



September 6, 2018

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. ER15-2565-\_\_\_\_  
July 2018 Informational Report  
Energy Imbalance Market – Transition Period Report – Idaho Power  
Company**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) hereby submits its report on the transition period of Idaho Power Company during its first six months of participation in the western Energy Imbalance Market (EIM) for July 2018. The Commission also directed the Department of Market Monitoring (DMM) to submit an independent assessment of the CAISO's report, which the CAISO's DMM will seek to file within approximately 15 business days.

The CAISO will continue filing such reports, consistent with the Commission's order, through the six-month transition period.

Please contact the undersigned with any questions.

Respectfully submitted

**By: /s/ Anna A. McKenna**

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# California ISO

**Energy Imbalance Market**

**July 1 – July 31, 2018**

**Transition Period Report**

**Idaho Power Company EIM Entity**

September 6, 2018

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## I. Background and Information

On October 29, 2015, the Federal Energy Regulatory Commission (Commission) approved the California Independent System Operator Corporation's (CAISO) proposed tariff amendments to allow a transition period for new Energy Imbalance Market (EIM) entities during the first six months of EIM participation, effective November 1, 2015.<sup>1</sup> Idaho Power Company (IPCO) entered the EIM on April 4, 2018, and the transition period will apply to the IPCO balancing authority area (BAA) until October 4, 2018.

During the six-month transition period, the pricing of energy in the new EIM entity's BAA is not subject to the pricing parameters that normally apply when the market optimization relaxes a transmission constraint or the power balance constraint. Instead, during the six-month transition period, the CAISO will clear the market based on the marginal economic energy bid (referred to herein as "transition period pricing"). In addition, during the six-month transition period, the CAISO sets the flexible ramping constraint relaxation parameter for the new EIM entity's BAA between \$0 and \$0.01, but only when the power balance or transmission constraints are relaxed in the relevant EIM BAA. This is necessary to allow the market software to determine the marginal energy bid price.

Consistent with the Commission's October 29 Order, the CAISO and the Department of Market Monitoring (DMM) will file informational reports at 30-day intervals during the six-month transition period for any new EIM entity. The CAISO provides this report for IPCO to comply with the Commission's requirements in the October 29 Order. The CAISO anticipates filing these reports on a monthly basis. However, because the complete set of data is not available immediately at the end of the applicable month,<sup>2</sup> and depending on the market performance of each month, along with the need to coordinate with the EIM entity, the CAISO expects to continue to file the monthly reports approximately 25 days after the end of each month in order to provide the prior full month's data.

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<sup>1</sup> *California Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,104 (2015) (October 29 Order).

<sup>2</sup> The earliest the CAISO can start gathering the data is 10 business days after the last day for the reporting month since this is when the price correction window expires.

## II. Highlights

Overall, the IPCO BAA's transition into the EIM was smooth and uneventful, with the exception of some data issues observed at the beginning of the transition. The market performance highlights for July are as follows:

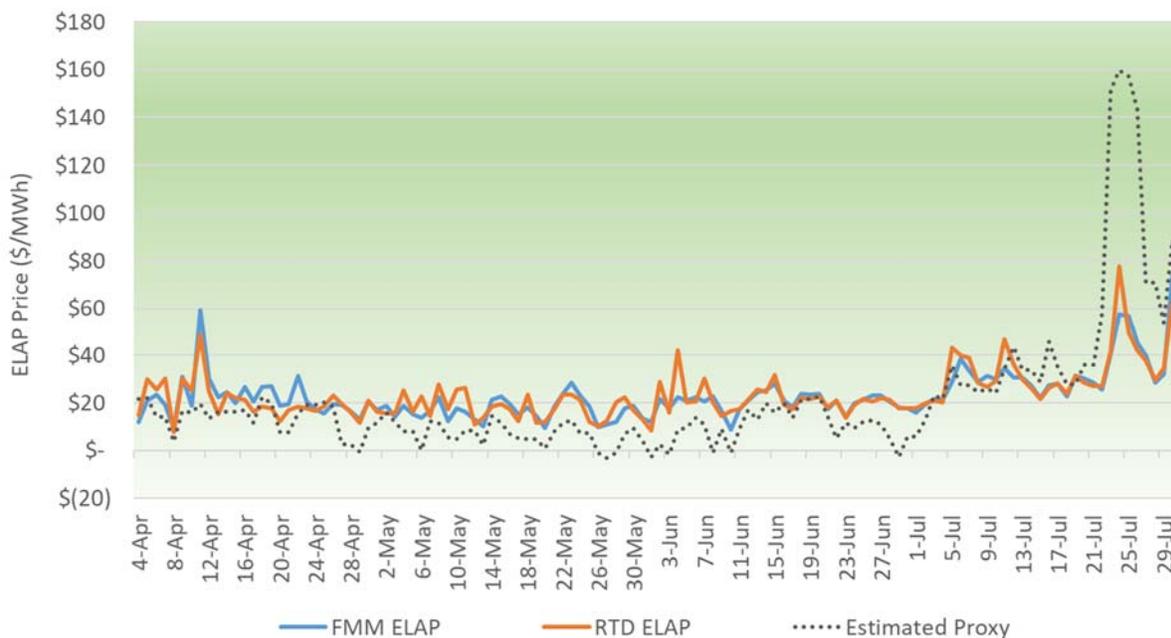
- Prices were stable and within reasonable ranges, with the monthly average prices being \$33.13/MWh in the fifteen-minute market (FMM) and \$34.11/MWh in the real-time dispatch (RTD) for the IPCO BAA.
- There were no power balance constraint infeasibilities for under-supply conditions in either the FMM or RTD.
- As part of the resource sufficiency test performed for each EIM entity prior to the real-time markets, the IPCO BAA passed 99.06 percent of its balancing tests.
- Also as part of the resource sufficiency test, the IPCO BAA passed 99.73 percent of its upward flexible ramping sufficiency tests.
- The price for upward flexible ramping capacity in the FMM for the IPCO BAA averaged \$0.40/MWh, while prices for the downward flexible ramping product were \$0.0/MWh.

### III. Market Performance Related to the Transitional Period

#### A. Prices

Figure 1 shows the average prices in the IPCO BAA’s EIM Load Aggregation Point (ELAP) for April 4, 2018, through July 31, 2018. In July, the monthly average price in the FMM was \$33.13/MWh compared to \$20.23/MWh in June, at the same time, the monthly average RTD price in July was \$34.11/MWh compared to \$21.16/MWh in June. The grey dotted line in Figure 1 represents the proxy price for the IPCO BAA. The increase in the monthly average price for the FMM and RTD was driven by an increase in load in the IPCO BAA and in the rest of the EIM area due to higher temperatures during the summer months. On July 24, 2018, the daily average FMM price was \$57.48/MWh, and the daily average RTD price was \$77.86/MWh. On this day, between hours ending 17 until hour ending 20, the average price in the FMM was \$143/MWh, and \$259/MWh in the RTD. A similar trend was observed on July 30, 2018, where the daily FMM average price was \$74.03/MWh and the daily RTD average price was \$62.43/MWh.

**Figure 1: Daily Average Prices for the IPCO BAA**



Under the CAISO’s price correction authority in section 35 of the CAISO tariff, the CAISO may correct prices posted on its Open Access Same-Time Information System (OASIS) if it finds: (1) that the prices were the product of an invalid market solution; (2) the market solution produced an invalid price due to data input failures, hardware or software failures; or (3) a result that is inconsistent with the CAISO tariff. The prices presented in Figure 1 include all prices produced by the CAISO consistent with its tariff

requirements.<sup>3</sup> That is, the trends represent: (1) prices as produced in the market that the CAISO deemed valid; (2) prices that the CAISO could, and did, correct pursuant to Section 35 of the CAISO tariff; and (3) any prices the CAISO adjusted pursuant to the transition period pricing reflected in section 29.27 of the CAISO tariff.

### B. Frequency of Power Balance Constraint Infeasibilities

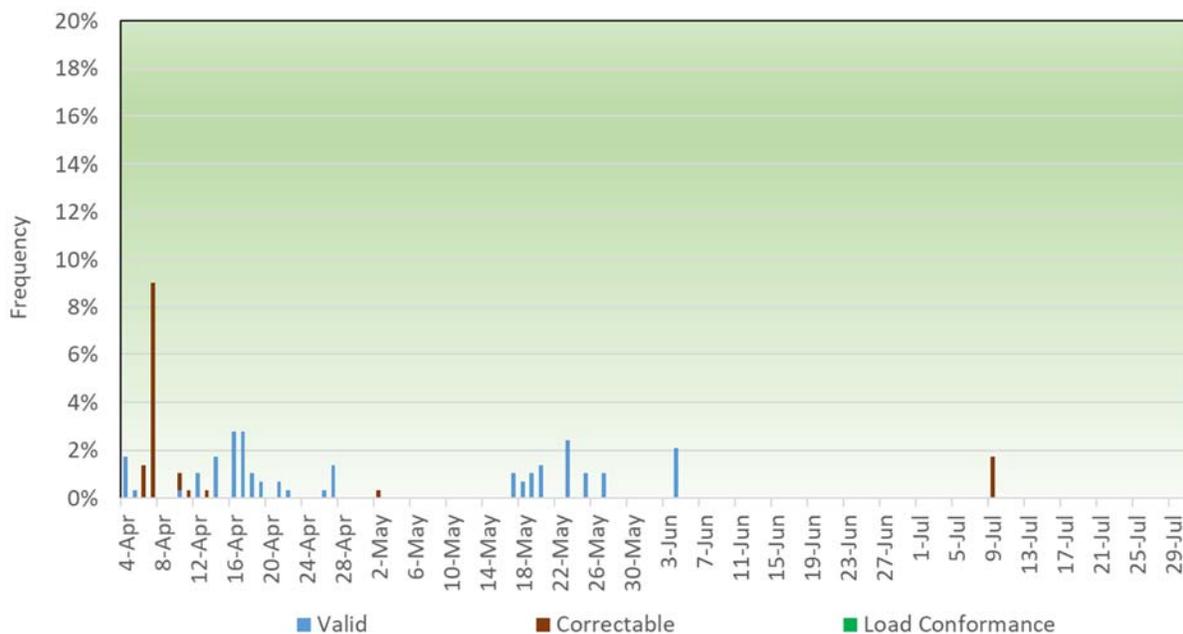
Figures 2 and 3 show the frequency of intervals in which the power balance constraint was relaxed for under-supply conditions in the IPCO BAA for the FMM and RTD, respectively. The under-supply infeasibilities are categorized into “valid,” “load conformance,” and “correctable” instances. Prices for the intervals that fell in the “valid” category are instances with under-supply infeasibilities that were not in error and are subject to the transitional period pricing. Instances labeled as “load conformance” are the valid infeasibilities observed when a load conformance was in place for that market interval. Whereas the infeasibilities that fell in the “correctable” category had a correction based on the provisions of Section 35 of the CAISO tariff due to either a software or a data error.

**Figure 2: Frequency of FMM Under-Supply Power Balance Infeasibilities for the IPCO BAA**



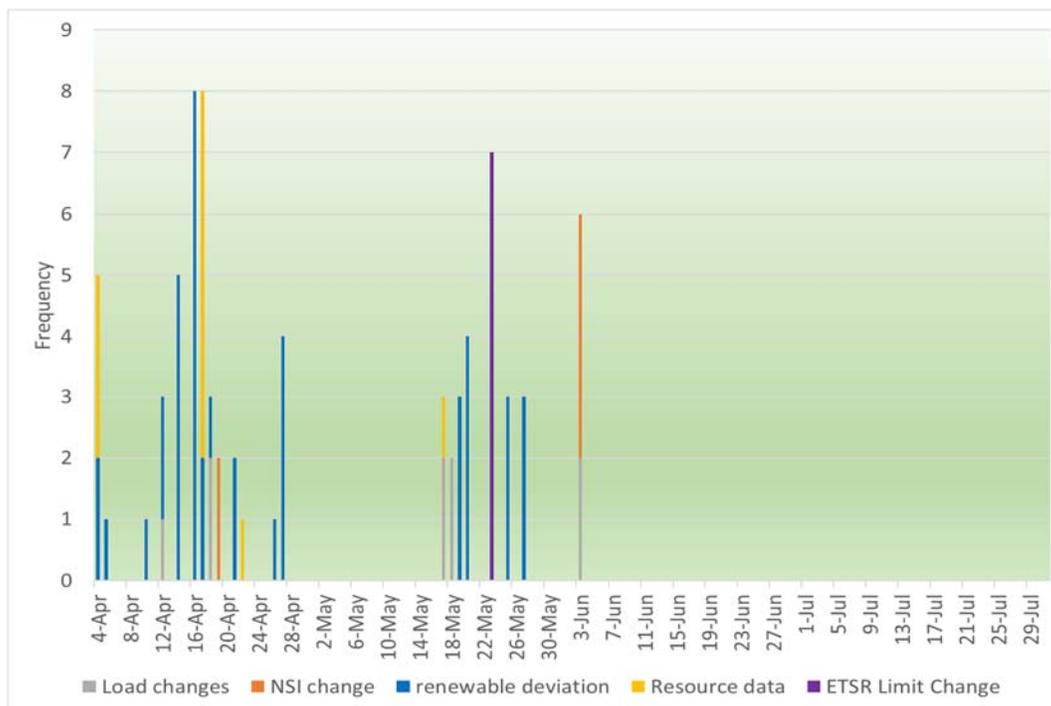
<sup>3</sup> Figure 1 also provides an estimated proxy price, which for IPCO is MID C hub price.

**Figure 3: Frequency of RTD Under-Supply Power Balance Infeasibilities for the IPCO BAA**



In the IPCO BAA, there were no valid infeasibilities in both the FMM and RTD. Figure 4 displays the frequency of RTD under-supply power balance infeasibilities by reason for the IPCO BAA for the period of April 4, 2018, through July 31, 2018. There were no infeasibilities observed in July in the five minute market. For the reasons listed as “renewable deviation,” the resource forecast for the renewable resources were reduced after completion of the FMM and the IPCO BAA was ramping capability limited, which results in an under-supply infeasibility in the five-minute market. The intervals captured under “resource data” were impacted by a slow response to the increase in resource dispatch operating target (DOT); as a result, the IPCO BAA was unable to meet its power balance requirement for few intervals. Once the resource output caught up with the DOT, the BAA power balance constraint was no longer infeasible. The infeasibility classified as “load forecast change” captures those intervals in which the five-minute market requirements, which is comprised of load forecast and imbalance conformance, increased above the FMM requirements such that the IPCO BAA was short of the ramping capability to meet the increase in requirement. Similar to the instance related to load changes, for intervals listed under “NSI change,” the IPCO BAA was short of the ramping capability to meet the increase in the imbalance requirement due to a reduction in net-imports after the completion of the FMM.

**Figure 4: Count of RTD Under-Supply Power Balance Infeasibilities by Reason**



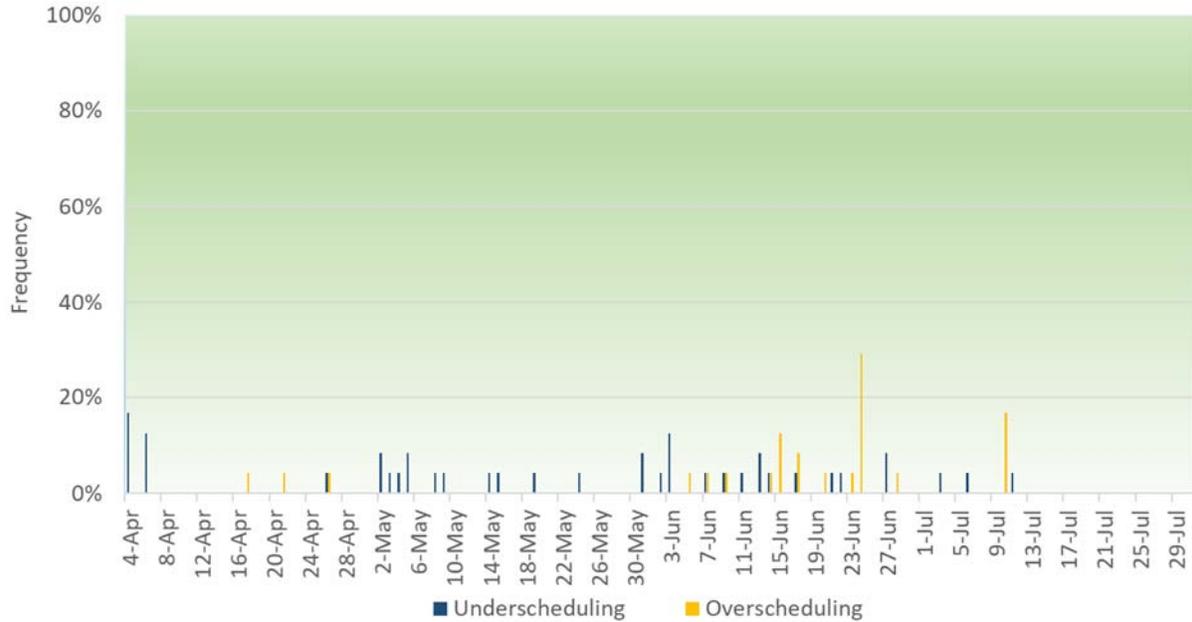
**C. Balancing and Sufficiency Test Failures**

The EIM provides an opportunity to various BAAs to serve their load while realizing the benefits of increased resource diversity. Since the EIM does not include resource adequacy requirements or obligations for resources to submit bids, the CAISO performs a series of resource sufficiency tests comprised of: (i) a balancing test; (ii) a capacity test; and (iii) a flexible ramping sufficiency test. These tests occur prior to the real-time market.

Performance of a balancing test prior to each trading hour ensures that each participating BAA submits a balanced base schedule of generation and a net schedule interchange to meet its demand. In addition, the participating BAA is required to submit bids with enough ramping capability to meet its net load forecast uncertainty and net load movement requirements. Figure 5 shows the trend of balancing test outcomes for the period of April 4, 2018, through July 31, 2018.<sup>4</sup> The IPCO BAA passed the balancing test in 99.06 percent of the intervals in July, which is within expected performance tolerance ranges for balancing tests.

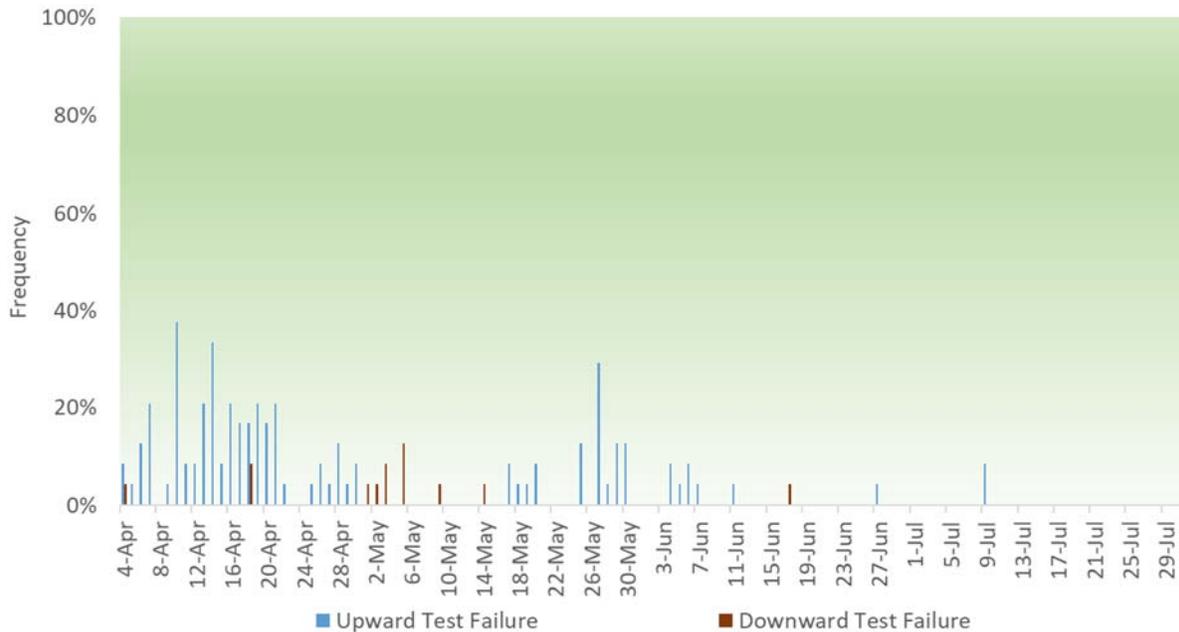
<sup>4</sup> The CAISO performs resource sufficiency tests pursuant to Section 29.34(k) of the CAISO tariff.

**Figure 5: Frequency of Balancing Test Failures in the IPCO BAA**



The CAISO also performs the flexible ramping sufficiency test as specified in Section 29.34(m) of the CAISO tariff. Figure 6 shows the trend of the test failures for flexible ramping up and down tests for the period of April 4, 2018, through July 31, 2018. For July, the IPCO BAA passed the upward flexible ramping test in 99.73 percent of the intervals, and it passed the downward flexible ramping test in 100 percent of the intervals.

**Figure 6: Frequency of Flexible Ramping Sufficiency Test Failures in the IPCO BAA**

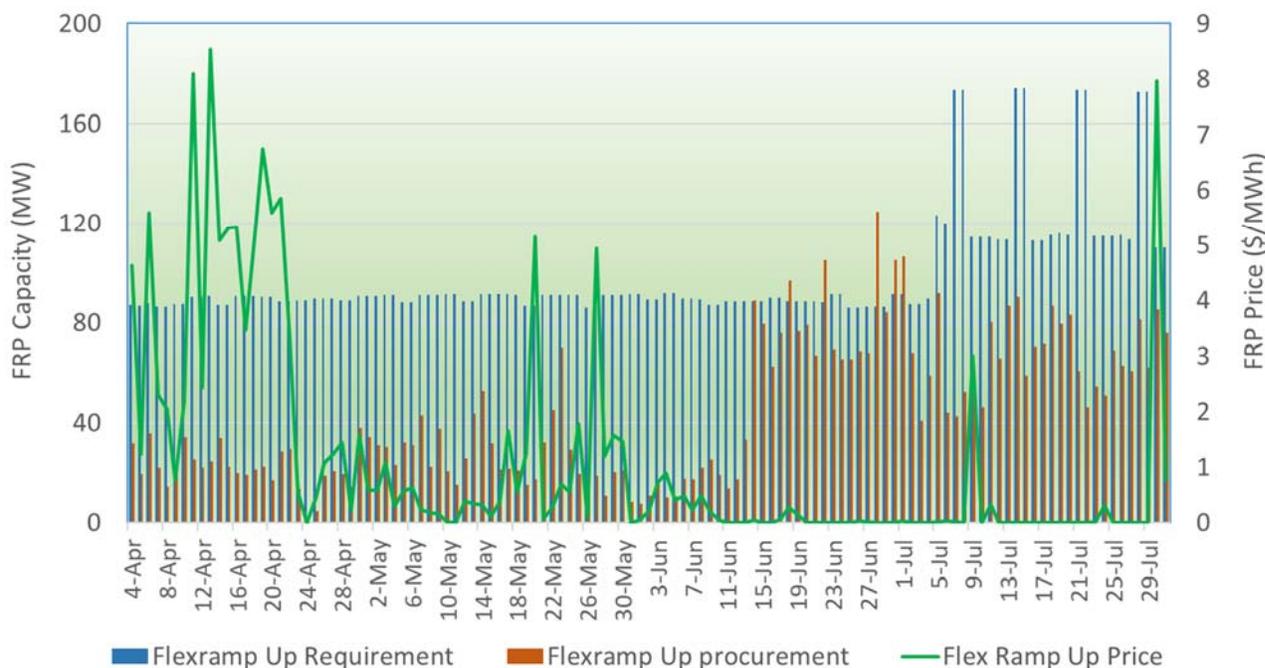


### D. Flexible Ramping Product

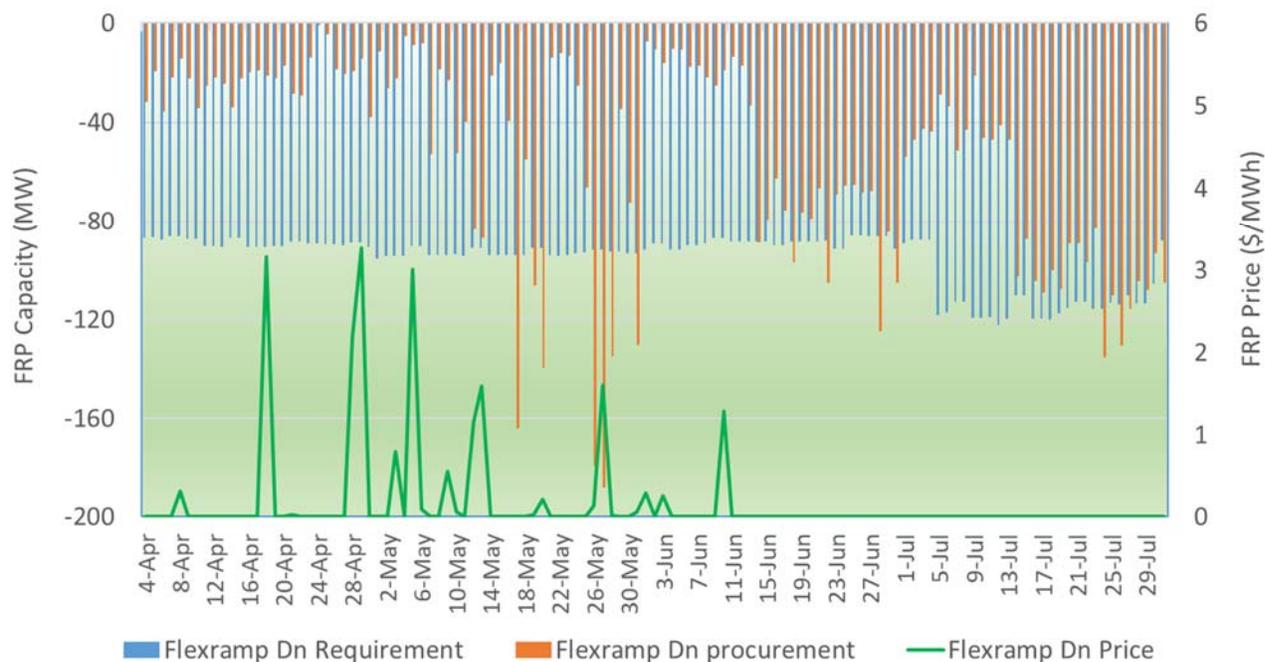
Figure 7 shows the daily average of the upward flexible ramping constraint requirement, procurement, and prices in the FMM. Figure 8 shows the daily average of the downward flexible ramping constraint requirement, procurement, and prices in the FMM. With the implementation of the flexible ramping product on November 1, 2016, the CAISO calculates the flexibility requirement based on historical data for uncertainty, netting import/export capability or credit. This effectively reduces the amount of flexible ramping the IPCO BAA has to procure and, generally, the EIM system-wide area (which includes all the BAAs in the EIM, including the CAISO BAA) will drive the requirements. The market clearing process may result in procuring the IPCO BAA capacity towards meeting the overall EIM-system-wide area requirement. This is the main reason why the individual IPCO BAA procurement may generally fall below or be above the individual IPCO BAA requirement.

In addition, the price trends provided in Figure 7 and Figure 8 are the nested prices determined by the summation of the shadow price of the individual IPCO BAA, plus the shadow price of the EIM system-wide area. In July, the average upward flexible ramping capacity price was \$0.40 /MWh and the average downward flexible ramping capacity price was \$0.00/MWh.

**Figure 7: Daily Average Requirement, Procurement, and Price of Upward Flexible Ramping in the FMM in the IPCO BAA**



**Figure 8: Daily Average Requirement, Procurement, and Price of Downward Flexible Ramping in the FMM in the IPCO BAA**



For the majority of the time, the flexible ramping procurement was below the area requirements. Still, with the EIM area binding, the net price in the IPCO BAA may be greater than zero.

### E. Impact on Non-EIM Nodes

With the implementation of the EIM with PacifiCorp's BAAs (PAC East and PAC West) with the first trading day on November 1, 2014, there was a price reporting issue for shared locations between the CAISO market and the EIM. These shared locations schedule energy for the CAISO BAA and are located in the EIM system-wide BAA, and have associated mirror resources. In late 2014, the CAISO worked on improving these shared locations' modelling, and reported its progress in the corresponding transitional period reports for the PAC East and PAC West BAAs. Since then there have not been any issues related to these types of locations.

The CAISO identified a software defect in July 2017 that affected these types of locations. The issue incorrectly added the congestion price of EIM transfers into the market price for schedules settled at the intertie locations; this may have affected schedules for imports and exports coming into the CAISO BAA, and not the transactions for EIM entities. The CAISO corrected this issue in March 2018. Currently, there are no issues affecting non-EIM nodes.

## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service list in the above-referenced proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California, this 6<sup>th</sup> day of September, 2018.

*/s/ Grace Clark*  
Grace Clark