-time market energy settlement imbalances are not primarily caused by EIM transfers between balancing authority areas, so any neutrality offsets (charges or credits) caused by the balancing authority should remain in that balancing authority area. Therefore, DMM supports the CAISO proposal to eliminate the transfer adjustment.

III. CONCLUSION

DMM supports the CAISO's proposed changes to the RTIEO account. DMM respectfully requests that the Commission afford due consideration to these comments as it evaluates the proposed tariff provisions before it.

[3] *Comments on Energy Imbalance Market Draft Final Proposal*, DMM, October 25, 2013, p.9: http://www.caiso.com/Documents/DMMComments_EnergyImbalanceMarket-DraftFinalProposal.pdf

Respectfully submitted,

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Independent Market Monitor for the California
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Dated: August 20, 2019

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced 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, California this 20th day of August, 2019.

/s/ Anna Pascuzzo

Ann Pascuzzo