June 20, 2017

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-___
March 2017 Informational Report
Energy Imbalance Market – Transition Period Report – Puget Sound Energy

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) hereby submits its final report on the transition period of Puget Sound Energy during its first six months of participation in the Energy Imbalance Market (EIM) for March 2017. Puget Sound Energy entered the EIM on October 1, 2016. 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/ Anna A. McKenna*

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Energy Imbalance Market
March 1 – March 31, 2017

Transition Period Report
Puget Sound Energy Entity

June 20, 2017

California ISO Department of Market Quality and Renewable Integration

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] Puget Sound Energy (PSE) entered the EIM on October 1, 2016, and the transition period will apply to its balancing authority area until April 1, 2017.

During the six-month transition period, the pricing of energy in the balancing authority area of a new EIM entity 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 balancing authority area between $0 and $0.01, but only when the power balance or transmission constraints are relaxed in the relevant EIM balancing authority area. 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 PSE to comply with the Commission's requirements in the October 29 order. The CAISO notes that, in compliance with the Commission's October 29 order, this will be the last monthly transition period report that the CAISO will submit to the Commission for the PSE balancing authority area. In addition, because the DMM must review the CAISO's report before completing its own independent assessment, the DMM will file its report approximately 15 business days after the CAISO files its report.

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

II. Highlights

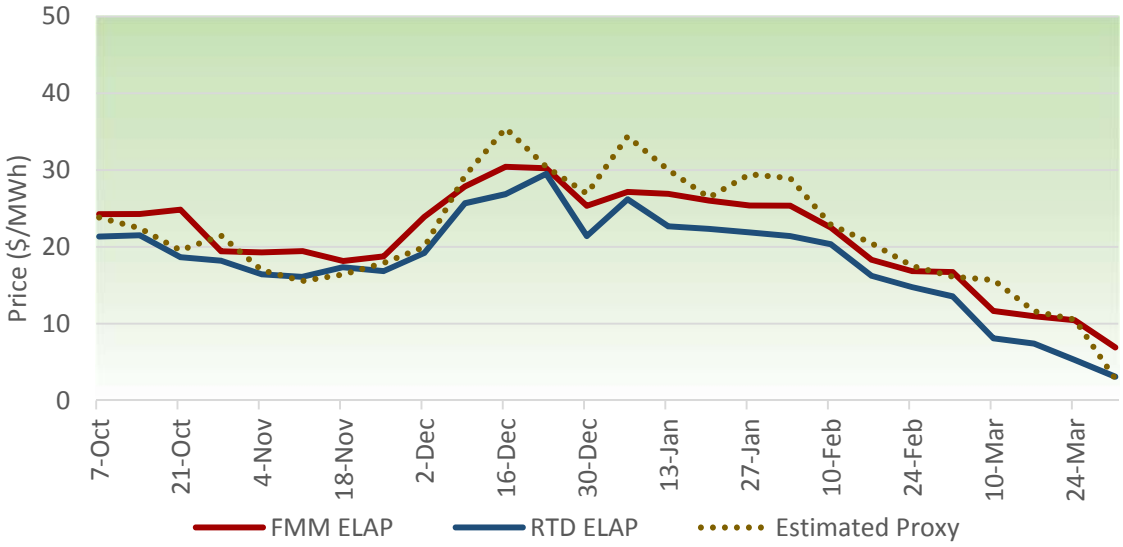
- In March, average prices in the PSE balancing authority continued to decrease, with a monthly average of $10.47/MWh in the Fifteen-Minute Market (FMM) and $6.62/MWh Real-Time Dispatch (RTD).
- Power balance constraint infeasibilities for under-supply conditions in the PSE balancing authority area were 0.03 percent of the total intervals in the FMM and 0.35 percent of the total intervals in the RTD.
- The PSE balancing authority area passed over 98.25 percent of its balancing tests in March.
- The PSE balancing authority area passed over 97.9 percent of its flexible ramping sufficiency tests during in March.
- The price for upward flexible ramping capacity in the PSE balancing authority area averaged $5.14/MWh in March, which is higher than the $3.79MWh observed in February.

III. Report

a. Prices

Figure 1 shows the seven-day average prices in the PSE balancing authority area EIM Load Aggregation Point (PSE ELAP).[2] Prices in March continued a declining trend with average prices of $10.47/MWh in the FMM and $6.62/MWh in the RTD. These prices were lower than the respective prices of $19.71/MWh in the FMM and $17.14/MWh in the RTD in February.

Figure 1: Daily average prices for the PSE balancing authority area.



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 the CAISO tariff requirements.[3] That is, the trends below represent: (1) prices as produced in the market for

[2] The ELAP provides aggregate prices that are representative of pricing in the overall PSE balancing authority area.

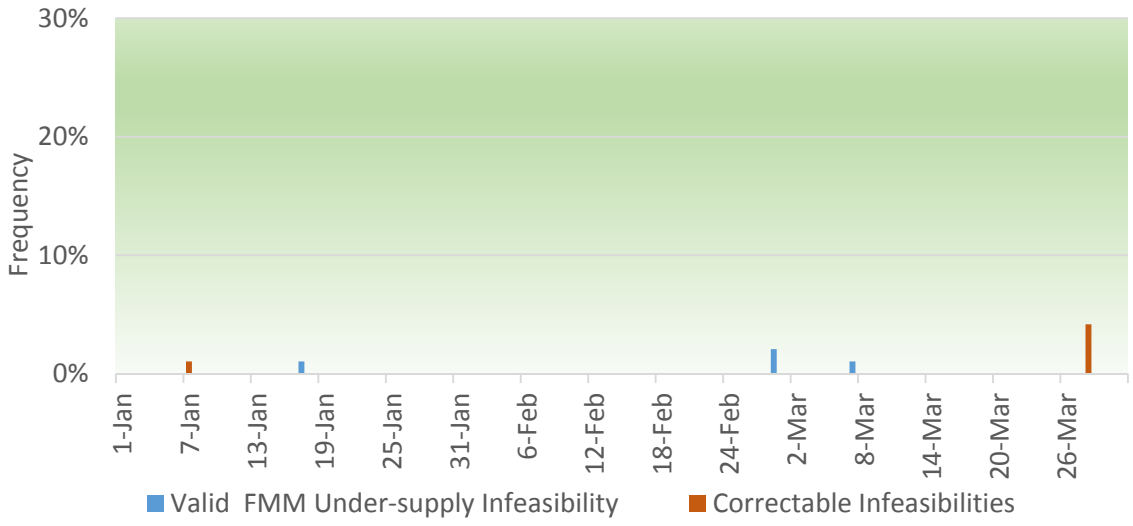
[3] Figure 1 also provides an estimated proxy price, which for the PSE balancing authority area is the Mid C hub price taken from the Intercontinental Exchange (ICE).

which 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 transition period pricing reflected in Section 29.27 of the CAISO tariff. In March, in the PSE balancing authority area there were four intervals in the FMM market and 15 intervals in the RTD market that required a price correction under the CAISO's price correction authority provided in Section 35 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 PSE balancing authority area for the FMM and RTD, respectively. The under-supply infeasibilities are grouped into "valid" and "correctable" instances. Prices for the intervals that fell in the "valid" category are instances with under-supply infeasibilities not in error and that are subject to the transitional period pricing. Whereas the price intervals that fell in the "correctable" category were corrected due to either a software or a data error, pursuant to Section 35 of the CAISO tariff.

Figure 2: Frequency of FMM under-supply power balance infeasibilities in the PSE balancing authority area.



In March, there was one (0.03 percent of the time) valid under-supply infeasibility in the FMM and 32 (0.35 percent of the time) valid under-supply infeasibilities in the RTD for the PSE balancing authority area. The reasons for these infeasibilities were:

i) Mach 6, RTD. Resources in the PSE balancing authority area coming below the base scheduled and resulting in missed capacity.

ii) March 7, FMM and RTD. Changes in the Net Schedule interchange.

iii) March 8, RTD. Forced outage on a large facility.

iv) March 9, RTD. Based schedules on some units were removed after the unit had been committed, leading to the shortfall of capacity.

v) March 14, RTD. Resources were limited to move upward due to congestion on rate of change constraints.

vi) March 20, RTD. Renewables deviation.

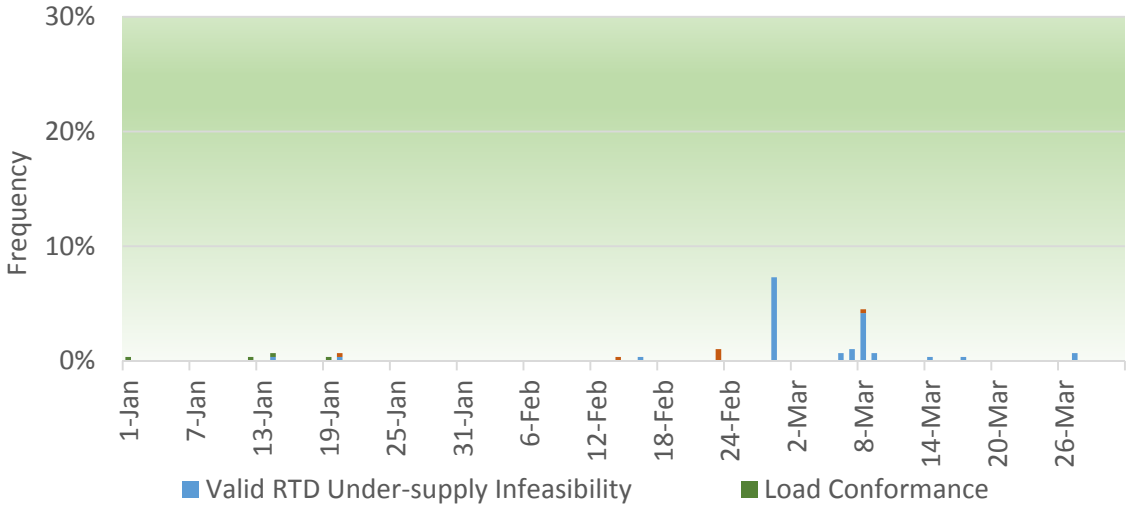
vii) March 21. Short of capacity driven by load conformance.

viii) March 27, RTD. Limited capacity due to locked transfer as a result from failing the flexible ramping upward test, combined with load increases.

Nine out of the 32 valid under-supply infeasibilities in the RTD in the PSE balancing authority area coincided with load conformance. The CAISO uses a load conformance limiter in the CAISO balancing authority area and in each of the EIM balancing authority areas to prevent over-adjustments with the use of load conformance, and thus prevent an artificial infeasibility – one that does not reflect actual scarcity. When the quantity of the infeasibility is less than the operator's adjustment, and the infeasibility is in the same direction as the adjustment, the load conformance limiter automatically limits the operator's adjustments to at or below the infeasibility. In the pricing run, the limiter will remove an infeasibility that is less than or equal to the operator's adjustment, *i.e.*, the load conformance. The limiter will not apply to infeasibilities greater than or in the opposite direction of the load conformance. Use of the load conformance limiter in the CAISO balancing authority area has avoided invalid constraints that

arise through operational adjustments that do not reflect supply issues. During the transition period, the CAISO does not apply the load conformance limiter because it applies the transition period pricing, which obviates the need for the load conformance limiter. Therefore, Figure 3 illustrates the infeasibilities that would have been avoided by the load conformance limiter were it in effect instead of transition period pricing during the transition period in the PSE balancing authority area.

Figure 3: Frequency of RTD under-supply power balance in feasibilities in the PSE balancing authority area.



Tables 1 and 2 list the FMM and RTD intervals with under-supply infeasibilities observed in March, including the amount of load conformance to reflect the instances in which the load conformance limiter would have been triggered and offset the infeasibility.

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

Trade Date	Trade Hour	Trade Interval	MW Infeasibility	Load Conformance
07MAR2017	22	1	19.35	0

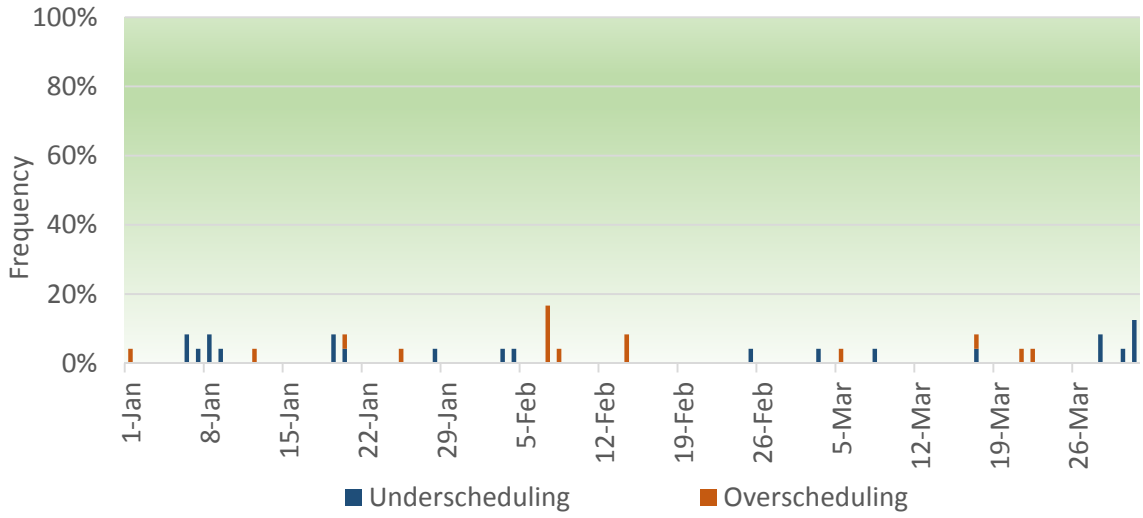
Table 2: List of valid RTD under-supply infeasibilities in the PSE balancing authority area.

Trade Date	Trade Hour	Trade Interval	MW Infeasibility	Load Conformance
06Mar2017	8	1	86.4	50
06Mar2017	8	2	66.2	50
06Mar2017	8	3	31.2	50
06Mar2017	8	4	46.8	50
06Mar2017	8	5	1.0	50
07Mar2017	21	2	41.0	
07Mar2017	21	3	152.6	
07Mar2017	21	4	56.1	
08Mar2017	17	10	21.2	50
08Mar2017	20	5	303.8	
08Mar2017	20	6	402.6	
08Mar2017	20	9	336.6	
08Mar2017	20	10	729.0	450
08Mar2017	20	11	755.4	450
08Mar2017	20	12	719.5	450
08Mar2017	21	1	224.2	200
08Mar2017	21	2	228.9	200
08Mar2017	21	3	240.8	200
08Mar2017	21	4	247.3	200
08Mar2017	21	5	286.2	200
08Mar2017	21	6	255.9	200
08Mar2017	21	7	12.9	
08Mar2017	21	9	38.5	75
08Mar2017	21	12	3.5	75
09Mar2017	21	1	48.7	
09Mar2017	21	2	27.4	
14Mar2017	18	6	5.2	
20Mar2017	21	1	37.4	225
21Mar2017	19	7	299.0	400
21Mar2017	19	8	256.1	400
27Mar2017	23	2	2.4	
27Mar2017	23	3	16.5	

c. Balancing and Sufficiency Test Failures

Figure 4 shows the trend of balancing test outcomes from October 2016 through March 2017. The CAISO performs these balancing tests pursuant to Section 29.34(k) of the CAISO tariff. The PSE balancing authority area passed the balancing test in 98.25 percent of the intervals in March. About 70 percent of the failures were for under-scheduling. The frequency of these failures are within expected performance tolerances for balancing tests.

Figure 4: Frequency of Balancing test failures in the PSE balancing authority area.



The CAISO also performs the ramping sufficiency test as specified in Section 29.34(m) of the CAISO tariff. Figure 5 shows the trend of the test failures for flexible ramping from January 2017 through March 2017. The PSE balancing authority area passed the test in 97.9 percent of the intervals in March.

Figure 5: Frequency of flexible ramp sufficiency test failures in the PSE balancing authority area.

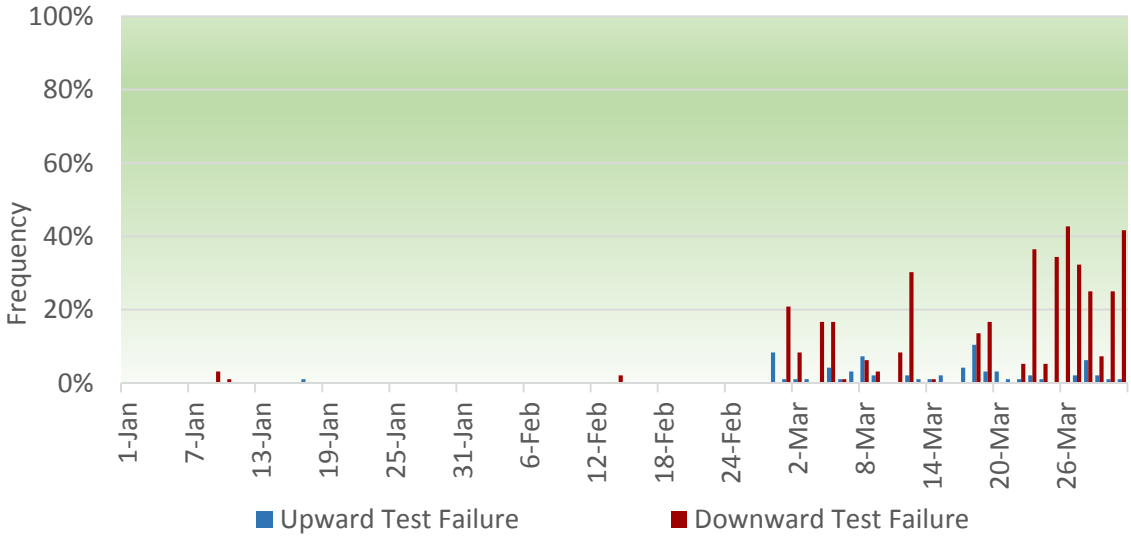
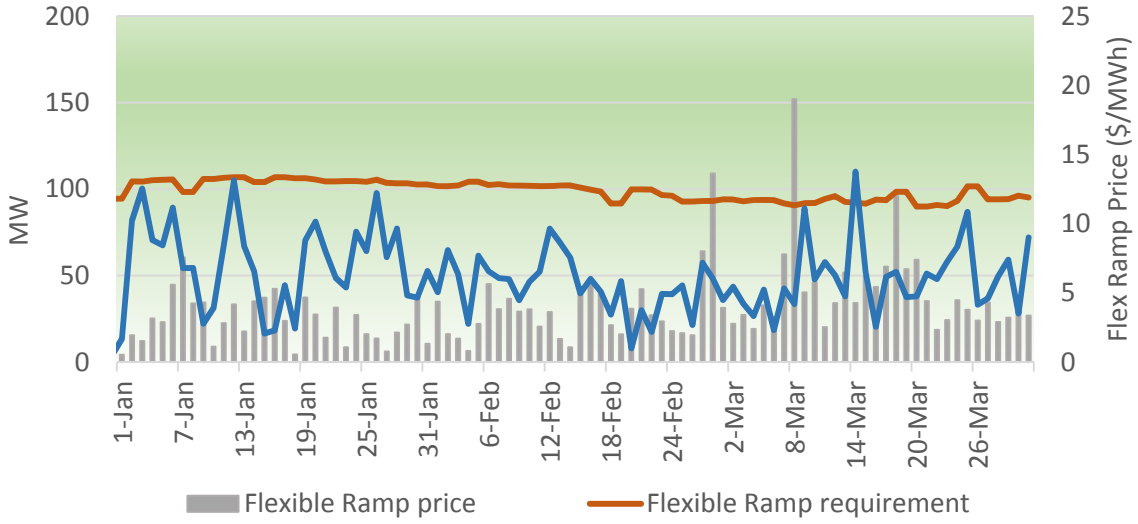


Figure 6 shows the daily average of the flexible ramping constraint requirement and procurement in the FMM. With the implementation of the flexible ramping product on November 1, 2016, the requirements are calculated based on historical data for uncertainty and offset with any applicable net import/export capability or credit. This effectively reduces the amount of flexible ramping the PSE balancing authority area has to procure and, generally, the EIM system-wide area (which includes all the balancing authority areas in the EIM, including the CAISO balancing authority area) will drive the requirements. The market clearing process may result in procuring the PSE balancing authority area capacity towards meeting the overall EIM-system-wide area requirement. This is the main reason why the individual PSE balancing authority area procurement may generally fall below the individual PSE balancing authority area requirement as of November 1, 2016. In addition, the price trend provided in Figure 6 is the nested price determined by the summation of the shadow price of the individual PSE balancing authority area plus the shadow price of the EIM system-wide area. On average, the price for upward flexible ramping went up to $5.14/MWh in March from $3.79/MWh in February.

Figure 6: Average requirement and procurement of flexible ramping in the FMM in the PSE balancing authority area.



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 20th day of June, 2017.

/s/ Grace Clark
Grace Clark