July 20, 2023

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. ER15-861-___
Western Energy Imbalance Market – Second Quarter 2023
Available Balancing Capacity Report

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) hereby submits its quarterly informational report for the second quarter of 2023 (April 1 to June 30, 2023) on the Available Balancing Capacity (ABC) enhancement for the Western Energy Imbalance Market (WEIM). The quarterly informational report is to provide the Commission with information on the performance of the ABC enhancement and to provide the same information the CAISO provides in its monthly informational reports submitted during a WEIM Entity's first six-month transition period.

Consistent with the Commission's directive in the December 17, 2015 order, the CAISO will continue to file such quarterly reports for at least the first year after implementation of the ABC enhancement, or until the Commission finds the quarterly informational reports are no longer needed.

Please contact the undersigned with any questions.

Respectfully submitted

By: *<u>/s/ John Anders</u>*

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Western Energy Imbalance Market

April 1 – June 30, 2023

Available Balancing Capacity Report

July 20, 2023

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I. Background

On December 17, 2015, the Federal Energy Regulatory Commission (Commission) approved the California Independent System Operator Corporation's (CAISO) proposed tariff revisions to comply with the Commission's July 20, 2015 order in FERC Docket No. ER15-861-006.[1] The CAISO's proposed tariff provisions enhanced the Western Energy Imbalance Market (WEIM) functionality so that the market systems automatically recognize and account for capacity a WEIM entity has available to maintain reliable operations in its own balancing authority area (BAA), but has not been bid into the WEIM.[2] This enhancement is referred to as the Available Balancing Capacity (ABC) enhancement. The CAISO implemented the ABC enhancement on March 23, 2016.

Consistent with the CAISO's commitments made in this proceeding, the Commission directed the CAISO to prepare and file with the Commission quarterly informational reports for at least the first year after implementation of the ABC enhancement, and until the Commission finds the quarterly informational reports are no longer needed.[3] The quarterly informational reports are to provide information on the performance of the ABC enhancement and to include the same information the CAISO provides in its monthly transitional period report submitted during a WEIM entity's first six-month transition period.[4] There are three WEIM entities undergoing a transition period during this quarter: Western Area Power Administration (WALC) Desert Southwest region, El Paso Electric (EPE), and Avangrid (AVRN).

[1] *Cal. Indep. Sys. Operator Corp.,* 152 FERC ¶ 61,060 (2015) (July 20 Order); and *Cal. Indep. Sys. Operator Corp*., 153 FERC ¶ 61, 305 (2015) (December 17 Order).

[2] December 17 Order at P 1.

[3] December 17 Order at P 99

[4] December 17 Order at P 39.

II. Available Balancing Capacity

A. ABC Submitted to the Market

Each WEIM entity can identify and choose the amount of Available Balancing Capacity (ABC) they will make available to the CAISO and the resources supporting this capacity through its resource plan. The WEIM entity submits this capacity to the CAISO on an hourly basis, and it is available for both the Fifteen-Minute Market (FMM) and the five-minute Real-Time Dispatch (RTD). The data in this section shows the ABC bid into, and awarded by, the market in each of the WEIM BAAs for each month within the quarter.

Table 1 below summarizes the percentage of hours in which each WEIM entity submitted upward and downward ABC bids to the WEIM for each month within the quarter. Many entities submitted ABC for nearly all intervals in each month with some exceptions. Some entities including El Paso Electric (EPE), Idaho Power Company (IPCO), and Seattle City Light (SCL) did not submit any ABC to the WEIM during the quarter. On April 5, 2023, three new entities joined the WEIM: Western Area Power Administration (WALC) Desert Southwest region, EPE, and Avangrid (AVRN).

Table 1: Frequency of ABC Submitted to the WEIM

BAA	April 2023		May 2023		June 2023	
	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity
AVA	99.86%	99.86%	100.00%	100.00%	99.86%	99.86%
AVRN	--	0.16%	--	--	--	--
AZPS	90.97%	93.89%	92.47%	93.82%	97.92%	97.64%
BANC	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
BCHA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
BPA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	55.56%	1.67%	98.52%	0.94%	100.00%	0.00%
NEVP	99.72%	78.33%	99.87%	88.31%	99.03%	68.19%
NWMT	97.22%	99.31%	99.60%	98.93%	97.92%	99.03%
PACE	7.64%	20.83%	0.54%	68.15%	5.42%	43.75%
PACW	6.39%	7.36%	0.00%	17.07%	0.00%	10.69%
PGE	100.00%	--	99.46%	0.00%	99.31%	0.00%
PNM	0.14%	81.25%	0.00%	78.23%	2.08%	43.47%
PSEI	--	--	--	--	0.00%	0.14%
SCL	--	--	--	--	--	--
SRP	99.72%	98.19%	100.00%	98.12%	100.00%	98.06%
TEP	100.00%	100.00%	99.87%	99.87%	100.00%	99.86%
TIDC	100.00%	99.86%	99.87%	100.00%	100.00%	100.00%
TPWR	98.75%	97.64%	95.70%	98.12%	100.00%	100.00%
WALC	99.52%	99.52%	98.39%	99.87%	99.03%	99.72%

Table 2 below shows the average ABC capacity, in MW, which each WEIM entity submitted to the WEIM for each month within the quarter. BCHA consistently submitted the highest average ABC capacity to the WEIM in both the upward and downward directions.

Table 2: Average ABC Capacity Submitted to the WEIM

BAA	April 2023		May 2023		June 2023	
	Upward Capacity (MW)	Downward Capacity (MW)	Upward Capacity (MW)	Downward Capacity (MW)	Upward Capacity (MW)	Downward Capacity (MW)
AVA	20	20	20	20	20	20
AVRN	--	13	--	--	--	--
AZPS	19.98	19.99	19.82	20	19.89	19.99
BANC	13.9	24.34	20.3	19.63	16.86	15.48
BCHA	589.82	299.43	900.1	297.45	594.33	291.88
BPA	154.5	163.72	131.69	163.5	154.5	163.39
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	29.2	49.59	29.78	50	30	--
NEVP	29.6	31.8	31.5	42.1	37.2	46.35
NWMT	5	5	5	5	5	5
PACE	36.95	72.32	43.33	55.03	31.67	70.21
PACW	85.98	36.51	--	44.49	--	25.84
PGE	30.03	--	29.93	--	29.83	--
PNM	6.5	28.16	--	31.77	111.8	37.06
PSEI	--	--	--	--	--	10
SCL	--	--	--	--	--	--
SRP	31.2	25.9	25.48	20.81	24.67	23.09
TEP	13.34	19.11	13.27	20.34	14.4	23.89
TIDC	15	5	14.94	4.99	14.97	5
TPWR	1.28	1.53	1.62	5.18	1.16	1.87
WALC	22.27	22.31	17.59	17.55	17.45	17.42

Table 3 below show the maximum ABC capacity, in MW, which each WEIM entity submitted to the WEIM for each month within the quarter. The highest ABC bid was submitted by BCHA in the upward direction for 1000 MW, which was consistent across all three months of the quarter.

Table 3: Maximum ABC Capacity Submitted to the WEIM

BAA	April 2023		May 2023		June 2023	
	Upward Capacity (MW)	Downward Capacity (MW)	Upward Capacity (MW)	Downward Capacity (MW)	Upward Capacity (MW)	Downward Capacity (MW)
AVA	20	20	20	20	20	20

AVRN	--	13	--	--	--	--
AZPS	33	20	20	20	20	20
BANC	75	90	120	74	85	100
BCHA	1000	500	1000	500	1000	500
BPA	306	535	307	321	297	313
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	30	53	30	50	30	--
NEVP	50	50	70	70	70	71
NWMT	5	5	5	5	5	5
PACE	100	90	50	90	50	90
PACW	150	80	--	225	--	30
PGE	35	--	30	--	30	--
PNM	7	75	--	173	116	75
PSEI	--	--	--	--	--	10
SCL	--	--	--	--	--	--
SRP	181	50	100	50	100	50
TEP	41	50	75	44	75	62
TIDC	15	5	15	5	15	5
TPWR	3.5	3	5	55	2	3.5
WALC	25	25	20	20	20	21

Table 4 below shows the number of different resources supporting the ABC that the WEIM entities bid into the WEIM in both the upward and downward directions, for each month within the quarter. A maximum of 22 resources supported upward ABC capacity bids submitted by SRP. Some entities used as few as one resource to support their ABC bids.

Table 4: Number of Resources Supporting ABC

BAA	April 2023		May 2023		June 2023	
	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity
AVA	6	6	5	5	9	9
AVRN	--	1	--	--	--	--
AZPS	6	5	8	6	10	10
BANC	15	14	14	14	12	13
BCHA	2	2	2	2	2	2
BPA	2	2	3	2	2	3
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	1	3	1	2	1	--
NEVP	10	10	9	8	12	12
NWMT	2	2	2	2	2	2
PACE	3	6	3	5	3	5
PACW	2	2	--	4	--	1

PGE	1	--	3	--	4	--
PNM	2	6	--	8	1	10
PSEI	--	--	--	--	--	1
SCL	--	--	--	--	--	--
SRP	25	19	18	21	22	19
TEP	11	14	16	15	10	16
TIDC	3	3	3	3	1	1
TPWR	4	5	5	4	4	4
WALC	4	4	4	5	2	5

B. ABC Awarded by the Market

Table 5 below shows the frequency of each WEIM entities' dispatched ABC for the FMM market, when the WEIM entities made ABC available, for each month within the quarter. Overall, the market dispatched ABC quite infrequently throughout the quarter. The highest frequency of ABC dispatch in FMM occurred in April 2023 for WALC's bid-in downward ABC capacity. Often, the market dispatched ABC around or less than 1 percent of the time during the month.

Table 5: Frequency of ABC Dispatched by WEIM in the FMM

BAA	April 2023		May 2023		June 2023	
	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity
AVA	0.17%	--	--	--	--	--
AVRN	--	--	--	--	--	--
AZPS	0.45%	0.04%	0.03%	0.13%	0.07%	0.04%
BANC	--	--	0.27%	--	--	--
BCHA	--	--	0.07%	0.03%	--	--
BPA	--	0.28%	0.94%	1.45%	0.14%	0.17%
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	--	--	--	--	--	--
NEVP	0.17%	0.42%	0.03%	0.97%	0.07%	0.73%
NWMT	--	--	0.03%	--	--	0.07%
PACE	--	0.07%	--	0.37%	--	0.17%
PACW	--	--	--	--	--	--
PGE	0.04%	--	0.34%	--	0.04%	--
PNM	--	2.71%	--	3.43%	--	2.81%
PSEI	--	--	--	--	--	--
SCL	--	--	--	--	--	--
SRP	2.78%	0.07%	2.72%	0.13%	1.56%	0.10%
TEP	0.07%	--	--	0.07%	0.04%	--
TIDC	--	0.07%	--	0.10%	--	--
TPWR	--	--	--	0.07%	--	--

WALC	4.93%	5.69%	1.24%	0.40%	0.45%	0.31%

Table 6 below shows the frequency of each WEIM entities' dispatched ABC for the RTD market, when the WEIM entities made ABC available, for each month within the quarter. Overall, the market dispatched ABC infrequently throughout the quarter. The highest frequency of ABC dispatch in RTD occurred in May 2023 on PACE's bid-in downward ABC capacity. Often, the market dispatched ABC less than or around 1 percent of the time during the month.

Table 6: Frequency of ABC Dispatched by WEIM in the RTD

BAA	April 2023		May 2023		June 2023	
	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity	Upward Capacity	Downward Capacity
AVA	0.06%	0.02%	0.10%	--	0.05%	0.04%
AVRN	--	--	--	--	--	--
AZPS	0.15%	0.07%	0.09%	0.12%	0.24%	--
BANC	0.38%	0.76%	0.25%	0.06%	0.46%	--
BCHA	--	1.55%	0.10%	0.11%	--	0.15%
BPA	0.20%	0.16%	0.52%	0.38%	--	--
EPE	--	--	--	--	--	--
IPCO	--	--	--	--	--	--
LADWP	0.09%	--	0.01%	--	0.04%	--
NEVP	0.34%	0.19%	0.02%	0.24%	0.23%	0.19%
NWMT	0.14%	--	--	--	0.01%	--
PACE	0.02%	0.06%	--	9.53%	--	1.85%
PACW	--	--	--	--	--	--
PGE	0.08%	--	0.33%	--	0.12%	--
PNM	--	1.47%	--	1.96%	--	1.74%
PSEI	--	--	--	--	--	--
SCL	--	--	--	--	--	--
SRP	2.78%	0.39%	4.59%	0.59%	2.98%	0.54%
TEP	0.12%	0.95%	0.43%	0.21%	0.37%	0.12%
TIDC	--	--	0.01%	0.07%	--	--
TPWR	--	--	0.03%	0.13%	--	--
WALC	3.02%	6.82%	2.40%	0.36%	1.56%	0.27%

C. ABC and Power Balance Constraint Infeasibilities

The purpose of the ABC enhancement is to make capacity available that otherwise would not be visible to the WEIM. The primary objective in making such capacity available is that the WEIM can recognize and access that capacity when the conditions warrant its use, namely when the WEIM is running out of capacity made available through economic bids. The ABC is capacity stacked above economic bids, but below the power balance

constraint relaxation penalty price. When the market is tight in supply and it has exhausted all effective economic bids, the market clearing process will access the ABC. If there is sufficient ABC, the WEIM will relax the power balance constraint to clear the market. As such, the market clearing process uses the ABC to resolve the power balance infeasibility. If instead the ABC identified is not sufficient to cure the infeasibility, the ABC may be exhausted and there may still be the need to relax the power balance constraint in order to clear the WEIM.

Table 7 below shows the frequency of intervals in which the WEIM entities did not make any ABC available to the WEIM, when there was a power balance infeasibility for each month within the quarter, in the FMM. Specifically, the data in the table below provides the percentage amount of over-supply infeasibilities where downward ABC was needed, and under-supply infeasibilities where upward ABC was needed. No data indicates that there were no infeasibilities during the period. A metric of 0 percent indicates that in all intervals when there was an infeasibility observed, the WEIM entity did submit ABC to the WEIM. A metric of 100 percent indicates that in all intervals when there was an infeasibility observed, the WEIM entity did not submit any ABC to the WEIM. These instances occurred relatively infrequently throughout the quarter, indicating that the WEIM entities typically had submitted ABC bids during instances when infeasibilities were observed.

Table 7: Frequency of Power Balance Infeasibilities When ABC was not Submitted in FMM

BAA	April 2023		May 2023		June 2023	
	Over-supply	Under-supply	Over-supply	Under-supply	Over-supply	Under-supply
AVA	--	0.00%	--	--	--	--
AVRN	--	--	--	100.00%	--	--
AZPS	100.00%	14.29%	70.00%	100.00%	0.00%	0.00%
BANC	--	--	--	0.00%	--	--
BCHA	--	--	--	--	--	--
BPA	--	--	0.00%	0.00%	0.00%	0.00%
EPE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
IPCO	--	--	--	100.00%	--	--
LADWP	--	--	--	--	--	--
NEVP	--	0.00%	100.00%	--	--	--
NWMT	--	100.00%	--	0.00%	--	--
PACE	--	--	--	--	--	--
PACW	--	--	--	--	--	100.00%
PGE	--	0.00%	--	0.00%	--	0.00%
PNM	0.00%	100.00%	0.00%	100.00%	--	100.00%
PSEI	--	--	--	100.00%	--	--
SCL	100.00%	--	100.00%	--	100.00%	--
SRP	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%
TEP	--	--	--	--	--	--
TIDC	0.00%	--	0.00%	--	--	--

TPWR	--	--	0.00%	--	--	--
WALC	0.00%	0.00%	--	0.00%	50.00%	0.00%

Table 8 below shows the frequency of intervals in which the WEIM entities did not make any ABC available to the WEIM, when there was a power balance infeasibility for each month within the quarter, in the RTD. Instances of observed infeasibilities with no submitted ABC occurred more frequently in RTD than FMM.

Table 8: Frequency of Power Balance Infeasibilities When ABC was not Submitted in RTD

BAA	April 2023		May 2023		June 2023	
	Over-supply	Under-supply	Over-supply	Under-supply	Over-supply	Under-supply
AVA	0.00%	0.00%	--	0.00%	0.00%	0.00%
AVRN	--	100.00%	--	100.00%	--	100.00%
AZPS	67.86%	24.14%	78.85%	35.00%	--	0.00%
BANC	--	--	--	0.00%	--	--
BCHA	--	--	--	--	--	--
BPA	0.00%	--	0.00%	0.00%	0.00%	0.00%
EPE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
IPCO	100.00%	100.00%	--	100.00%	--	--
LADWP	--	33.33%	--	0.00%	--	--
NEVP	--	0.00%	100.00%	0.00%	--	0.00%
NWMT	--	16.67%	--	0.00%	--	85.71%
PACE	--	--	--	100.00%	--	--
PACW	--	--	--	--	--	--
PGE	--	0.00%	--	51.43%	--	0.00%
PNM	0.00%	100.00%	0.00%	100.00%	--	100.00%
PSEI	--	100.00%	100.00%	100.00%	--	100.00%
SCL	100.00%	100.00%	100.00%	--	100.00%	--
SRP	58.33%	0.00%	7.14%	0.00%	0.00%	0.00%
TEP	--	0.00%	--	0.00%	--	0.00%
TIDC	--	--	--	--	--	--
TPWR	--	--	0.00%	50.00%	--	--
WALC	0.00%	0.00%	--	0.00%	42.86%	0.00%

III. WEIM Performance

This section provides the information the CAISO previously provided in its monthly transition period report submitted during a WEIM entity's first six-month transition period.

A. ELAP Prices

The figures in this section show the WEIM load aggregation point (ELAP) prices[5] for the FMM and RTD in each WEIM BAA. In prior reports, the CAISO provided these factual prices in comparison to counterfactual prices in order to show the effect of using the pricing waiver of the price discovery mechanism.[6]

The CAISO may correct prices posted on its Open Access Same-time Information System (OASIS) pursuant to the CAISO's price correction authority in section 35 of the CAISO tariff, if it finds: (1) that the prices were the product of an invalid market solution; or (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 the figures below include all prices produced by the CAISO consistent with the CAISO tariff requirements. That is, the trends below represent: (1) prices as produced in the market for which the CAISO deemed valid; (2) prices that the CAISO could and did correct pursuant to section 35; and (3) any prices the CAISO adjusted pursuant to transition period pricing reflected in section 29.27 of the CAISO tariff.

Table 9 below shows the average ELAP prices for all WEIM entities for each month within the quarter. Prices generally trended lower throughout the quarter, with some low averages observed in May 2023.

Table 9: Average FMM and RTD ELAP Prices

BAA	April 2023		May 2023		June 2023	
	FMM ($/MWh)	RTD ($/MWh)	FMM ($/MWh)	RTD ($/MWh)	FMM ($/MWh)	RTD ($/MWh)
AVA	63.82	55.88	11.58	9.61	27.28	26.87
AVRN	60.99	55.91	6.61	6.07	28.21	27.45
AZPS	50.37	41.48	17.17	14.88	24.27	24.05
BANC	58.48	49.3	18.53	15.65	29.79	29.36
BCHA	79.47	76.73	14.31	13.56	55.01	51.82
BPA	62.46	57.2	5.4	4.45	28.85	27.5
EPE	34.21	28.02	18.1	15.76	23.18	23.12

[5] The ELAP provides aggregate prices that are representative of pricing in the overall BAA.

[6] In Docket ER15-402, the CAISO reported on prices based on the price discovery mechanism in effect during the term of the Commission's waiver granted in that docket and the prices as they would be if the waiver was not in effect, *i.e.*, what prices would have been had they been on the penalty prices in the CAISO tariff. Because pricing under the waiver pricing is based on the last economic bid price signal, these prices are a proxy of what the prices would have been absent the seven category of learning curve type issues experience in that market. The difference between the counterfactual pricing and the price in effect during the term of the reports in that docket illustrated the market impact of the waiver pricing.

IPCO	58.92	51.16	16.39	13.29	26.6	25.94
LADWP	48.53	41.48	20.18	15.88	26.73	25.71
NEVP	49.65	41.96	17.47	13.95	22.98	21.88
NWMT	61.52	55.74	12.59	9.49	26.9	27.2
PACE	52.27	44.82	18.14	13.85	25.58	24.7
PACW	61.35	55.86	5.85	5.53	27.5	26.48
PGE	62.36	56.45	9.1	9.36	29.11	27.36
PNM	67.27	52.63	17.36	13.99	24.1	24.26
PSEI	61.69	56.2	8.33	6.76	29.34	27.83
SCL	61.26	55.72	6.12	5.36	28.19	27.06
SRP	49.92	44.53	22.01	23.56	24.41	25.81
TEP	46.8	40.32	21.19	19.68	25.77	25.67
TIDC	61.3	51.83	18.54	15.95	30.25	29.81
TPWR	61.57	56.1	6.08	5.3	28.83	27.62
WALC	55.05	38.78	19.89	19.25	24.4	25.63

B. Balancing Test Failures

The CAISO performs the balancing test pursuant to Section 29.34(k) of the CAISO tariff. Powerex (BCHA) is not subject to the balancing test.

Table 10 below shows the frequency that each WEIM entity passed the balancing test, as well as what percentage of balancing test failures were due to under-scheduling and over-scheduling, for each month within the quarter. Overall, the entities passed the balancing test at high frequencies throughout the quarter.

Table 10: Frequency of Passing Balancing Test

BAA	April 2023	May 2023	June 2023
AVA	99.17%	99.87%	99.72%
AVRN	98.40%	98.38%	97.78%
AZPS	95.28%	94.08%	98.06%
BANC	99.58%	99.60%	99.44%
BCHA	--	--	--
BPA	99.17%	98.25%	98.74%
EPE	99.20%	99.73%	99.03%
IPCO	99.72%	99.46%	99.86%
LADWP	99.31%	98.92%	99.03%
NEVP	93.33%	96.10%	95.00%
NWMT	98.75%	99.33%	99.44%
PACE	98.19%	98.25%	97.50%
PACW	98.61%	98.65%	98.33%
PGE	99.44%	98.79%	98.47%
PNM	94.17%	92.73%	95.97%
PSEI	99.44%	96.37%	97.50%

SCL	99.44%	99.87%	100.00%
SRP	96.81%	97.31%	97.22%
TEP	98.89%	99.60%	98.89%
TIDC	99.72%	99.46%	99.86%
TPWR	99.86%	99.60%	99.86%
WALC	96.47%	99.06%	99.44%

Table 11 below shows the frequency of balancing test failures due to over-scheduling and under-scheduling respectively, for each month of the quarter. Overall, balancing test failures were more due to under-scheduling than over-scheduling.

Table 11: Frequency of Balancing Test Failures due to Over-Scheduling and Under-Scheduling

BAA	April 2023		May 2023		June 2023	
	Over-scheduling	Under-Scheduling	Over-scheduling	Under-Scheduling	Over-scheduling	Under-Scheduling
AVA	16.67%	83.33%	100.00%	0.00%	0.00%	100.00%
AVRN	50.00%	50.00%	58.33%	41.67%	25.00%	75.00%
AZPS	20.59%	79.41%	31.82%	68.18%	21.43%	78.57%
BANC	33.33%	66.67%	33.33%	66.67%	50.00%	50.00%
BCHA	--	--	--	--	--	--
BPA	50.00%	50.00%	15.38%	84.62%	55.56%	44.44%
EPE	80.00%	20.00%	0.00%	100.00%	42.86%	57.14%
IPCO	50.00%	50.00%	50.00%	50.00%	0.00%	100.00%
LADWP	20.00%	80.00%	62.50%	37.50%	71.43%	28.57%
NEVP	83.33%	16.67%	75.86%	24.14%	88.89%	11.11%
NWMT	44.44%	55.56%	40.00%	60.00%	25.00%	75.00%
PACE	61.54%	38.46%	46.15%	53.85%	50.00%	50.00%
PACW	60.00%	40.00%	40.00%	60.00%	41.67%	58.33%
PGE	50.00%	50.00%	22.22%	77.78%	45.45%	54.55%
PNM	71.43%	28.57%	50.00%	50.00%	27.59%	72.41%
PSEI	25.00%	75.00%	33.33%	66.67%	16.67%	83.33%
SCL	75.00%	25.00%	100.00%	0.00%	0.00%	0.00%
SRP	39.13%	60.87%	35.00%	65.00%	55.00%	45.00%
TEP	75.00%	25.00%	33.33%	66.67%	87.50%	12.50%
TIDC	100.00%	0.00%	75.00%	25.00%	0.00%	100.00%
TPWR	0.00%	100.00%	33.33%	66.67%	100.00%	0.00%
WALC	31.82%	68.18%	50.00%	50.00%	50.00%	50.00%

C. Flexible Ramp Sufficiency Test Failures

Table 12 below shows the frequency that each WEIM entity passed the flexible ramping sufficiency test in the upward and downward directions, for each month within

the quarter. Generally, the entities passed the flexible ramp sufficiency test very frequently throughout the months in the quarter.

Table 12: Frequency of Passing Flexible Ramping Sufficiency Test

BAA	April 2023		May 2023		June 2023	
	Upward Direction	Downward Direction	Upward Direction	Downward Direction	Upward Direction	Downward Direction
AVA	99.76%	99.86%	99.76%	99.93%	99.97%	100.00%
AVRN	98.96%	99.92%	99.26%	100.00%	99.93%	100.00%
AZPS	98.85%	99.31%	99.76%	98.79%	99.86%	99.86%
BANC	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%
BCHA	100.00%	99.76%	100.00%	100.00%	100.00%	100.00%
BPA	99.79%	99.44%	98.75%	94.77%	99.65%	99.97%
EPE	99.20%	99.84%	99.43%	99.09%	99.72%	98.12%
IPCO	99.69%	99.83%	99.46%	100.00%	99.93%	100.00%
LADWP	99.93%	100.00%	99.97%	100.00%	99.93%	100.00%
NEVP	99.93%	99.97%	99.90%	99.93%	99.97%	99.62%
NWMT	99.24%	100.00%	99.66%	99.83%	99.83%	99.79%
PACE	99.93%	100.00%	100.00%	100.00%	99.97%	100.00%
PACW	99.90%	99.97%	99.39%	99.76%	99.97%	99.97%
PGE	99.86%	100.00%	98.45%	100.00%	99.34%	100.00%
PNM	94.90%	98.40%	99.13%	97.95%	99.44%	100.00%
PSEI	99.76%	100.00%	98.96%	99.16%	99.44%	100.00%
SCL	100.00%	99.72%	100.00%	99.97%	100.00%	99.69%
SRP	97.95%	99.65%	99.36%	99.87%	99.83%	99.93%
TEP	99.86%	100.00%	99.90%	100.00%	100.00%	100.00%
TIDC	99.97%	99.86%	100.00%	99.63%	100.00%	100.00%
TPWR	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%
WALC	99.12%	98.44%	99.60%	99.13%	99.20%	99.31%

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 July 2023.

/s/ Ariana Rebancos

Ariana Rebancos