

August 26, 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-____
July 2021 Informational Report
Energy Imbalance Market – Transition Period Report –
Balancing Authority of Northern California EIM Entity**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) hereby submits its report on the transition period of the Balancing Authority of Northern California EIM Entity during its first six months of participation in the Energy Imbalance Market (EIM) for July 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

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California ISO

Energy Imbalance Market

July 1 – July 31, 2021

Transition Period Report

Balancing Authority of Northern California (BANC) EIM Entity

August 26, 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 The Balancing Authority of Northern California (BANC), the prospective EIM Entity entered the EIM on March 25, 2021, and the transition period will apply to the BANC balancing authority area (BAA) until September 30, 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 BANC 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 25 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

The market performance highlights for July are as follows:

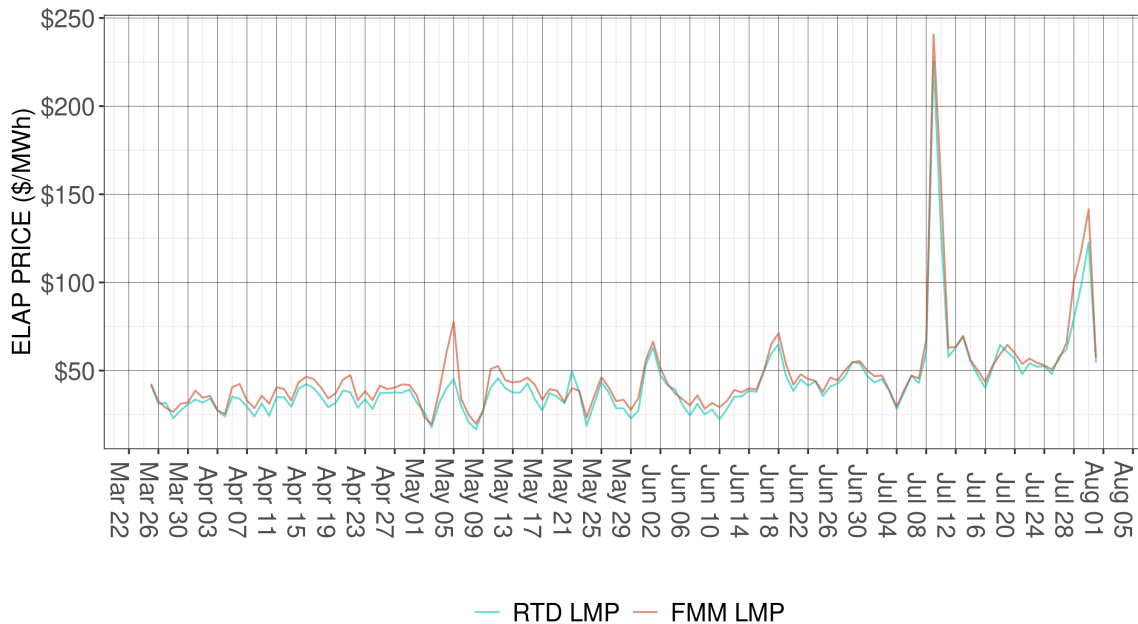
- Prices were stable and within reasonable ranges for BANC BAA, with a monthly average price of \$69.34/MWh in the fifteen-minute market (FMM) and \$64.29/MWh in the real-time dispatch (RTD).
- BANC BAA observed 2 infeasibilities in the fifteen-minute market and 18 infeasibilities in the five-minute market in July. These all occurred during a heat wave coupled with wildfire impacts on July 9th and 10th.
- As part of the resource sufficiency test performed for each EIM entity prior to the real-time markets, BANC successfully passed 99.06 percent of its balancing tests and 99.76 percent of its bid-range capacity tests.
- Also as part of the resource sufficiency test, BANC successfully passed 100 percent of its upward and downward flexible ramping sufficiency tests in July.
- The price for upward flexible ramping capacity in the FMM for the BANC BAA averaged \$0.168 /MWh in July, while prices for the downward flexible ramping product were \$0/MWh.

III. Market Performance Related to the Transitional Period

a. Prices

Figure 1 shows the daily average Fifteen-Minute Market (FMM) and Real-Time Dispatch (RTD) prices in the BANC EIM Load Aggregation Point (ELAP) for March 25, 2021 through July 31, 2021. The July monthly average price in the FMM was \$69.34/MWh and \$64.29/MWh in the RTD.

Figure 1: Daily average prices for the BANC BAA



Under the CAISO’s price correction authority in Section 35 of the CAISO tariff, the CAISO July 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 BANC 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.

In July 2021, the BANC BAA had 2 under-supply power balance infeasibilities for FMM and 18 for RTD. These all occurred on July 9th and 10th, and were due to high temperatures causing increased demand in conjunction with a wildfire burning under a major transmission line, which caused large cuts in imports.

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

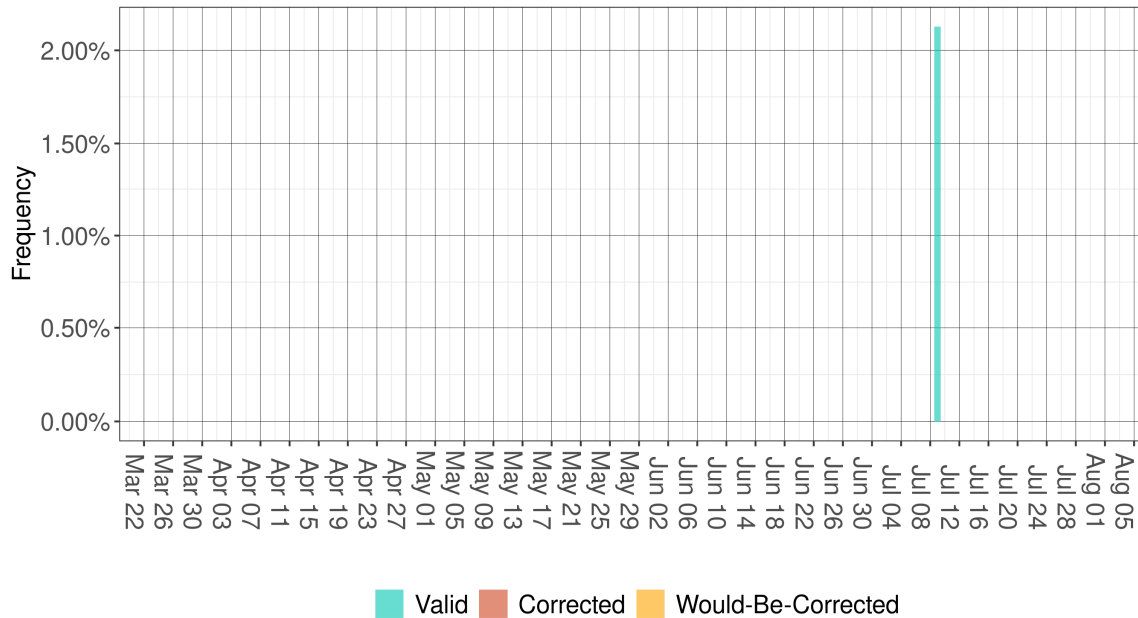
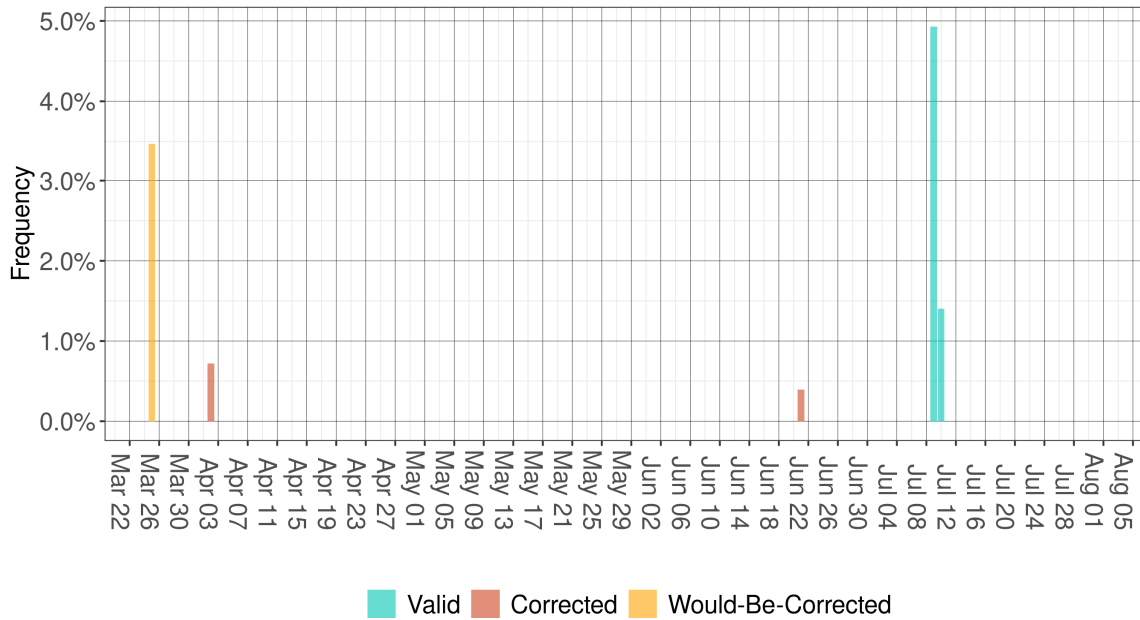


Figure 3: Frequency of RTD under-supply power balance in feasibilities in the BANC BAA



Tables 1 and 2 list the valid FMM and RTD intervals with infeasibilities observed in July, including the amount of load conformance.

Table 1: List of valid FMM under-supply infeasibilities in the BANC balancing authority area

Trade Date	Trade Hour	Trade Interval	MW Infeasibility	Load Conformance
07-09-2021	18	3	95.59	0
07-09-2021	19	4	45.79	0

Table 2: List of valid RTD under-supply infeasibilities in the BANC balancing authority area

Trade Date	Trade Hour	Trade Interval	MW Infeasibility	Load Conformance
07-09-2021	17	5	97	0
07-09-2021	17	6	314.86	0
07-09-2021	19	2	20.27	0
07-09-2021	19	3	57.77	0
07-09-2021	19	4	8.6	0
07-09-2021	19	5	13	0
07-09-2021	19	6	5.61	0
07-09-2021	19	7	101.97	0
07-09-2021	19	8	86.41	0

Trade Date	Trade Hour	Trade Interval	MW Infeasibility	Load Conformance
07-09-2021	19	12	65.29	0
07-09-2021	20	1	105.14	0
07-09-2021	20	2	160.42	0
07-09-2021	20	3	36.35	0
07-09-2021	20	4	36.35	0
07-10-2021	22	2	0.84	0
07-10-2021	22	4	35.14	0
07-10-2021	22	5	85.35	60
07-10-2021	22	6	85.14	60

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 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. 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 March 25, 2021, through July 31, 2021, and Figure 5 shows the pattern of bid-range capacity test outcomes for the period of March 25, 2021, through July 31, 2021.³ If a balancing test or the bid-range capacity test is affected by data input failures or software failures, those test results are shown as correctable events.

The BANC BAA passed the balancing test in 99.06 percent of the intervals in July, which is within the acceptable range of balancing test failures. The BANC BAA passed the bid-range capacity test in 99.76 intervals, which is also within the acceptable range.

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

Figure 4: Frequency of Balancing test failures in the BANC BAA

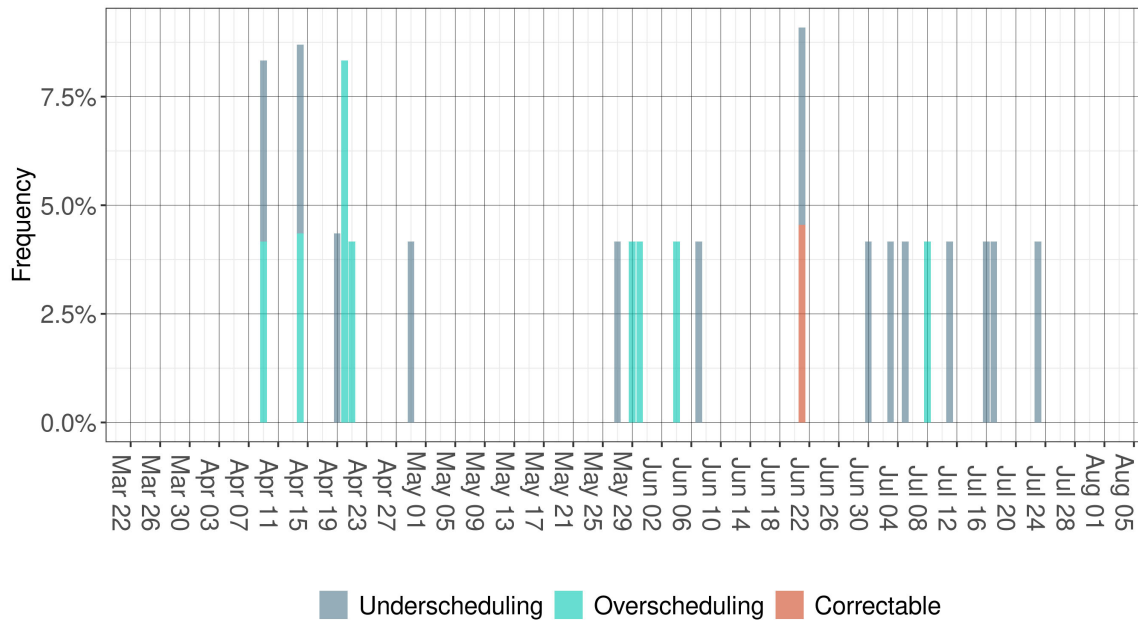
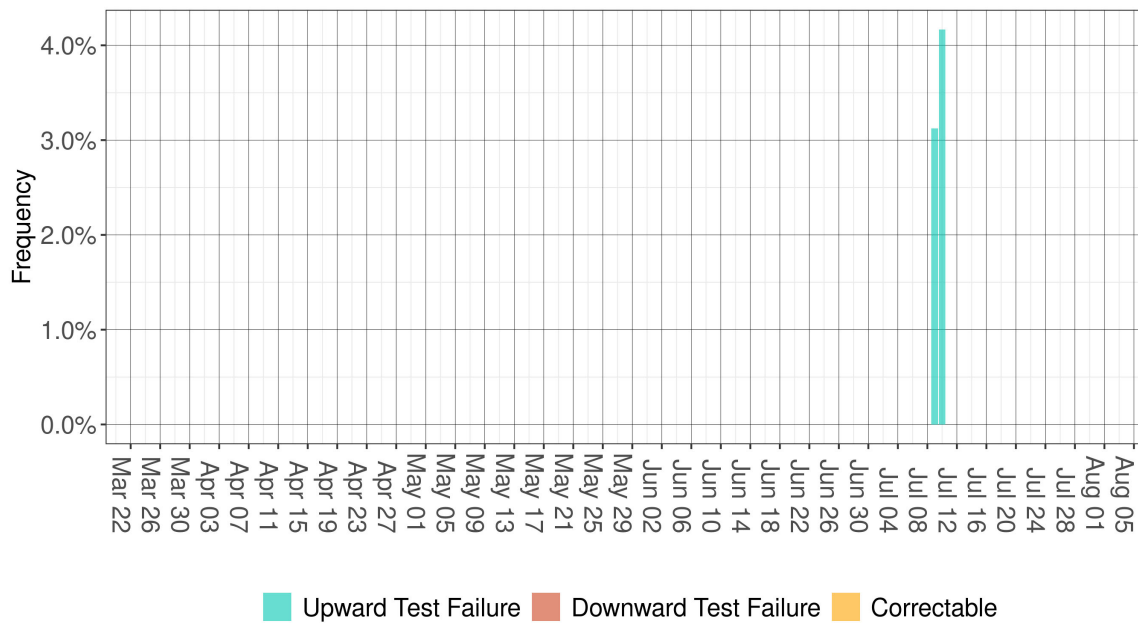
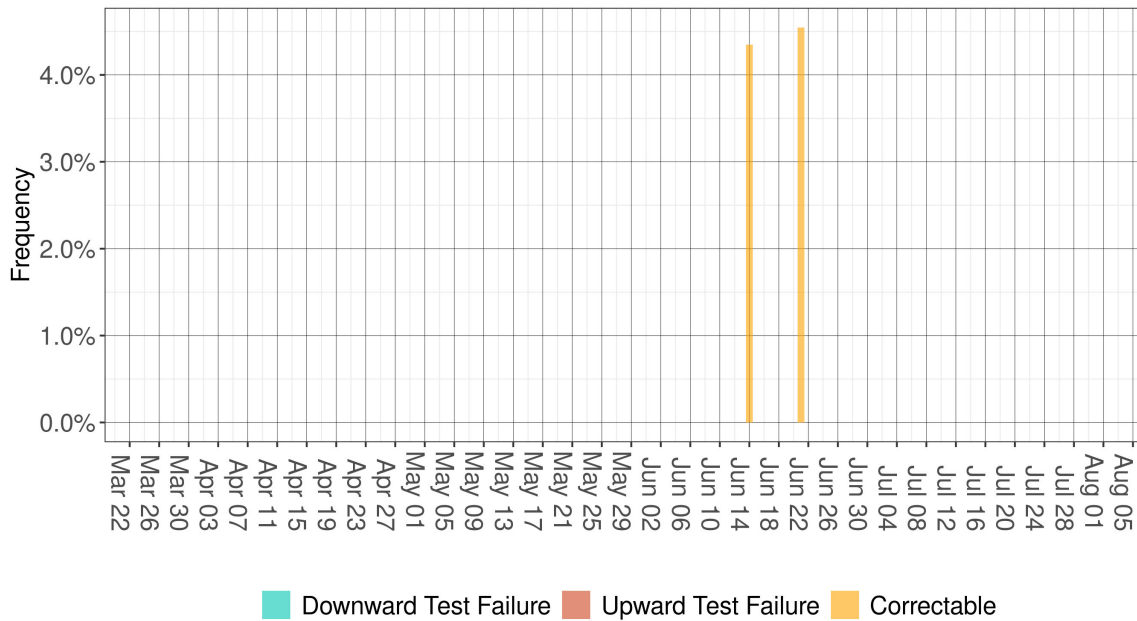


Figure 5: Frequency of Bid Range Capacity test failures in the BANC BAA



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 for the period of March 25th through July 31st. The BANC BAA passed the flexible ramp up test in 99.72 percent of intervals in July, and passed the flex ramp down test in 100 percent of the intervals in July.

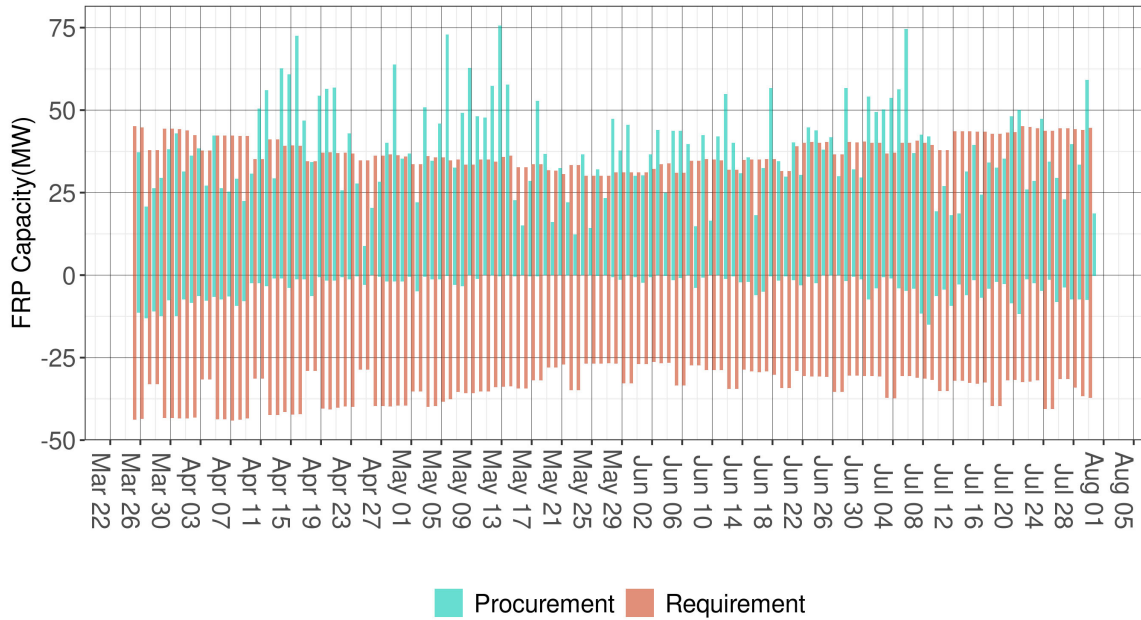
Figure 6: Frequency of flexible ramping sufficiency test failures in the BANC BAA



d. Flexible Ramping Product

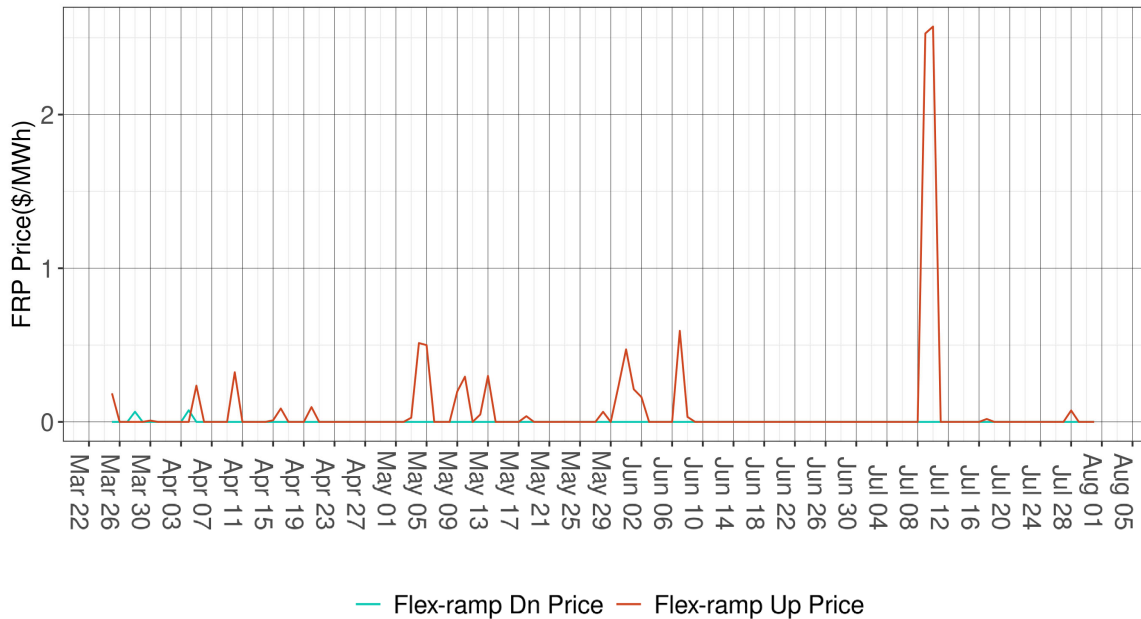
Figure 7 shows the daily average of the upward and downward flexible ramping constraint requirement and procurement in the FMM. Figure 8 shows the daily average of the upward and downward flexible ramping constraint prices in the FMM. With the implementation of the flexible ramping product on November 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 BANC 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 BANC BAA capacity towards meeting the overall EIM-system-wide area requirement. This is the main reason why the individual BANC procurement may generally fall below or be above the individual BANC flex ramp requirement. For most of the time, the flexible ramping up procurement was below the area requirements.

Figure 7: Daily Average requirement and procurement of upward and downward flexible ramping in FMM



In addition, the price trend provided in Figure 8 is the nested price determined by the summation of the shadow price of the individual BANC BAA plus the shadow price of the EIM system-wide area. In July, the average upward flexible ramping capacity price was \$0.168/MWh and the average downward flexible ramping capacity price was \$0.000/MWh.

Figure 8: Daily Average price for upward and downward flexible ramping in FMM



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 26th day of August 2021.

/s/ Anna Pascuzzo
Anna Pascuzzo