



June 29, 2021

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-____
May 2021 Informational Report
Energy Imbalance Market – Transition Period Report –
Los Angeles Department of Water & Power EIM Entity**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) hereby submits its report on the transition period of the Los Angeles Department of Water & Power EIM Entity during its first six months of participation in the Energy Imbalance Market (EIM) for May 2021. 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.

Please contact the undersigned with any questions.

Respectfully submitted

By: /s/ John Anders

Roger E. Collanton
General Counsel
John Anders
Assistant General Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7182
Fax: (916) 608-7222
janders@caiso.com



California ISO

**Energy Imbalance Market
May 1 – May 31, 2021**

**Transition Period Report
Los Angeles Department of Water and Power (LADWP) EIM Entity**

June 25, 2021

I. Introduction and Background

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, 2015.¹ Los Angeles Department of Water and Power (LADWP), the prospective EIM Entity entered the EIM on April 1, 2021, and the transition period will apply to the LADWP balancing authority area (BAA) until October 1, 2021.

During the six-month transition period, the price 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 LADWP 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,² and depending on the market performance each month, along with the need to coordinate with the EIM entity, the CAISO expects to continue to file the monthly reports approximately 30 days after the end of each month in order to provide the prior full month's data.

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

² 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, LADWP's second month of EIM operation was uneventful. The second month's market performance highlights are as follows:

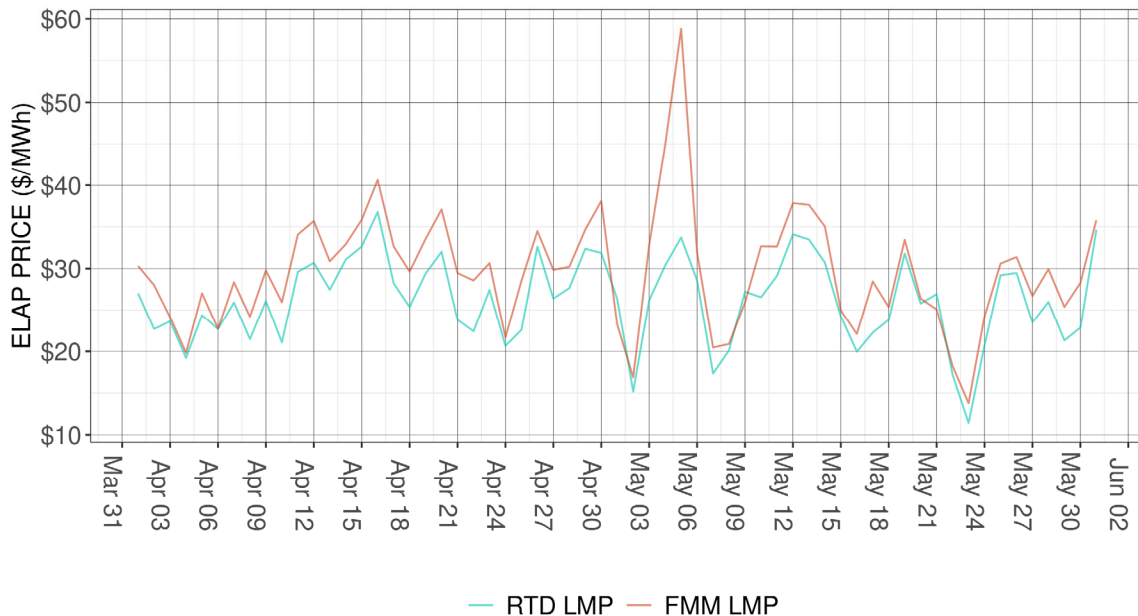
- As part of the resource sufficiency test performed for each EIM entity prior to the real-time markets, LADWP passed 97.18 percent of its balancing tests and 100 percent of its bid-range capacity tests.
- LADWP passed 99.9 percent of its upward flexible ramping sufficiency tests.
- Prices were stable and within reasonable ranges, with the monthly average LADWP BAA price at \$29.09/MWh in the fifteen-minute market (FMM) and \$25.49/MWh in the real-time dispatch (RTD).
- Power balance constraint infeasibilities for the under-supply conditions were minimal for the LADWP BAA with no under-supply infeasibility in the FMM, and 0.269 percent of the total intervals in the RTD.
- The upward flexible ramping capacity product in FMM for the LADWP BAA averaged at \$0.243/MWh in May, while the monthly average price for the downward flexible ramping product was \$0/MWh.

III. Market Performance during the Transitional Period

a. Prices

Figure 1 shows the daily average Fifteen-Minute Market (FMM) and Real-Time Dispatch (RTD) prices in the LADWP EIM Load Aggregation Point (ELAP) for April 1, 2021 through May 31, 2021. The May’s monthly average price in FMM was \$29.09/MWh and \$25.49/MWh in the RTD.

Figure 1: Daily average prices for the LADWP 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. 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 LADWP BAA for the FMM and RTD, respectively. The under-supply infeasibilities are classified into three categories: Valid, Corrected and Would-Be-Corrected. Some of the under-supply infeasibilities affected by either data input failures or software failures were corrected under the price correction authority in Section 35 of the CAISO tariff are classified as Corrected. There are other under-supply infeasibilities that were impacted by data input failures or software failures, and which would be subject to price correction, but were not corrected because the price after correction would be the same price as that obtained by the transition period pricing. These instances are classified as Would-Be-Corrected. All remaining under-supply infeasibilities, which were driven by system conditions, are classified as Valid.

Figure 2: Frequency of FMM under-supply infeasibilities in the LADWP BAA.

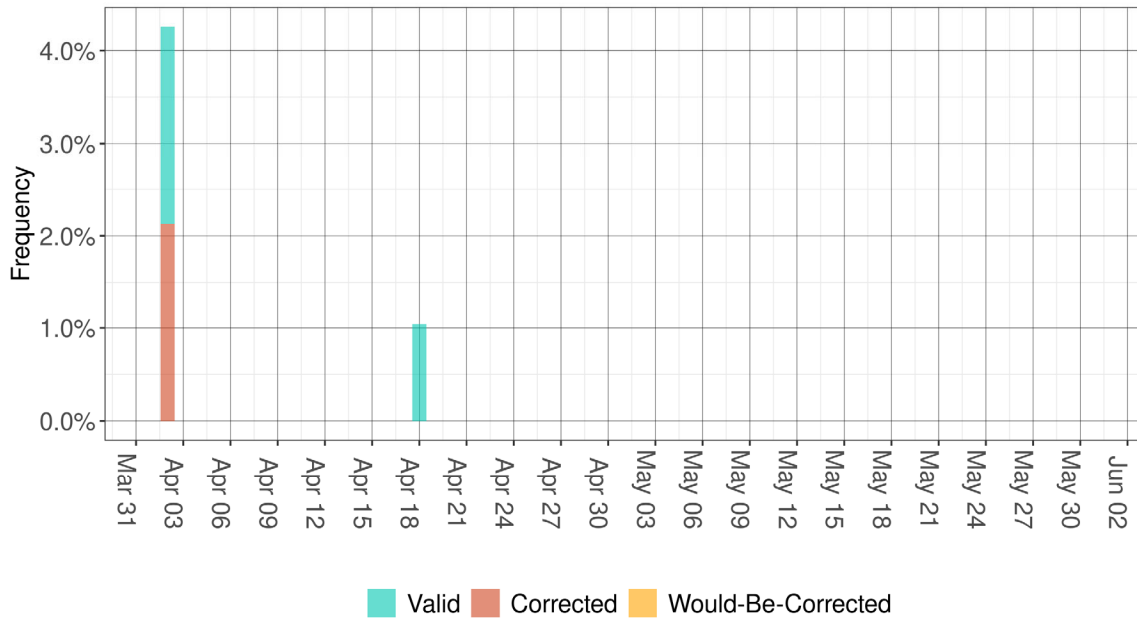
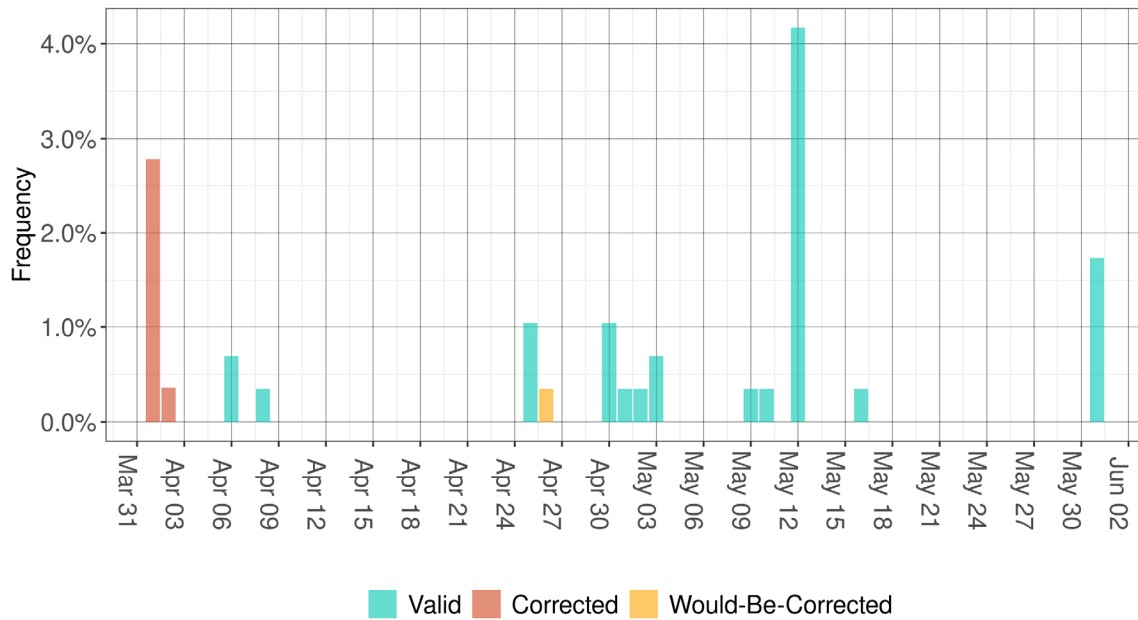


Figure 3: Frequency of RTD under-supply feasibilities in the LADWP BAA.



Tables 1 and 2 list the FMM and RTD intervals with infeasibility observed in May. There was no under-supply infeasibility in the FMM and 24 valid under-supply infeasibility in the RTD. The RTD under-supply infeasibility on May 1 was driven by higher load conformance entered by LADWP in RTD compared to FMM and reduced EIM transfer limit submitted by LADWP. The RTD under-supply infeasibility on May 2 was impacted by lower forecast of Variable Energy Resource (VER) in RTD compared to FMM. The RTD under-supply infeasibility on May 3 was due to reduced EIM transfer limit submitted by LADWP. The RTD under-supply infeasibility on May 9 was because of higher load forecast in RTD compared to FMM and lower forecast of VER in RTD compared to FMM. The RTD under-supply infeasibility on May 10 was driven by higher load forecast in RTD compared to FMM and higher load conformance entered by LADWP in RTD compared to FMM. The RTD under-supply infeasibility on May 12 was because a resource was not following the dispatch and reduced output of another resource due to manual dispatch entered by LADWP. The RTD under-supply infeasibility on May 16 was impacted by lower forecast of VER in RTD compared to FMM. The RTD under-supply infeasibility on May 31 was driven by delayed startup of a resource and lower forecast of VER in RTD compared to FMM.

Table 1: List of valid FMM under-supply infeasibilities in the LADWP BAA.

Trade Date	Trade Hour	Trade Interval	MW Infeasibility

Table 2: List of valid RTD under-supply infeasibilities in the LADWP BAA.

Trade Date	Trade Hour	Trade Interval	MW Infeasibility
1-May-21	1	8	37.7
2-May-21	17	12	43.66
3-May-21	16	5	161.99
3-May-21	16	6	55.36
9-May-21	16	9	4.46
10-May-21	23	1	18.87
12-May-21	17	1	7.11
12-May-21	17	2	21.82
12-May-21	17	3	23.02
12-May-21	18	5	20.75
12-May-21	18	6	12.38
12-May-21	18	7	20.59
12-May-21	18	8	17.51
12-May-21	18	9	26.34
12-May-21	18	10	90.22
12-May-21	18	11	108.79
12-May-21	18	12	130.38
12-May-21	19	1	39.68
16-May-21	2	5	15.37
31-May-21	17	3	103.57
31-May-21	17	5	64.37
31-May-21	17	6	64.44
31-May-21	17	7	56.87
31-May-21	17	9	19.31

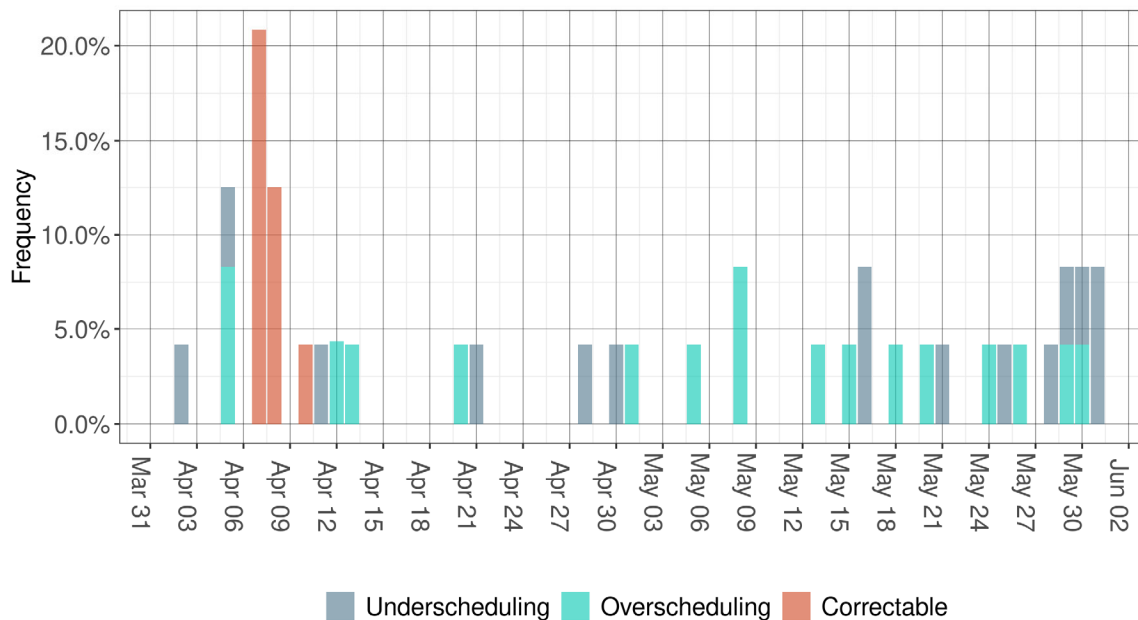
c. Balancing and Sufficiency Test Failures

The EIM provides an opportunity to various BAAs to serve its 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 before each trading hour ensures that each participating BAA submits a balanced base schedule of generation and a net schedule interchange to meet its demand with its own generating resources. 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

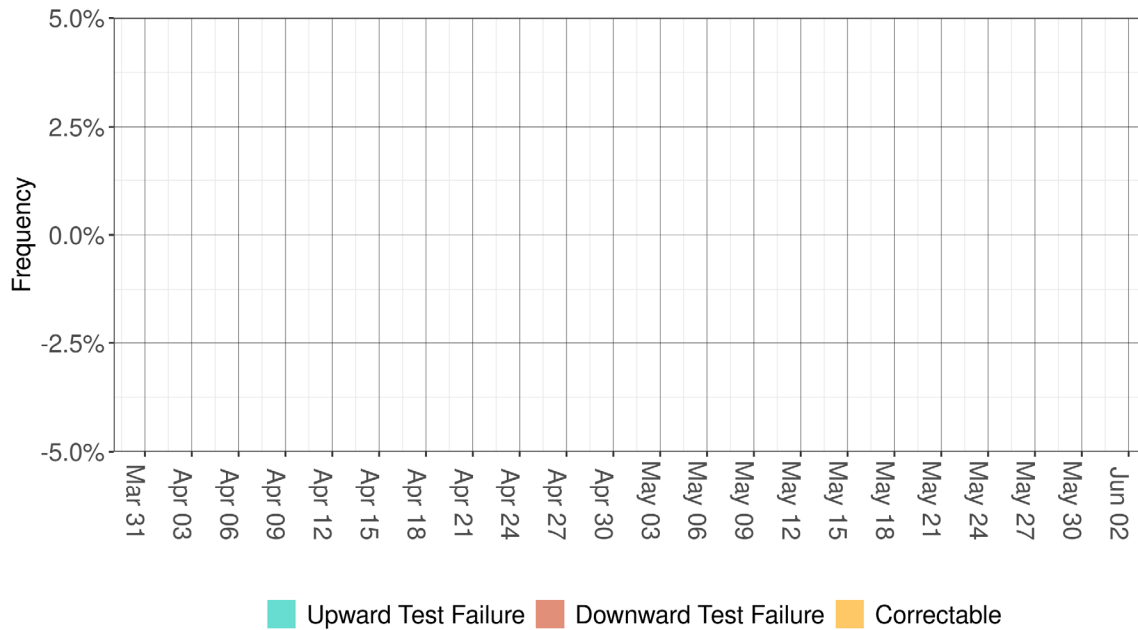
requirements. Figure 4 shows the trend of balancing test outcomes for the period of April 1, 2021, through May 31, 2021, and Figure 5 shows the pattern of bid-range capacity test outcomes for the period of April 1, 2021, through May 31, 2021.³ If a balancing test or the bid-range capacity test is impacted by data input failures or software failures, those test results are shown as correctable events. In May, the LADWP BAA passed the balancing test in 97.18 percent of the intervals, which is within the acceptable range of balancing test failures. On May 1, LADWP failed one balancing test due to increase of generation base schedule. On May 5, LADWP failed one balancing test because generation base schedule was not reduced enough to compensate load forecast decrease. On May 8, 13, and 15 LADWP failed balancing tests because of increase of generation base schedule. On May 16, LADWP failed two balancing tests due to decrease of generation base schedule. On May 18, LADWP failed one balancing test because of change of Net Schedule Interchange (NSI). On May 20, 21, 24 and 25, LADWP failed balancing tests due to change of generation base schedule. On May 26, LADWP failed one balancing test because generation base schedule was not reduced enough to compensate load forecast decrease. On May 28, 29, 30, and 31 LADWP failed balancing tests due to change of generation base schedule. The LADWP BAA passed the bid-range capacity test in 100% percent of the intervals.

Figure 4: Frequency of Balancing test failures in the LADWP BAA.



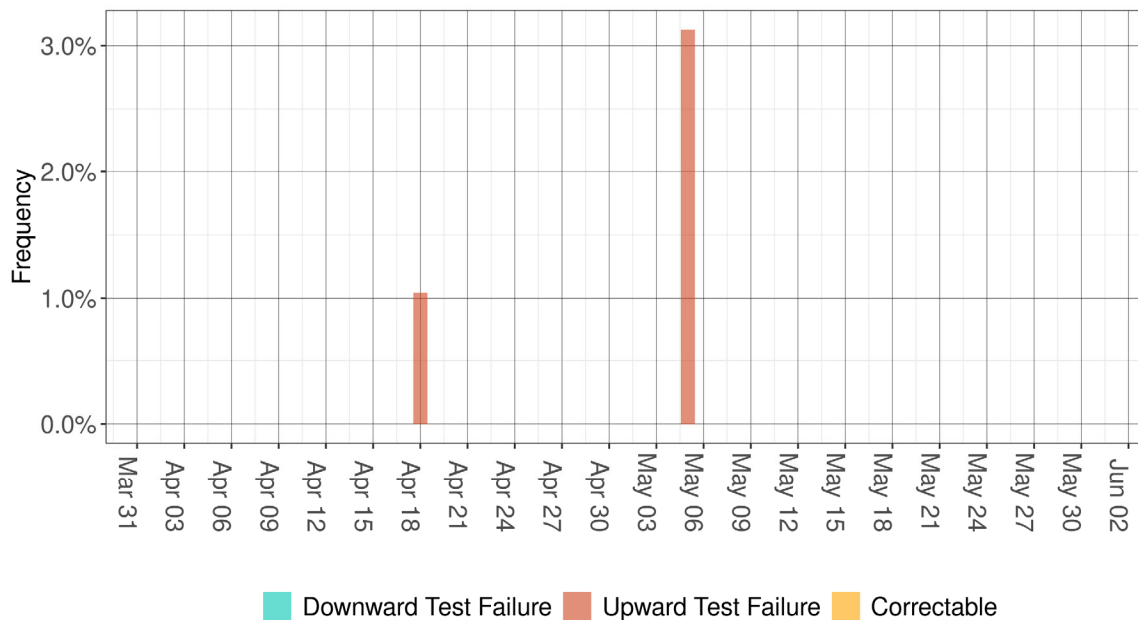
³ The CAISO performs resource sufficiency tests pursuant to Section 29.34(k) of the CAISO tariff.

Figure 5: Frequency of Bid Range Capacity test failures in the LADWP BAA.



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 for the period of April 1 through May 31. The LADWP BAA passed the flexible ramp down test in 100 percent of the intervals in May and passed the flexible ramp up test in 99.9 percent of the intervals. On May 5, LADWP failed the upward flexible ramp test for three fifteen-minute intervals due to decrease of net import and lower output of Variable Energy Resources (VER).

Figure 6: Frequency of flexible ramping sufficiency test failures in the LADWP BAA.



d. Flexible Ramping Product

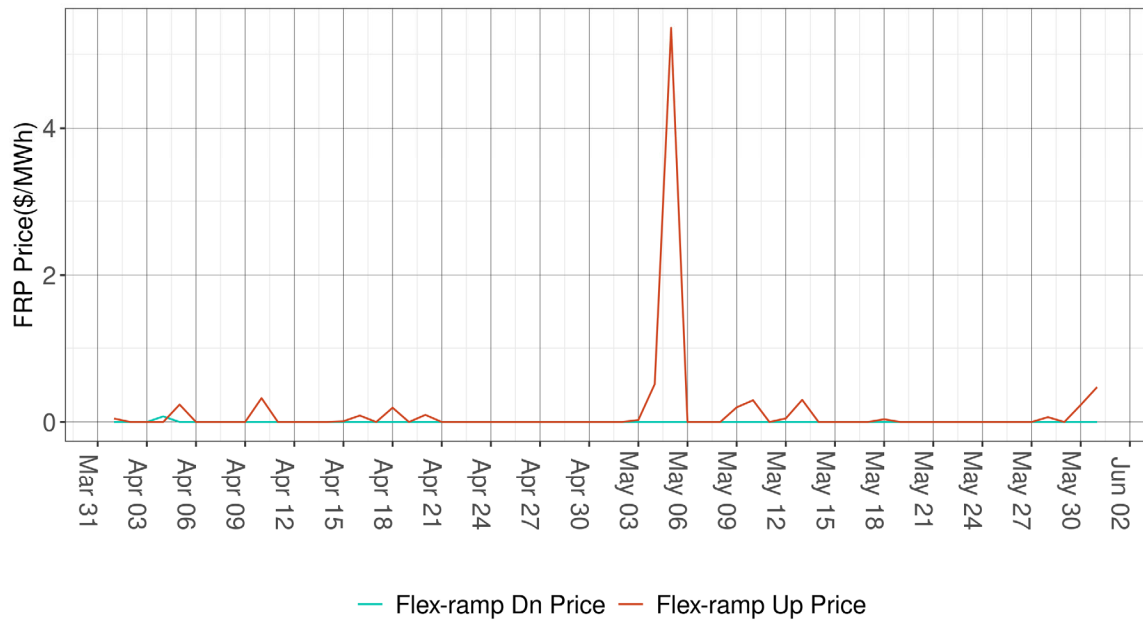
Figure 7 shows the daily average of the upward and downward flexible ramping constraint requirement and procurement in the FMM, the positive portion of a bar represents flexible ramp up and the negative portion of a bar represents flexible ramp down. Figure 8 shows the daily average of the upward and downward flexible ramping constraint prices in the FMM. With the implementation of the flexible ramping product on November 1, 2016, calculation of the requirements consists of historical data for uncertainty with any applicable net import/export capability or credit. This effectively reduces the amount of flexible ramping the LADWP 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 LADWP BAA capacity towards meeting the overall EIM-system-wide area requirement. This is the main reason why the individual LADWP procurement may not match exactly the individual LADWP flex ramp requirement.

Figure 7: Daily Average flexible ramping Up and Down requirement and procurement in the FMM for the LADWP BAA.



In addition, the price trend provided in Figure 8 is the nested price determined by the summation of the shadow price of the individual LADWP BAA plus the shadow price of the EIM system-wide area. In May, the average upward flexible ramping capacity price was \$0.243/MWh and the average downward flexible ramping capacity price was \$0/MWh.

Figure 8: Daily Average price of flexible ramping Up and Down in the FMM for LADWP BAA



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 29th day of June 2021.

/s/ Anna Pascuzzo
Anna Pascuzzo