WESTERN ENERGY IMBALANCE MARKET BENEFITS REPORT

Second Quarter 2025

Prepared by: Market Performance and Advanced Analytics

July 31, 2025

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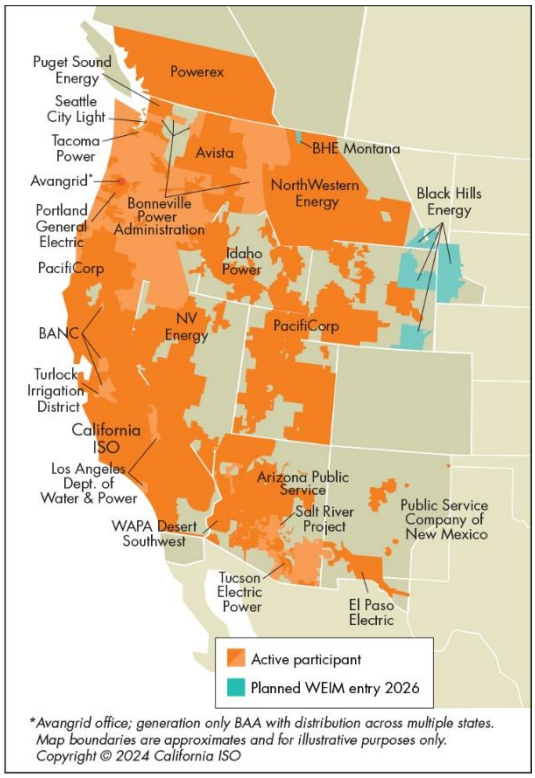
EXECUTIVE SUMMARY

Gross benefits from WEIM since November 2014

$7.41 billion

This report presents the benefits associated with participation in the Western Energy Imbalance Market (WEIM).

The measured benefits of participation in the WEIM include cost savings, increased integration of renewable energy, and improved operational efficiencies including the reduction of the need for real-time flexible reserves. The WEIM also provides significant reliability benefits by enhancing situational awareness and supporting access to surplus renewable energy across a broader western footprint.



Q2 2025 Gross Benefits by Participant (entry year)

($ millions)

Arizona Public Service (2016)	$11.21
AVANGRID (2023)	$13.52
Avista (2022)	$2.42
Balancing Authority of Northern California (2019)	$35.86
Bonneville Power Administration (2022)	$5.81
California ISO (2014)	$27.18
El Paso Electric (2023)	$3.07
Idaho Power Company (2018)	$11.15
Los Angeles Dept. of Water & Power (2021)	$32.17
NV Energy (2015)	$84.12
NorthWestern Energy (2021)	$19.33
PacifiCorp (2014)	$33.02
Portland General Electric (2017)	$9.49
Public Service Company New Mexico (2021)	$48.96
Puget Sound Energy (2016)	$11.94
Powerex (2018)	$7.28
Seattle City Light (2020)	$11.90
Salt River Project (2020)	$30.01
Tacoma Power (2022)	$6.36
Tucson Electric Power (2022)	$4.36
Turlock Irrigation District (2021)	$0.84
WAPA Desert Southwest Region (2023)	$10.44
Total	$420.44

2025 Q2 BENEFITS

ECONOMICAL

$420.44 M

Gross benefits realized due to more efficient inter- and intra-regional dispatch in the Fifteen-Minute Market (FMM) and Real-Time Dispatch (RTD)*

ENVIRONMENTAL

48,241

Metric tons of CO_2** avoided curtailments

OPERATIONAL

61%

Average reduction in flexibility reserves across the footprint

This analysis demonstrates the benefit of economic dispatch in the real time market across a larger WEIM footprint with diverse resources and geography.

*WEIM Quarterly Benefit Report Methodology: https://www.westerneim.com/Documents/EIM-BenefitMethodology.pdf.

**The GHG emission reduction reported is associated with the avoided curtailment only. The current market process and counterfactual methodology cannot differentiate the GHG emissions resulting from serving ISO load via the WEIM versus dispatch that would have occurred external to the ISO without the WEIM. For more details, see http://www.caiso.com/Documents/GreenhouseGasEmissionsTrackingReport-FrequentlyAskedQuestions.pdf

*** In this report, California ISO is the balancing area and not a market participant. The benefits estimated for the California ISO balancing area in this report are realized to its market participants instead of the California ISO Corporation.

BACKGROUND

The WEIM began financially binding operation on November 1, 2014, by optimizing resources across the ISO and PacifiCorp Balancing Authority Areas (BAAs). Since then, the WEIM has continued to grow and now includes 22 market participants and represents nearly 80% of the demand for electricity in the Western interconnection. Today, the WEIM footprint includes portions of Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Texas and extends to the border with Canada.

WEIM ECONOMIC BENEFITS IN Q2 2025

Table 2 shows the estimated WEIM gross benefits by each region per month[1]. The monthly savings presented show $130.24 million for April, $131.84 million for May and $158.36 million for June with a total estimated benefit of $420.44 million for this quarter[2]. This level of WEIM benefits accrued from having additional WEIM areas participating in the market and economical transfers displacing more expensive generation.

[1] The WEIM benefits reported here are calculated based on available data. Intervals without complete data are excluded in the calculation. The intervals excluded due to unavailable data are normally within a few percent points of the total intervals.
[2] For several quarterly estimates, CAISO benefits were calculated on a variation of the counterfactual methodology. For CAISO only the logic had considered offline resources as part of the bid stack in the counterfactual. In Q4 2021, CAISO identified some questionable results that drove persistent negative benefits for CAISO when considering offline resources. Since Q4 2021, the benefit calculation for CAISO area follows the same methodology applicable to all WEIM entities in which only online resources are used.

Region	April	May	June	Total
APS	$1.20	$3.13	$6.88	$11.21
AVRN	$4.68	$4.66	$4.18	$13.52
AVA	$0.93	$0.87	$0.62	$2.42
BANC	$13.15	$9.19	$13.52	$35.86
BPA	$1.97	$1.22	$2.62	$5.81
CISO	$6.74	$7.96	$12.48	$27.18
EPE	$1.05	$0.75	$1.27	$3.07
IPCO	$4.78	$3.32	$3.05	$11.15
LADWP	$10.25	$11.25	$10.67	$32.17
NVE	$31.33	$29.68	$23.11	$84.12
NWMT	$6.05	$4.66	$8.62	$19.33
PAC	$11.77	$10.39	$10.86	$33.02
PGE	$3.36	$3.42	$2.71	$9.49
PNM	$13.32	$18.44	$17.20	$48.96
PSE	$2.32	$3.99	$5.63	$11.94
PWRX	$2.64	$2.59	$2.05	$7.28
SCL	$4.43	$3.69	$3.78	$11.90
SRP	$4.67	$6.43	$18.91	$30.01
TPWR	$0.85	$1.77	$3.74	$6.36
TEP	$1.81	$1.36	$1.19	$4.36
TID	$0.29	$0.35	$0.20	$0.84
WALC	$2.65	$2.72	$5.07	$10.44
Total	$130.24	$131.84	$158.36	$420.44

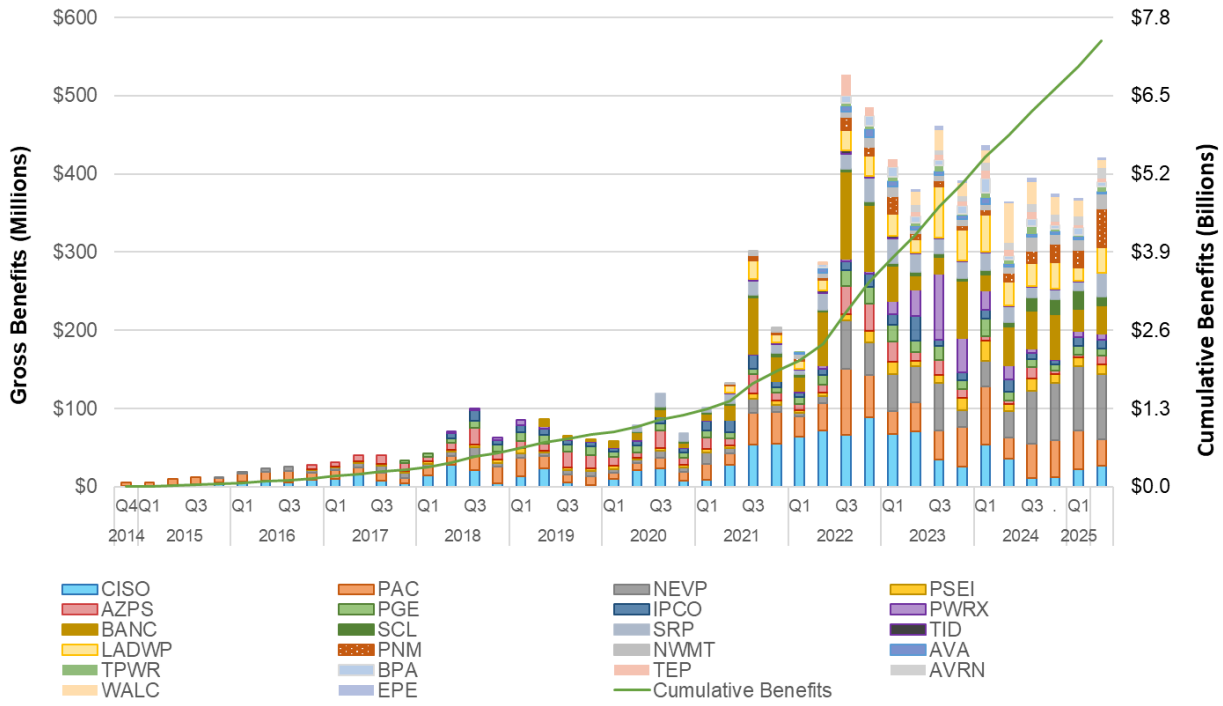
TABLE 1: Q2 2025 benefits in millions USD

CUMULATIVE ECONOMIC BENEFITS SINCE INCEPTION

Since the start of the WEIM in November 2014, the cumulative economic benefits of the market have totaled $7.41 billion. The quarterly benefits have grown over time as a result of the participation of new BAAs, which results in benefits for both the individual BAA but also compounds the benefits to adjacent BAAs through additional transfers. The ISO began publishing quarterly WEIM benefit reports in April 2015.[3]

Graph 1 illustrates the gross economic benefits of the WEIM by quarter for each participating BAA.

[3] Prior reports are available at https://www.westerneim.com/Pages/About/QuarterlyBenefits.aspx



GRAPH 1: Cumulative economic benefits for each quarter by BAA

INTER-REGIONAL TRANSFERS

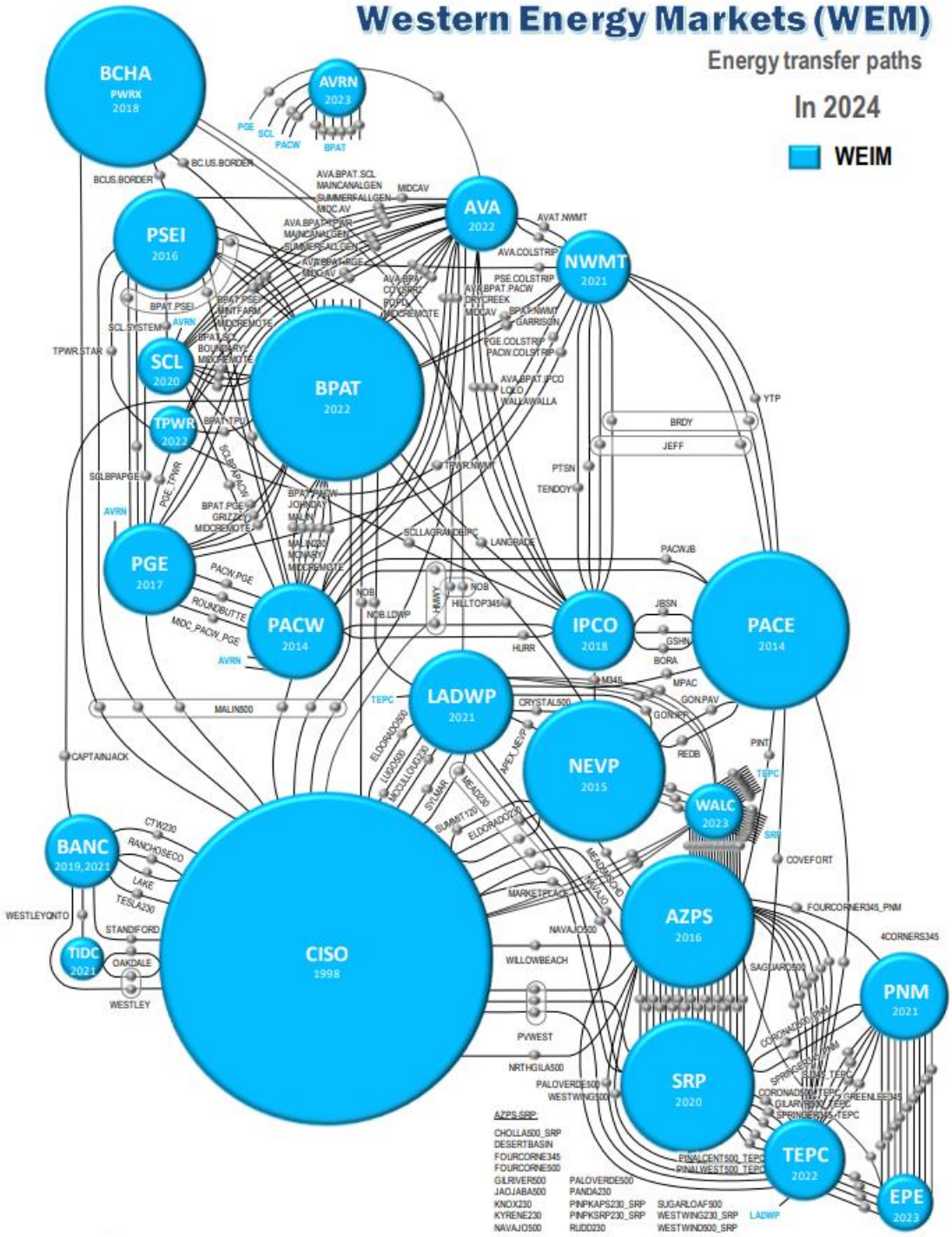
A significant contributor to WEIM benefits is transfers across balancing areas, providing access to lower cost supply, while factoring in the cost of compliance with greenhouse gas (GHG) emissions regulations when energy is transferred into the ISO. As such, the transfer volumes are a good indicator of a portion of the benefits attributed to the WEIM. Transfers can take place in both the 15-Minute Market and Real-Time Dispatch (RTD).

Generally, transfer limits are based on transmission and interchange rights that participating balancing authority areas make available to the WEIM, with the exception of the PacifiCorp West (PACW) -ISO transfer limit and the Portland General Electric (PGE) -ISO transfer limit in RTD. These RTD transfer capacities between PACW/PGE and the ISO are determined based on the allocated dynamic transfer capability driven by system operating conditions. This report does not quantify a BAA's opportunity cost that the utility considered when using its transfer rights for the WEIM. Graph 2 illustrates the WEIM ETSR (Energy Transfer System Resource).

Appendix 2 provides the 15-minute and 5-minute WEIM transfer volumes with base schedule transfers excluded. The WEIM entities submit inter-BAA transfers in their base schedules. The benefits quantified in this report are only attributable to the transfers that occurred through the WEIM. The benefits do not include any transfers attributed to transfers submitted in the base schedules that are scheduled prior to the start of the WEIM.

The transfer from BAA_x to BAA_y and the transfer from BAA_y to BAA_x are separately reported. For example, if there is a 100 Megawatt-Hour (MWh) transfer during a 5-minute interval, in addition to a base transfer from ISO to NVE, it will be reported as 100 MWh from_BAA ISO to_BAA NEVP, and 0 MWh from_BAA NEVP to_BAA ISO in the opposite

direction. The 15-minute transfer volume is the result of optimization in the 15-minute market using all bids and base schedules submitted into the WEIM. The 5-minute transfer volume is the result of optimization using all bids and base schedules submitted into WEIM, based on unit commitments determined in the 15-minute market optimization.



GRAPH 2: WEIM transfer

WHEEL-THROUGH TRANSFERS

As the footprint of the WEIM grows, wheel-through transfers may become more common. In order to derive the wheel-through transfers for each WEIM BAA, the ISO uses the following calculation for every real-time interval dispatch:

- *Total import*: summation of transfers above base transfers coming into the WEIM BAA under analysis
- *Total export*: summation of all transfers above base transfers going out of the WEIM BAA under analysis
- *Net import*: the maximum of zero or the difference between total imports and total exports
- *Net export*: the maximum of zero or the difference between total exports and total imports
- *Wheel-through*: the minimum of the WEIM transfers into (total import) or WEIM transfer out (total export) of a BAA for a given interval

All wheel-through transfers are summed over both the month and the quarter.

Currently, a WEIM entity facilitating a wheel through receives no direct financial benefit for facilitating the wheel; only the sink and source directly benefit. As part of the WEIM Consolidated Initiatives stakeholder process, the ISO committed to monitoring the wheel through volumes to assess whether, after the addition of new WEIM entities, there is a potential future need to pursue a market solution to address the equitable sharing of wheeling benefits.

The ISO will continue to track the volume of wheel-through transfers in the WEIM market in the quarterly reports.

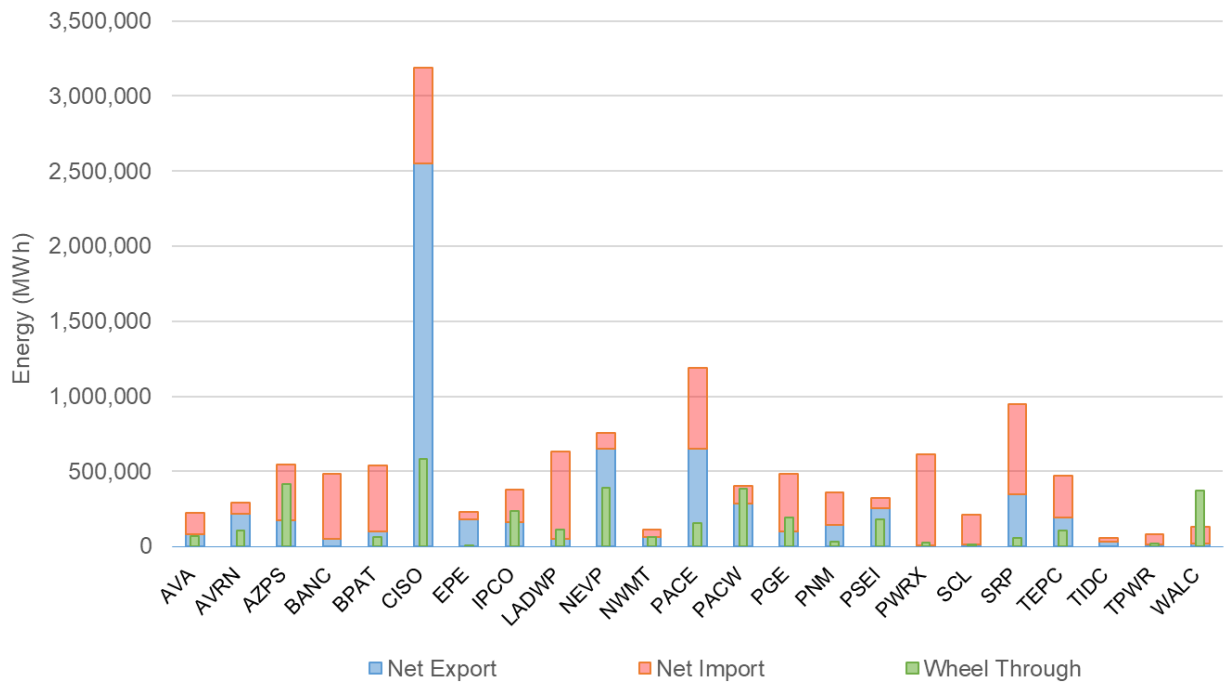
This volume reflects the total wheel-through transfers for each WEIM BAA, regardless of the potential paths used to wheel through. The net imports and exports estimated in this section reflect the overall volume of net imports and exports; in contrast, the imports and exports provided in Table 2 reflect the gross transfers between two WEIM BAAs.

The metric is measured as energy in MWh for each month and the corresponding calendar quarter, as shown in Tables 3 through 6 and Graphs 3 through 6.

BAA	Net Export	Net Import	Wheel Through
AVA	82,329	143,778	68,166
AVRN	213,961	74,443	107,822
AZPS	175,459	367,096	413,625
BANC	51,276	429,122	-
BPAT	101,213	435,862	63,331
CISO	2,549,548	641,660	581,943
EPE	182,778	49,500	4,582
IPCO	161,938	218,682	233,497
LADWP	52,814	577,943	112,953

NEVP	648,995	109,547	388,671
NWMT	62,452	50,237	60,210
PACE	647,499	542,142	152,941
PACW	283,764	117,407	384,732
PGE	100,982	382,561	190,053
PNM	142,768	218,641	28,702
PSEI	256,891	67,884	179,358
PWRX	5,129	611,111	22,001
SCL	15,633	196,373	12,219
SRP	347,571	603,028	57,455
TEPC	191,427	278,118	105,690
TIDC	28,193	30,087	-
TPWR	11,706	69,178	20,387
WALC	16,250	116,176	374,706

TABLE 2: Estimated wheel-through transfers in Q2 2025

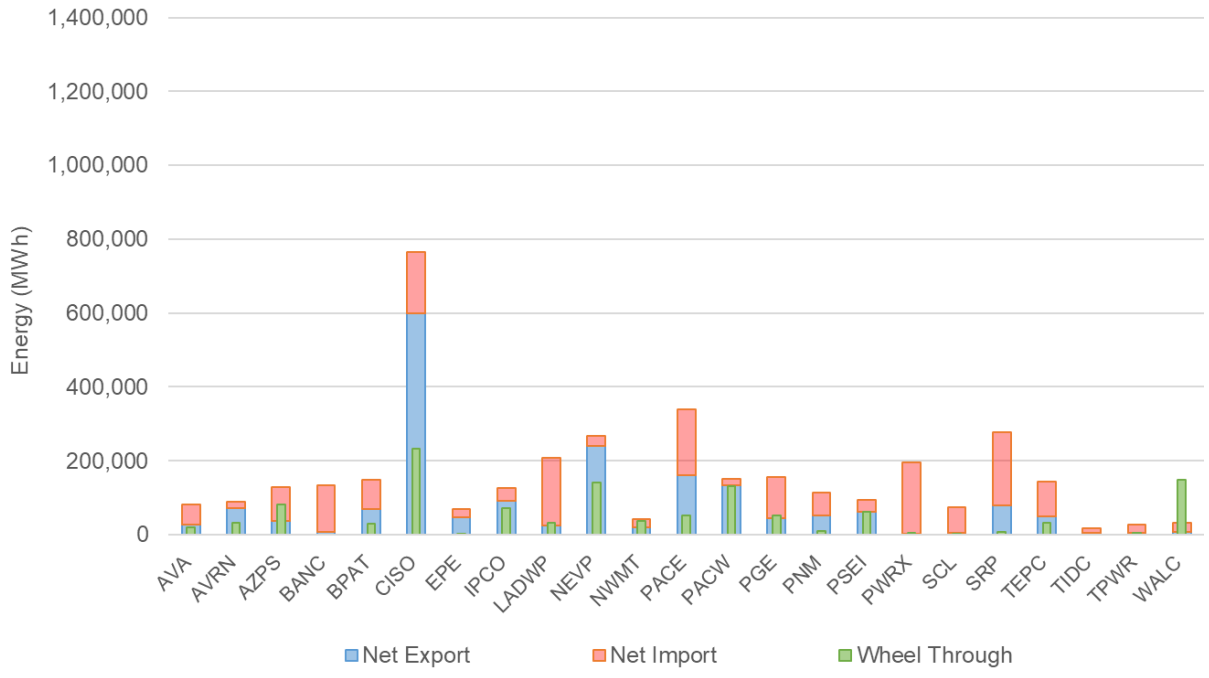


GRAPH 3: Estimated wheel-through transfers in Q2 2025

BAA	Net Export	Net Import	Wheel Through
AVA	26,239	54,344	19,577
AVRN	71,368	18,567	32,730
AZPS	37,761	90,390	82,645
BANC	8,270	124,612	-
BPAT	70,318	76,953	30,102

CISO	598,779	165,545	233,175
EPE	45,756	23,185	2,733
IPCO	90,360	36,219	70,883
LADWP	23,794	184,032	31,003
NEVP	240,273	26,661	141,345
NWMT	19,896	20,892	36,057
PACE	160,039	179,313	51,561
PACW	133,985	17,199	131,083
PGE	45,222	109,946	51,811
PNM	52,756	60,455	8,615
PSEI	61,490	33,565	60,584
PWRX	1,446	194,429	5,087
SCL	5,107	70,051	3,269
SRP	78,333	199,829	7,356
TEPC	49,311	94,578	32,911
TIDC	4,695	11,454	-
TPWR	4,994	22,047	6,042
WALC	8,272	24,196	148,423

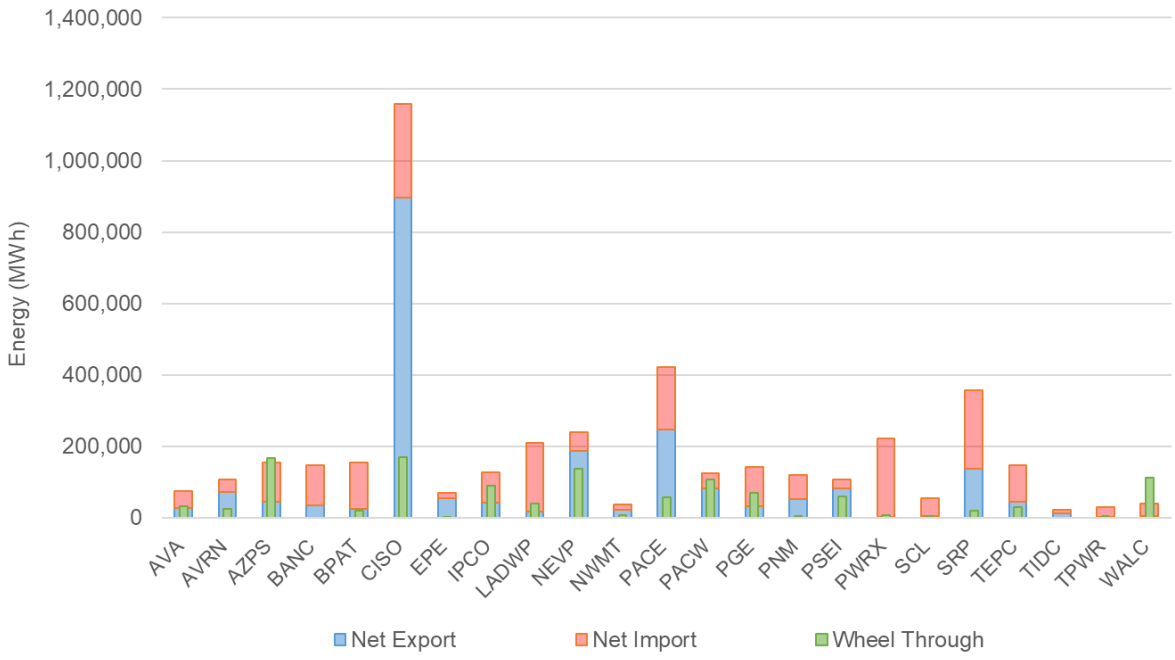
TABLE 3: Estimated wheel-through transfers in April 2025



GRAPH 4: Estimated wheel-through transfers in April 2025

BAA	Net Export	Net Import	Wheel Through
AVA	28,935	45,990	33,596
AVRN	73,575	33,873	25,769
AZPS	45,120	109,044	167,401
BANC	36,457	112,069	-
BPAT	25,266	129,980	20,368
CISO	897,233	262,105	170,004
EPE	54,318	14,717	1,257
IPCO	42,104	86,522	90,093
LADWP	17,840	191,193	41,124
NEVP	187,902	51,593	138,127
NWMT	23,512	13,110	8,555
PACE	247,435	175,490	56,534
PACW	81,586	42,700	106,558
PGE	32,984	109,747	70,112
PNM	51,558	69,684	6,394
PSEI	82,699	24,443	59,395
PWRX	1,571	221,489	7,593
SCL	5,838	49,806	4,569
SRP	138,011	219,614	20,722
TEPC	44,256	104,151	30,052
TIDC	11,894	11,512	-
TPWR	3,390	26,750	6,110
WALC	6,441	34,340	112,698

TABLE 4: Estimated wheel-through transfers in May 2025

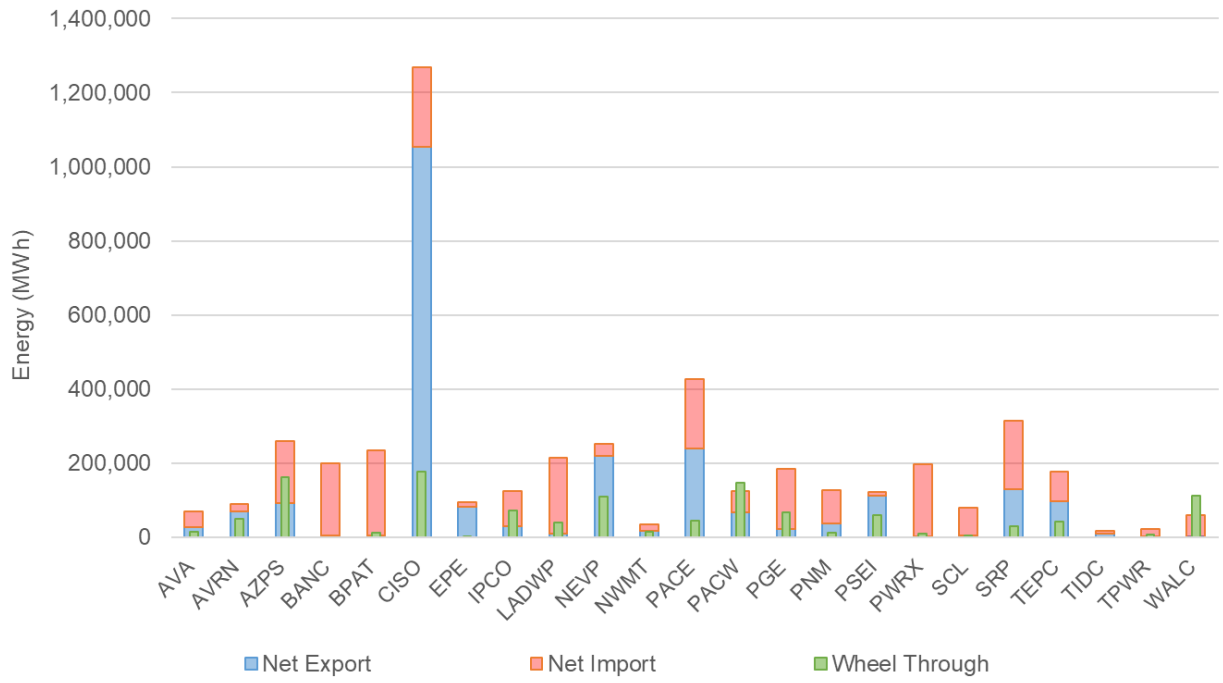


GRAPH 5: Estimated wheel-through transfers in May 2025

BAA	Net Export	Net Import	Wheel Through
AVA	27,156	43,445	14,993
AVRN	69,019	22,003	49,324
AZPS	92,579	167,663	163,578
BANC	6,550	192,441	-
BPAT	5,629	228,930	12,861
CISO	1,053,536	214,009	178,764
EPE	82,703	11,598	593
IPCO	29,474	95,941	72,522
LADWP	11,180	202,718	40,827
NEVP	220,820	31,294	109,199
NWMT	19,044	16,235	15,597
PACE	240,026	187,339	44,846
PACW	68,192	57,508	147,091
PGE	22,777	162,867	68,130
PNM	38,454	88,502	13,693
PSEI	112,701	9,876	59,380
PWRX	2,113	195,193	9,322
SCL	4,688	76,516	4,381
SRP	131,227	183,584	29,377
TEPC	97,860	79,389	42,727
TIDC	11,604	7,122	-
TPWR	3,323	20,381	8,235

WALC	1,537	57,639	113,586

TABLE 5: Estimated wheel-through transfers in June 2025



GRAPH 6: Estimated wheel-through transfers in June 2025

REDUCED RENEWABLE CURTAILMENT AND GHG REDUCTIONS

The WEIM benefit calculation includes the economic benefits that can be attributed to avoided renewable curtailment within the ISO footprint. If not for energy transfers facilitated by the WEIM, some renewable generation located within the ISO would have been curtailed via either economic or exceptional dispatch. The total avoided renewable curtailment volume in MWh for Q2 2025 was calculated to be 32,262 MWh (April) + 37,903 MWh (May) + 42,547 MWh (June) = 112,712 MWh total.

There are environmental benefits of avoided renewable curtailment as well. Under the assumption that avoided renewable curtailments displace production from other resources at a default emission rate of 0.428 metric tons CO_2/MWh, avoided curtailments displaced an estimated 48,241 metric tons of CO_2 for Q2 2025. Avoided renewable curtailments also may have contributed to an increased volume of renewable credits that would otherwise have been unavailable. This report does not quantify the additional value in dollars associated with this benefit. Total estimated reductions in the curtailment of renewable energy in the ISO footprint, along with the associated reductions in CO_2, are shown in Table 6.

Year	Quarter	MWh	Eq. Tons CO_2
2015	1	8,860	3,792
	2	3,629	1,553
	3	828	354
	4	17,765	7,521
2016	1	112,948	48,342
	2	158,806	67,969
	3	33,094	14,164
	4	23,390	10,011
2017	1	52,651	22,535
	2	67,055	28,700
	3	23,331	9,986
	4	18,060	7,730
2018	1	65,860	28,188
	2	129,128	55,267
	3	19,032	8,146
	4	23,425	10,026
2019	1	52,254	22,365
	2	132,937	56,897
	3	33,843	14,485
	4	35,254	15,089
2020	1	86,740	37,125
	2	147,514	63,136
	3	37,548	16,071
	4	39,956	17,101
2021	1	76,147	32,591
	2	109,059	46,677
	3	23,042	9,862
	4	38,044	16,283
2022	1	94,168	40,304
	2	118,352	50,655
	3	42,468	18,176
	4	25,609	10,960
2023	1	53,002	22,685
	2	148,938	63,745
	3	60,113	25,728

	4	49,880	21,349
2024	1	60,285	25,802
	2	130,656	55,921
	3	53,049	22,705
	4	30,462	13,038
2025	1	76,015	32,534
	2	112,712	48,241
Total		2,625,909	1,123,809

TABLE 6: Total reduction in curtailment of renewable energy and associated reductions in CO_2

FLEXIBLE RAMPING PROCUREMENT DIVERSITY SAVINGS

The WEIM facilitates procurement of flexible ramping capacity in the FMM to address variability that may occur in the RTD. Because variability across different BAAs may happen in opposite directions, the flexible ramping requirement for the entire WEIM footprint can be less than the sum of individual BAA's requirements. This difference is known as flexible ramping procurement diversity savings.

Starting in 2016, the ISO replaced the flexible ramping constraint with flexible ramping products that provide both upward and downward ramping. The minimum and maximum flexible ramping requirements for each BAA and for each direction are listed in Appendix 3: Minimum & Maximum Ramping Requirements.

The flexible ramping procurement diversity savings for all the intervals averaged over the month are shown in Table 7. The percentage savings is the average MW savings divided by the sum of the individual BAA requirements.

	April		**May**		**June**	
Direction	Up	Down	Up	Down	Up	Down
Average MW saving	2,281	2,350	2,340	2,391	2,401	2,482
Sum of BAA requirements	4,033	3,664	4,147	3,663	4,222	3,627
Percentage savings	57%	64%	56%	65%	57%	68%

Table 7: Flexible ramping procurement diversity savings in Q2 2025

Flexible ramping capacity may be used in RTD to handle uncertainties in the future interval. The RTD flexible ramping capacity is prorated to each BAA. Flexible ramping surplus MW is defined as the awarded flexible ramping capacity in RTD minus its share, and the flexible ramping surplus cost is defined as the flexible ramping surplus MW multiplied by the flexible ramping WEIM-wide marginal price. A positive flexible ramping surplus MW is the capacity that a BAA provided to help other BAAs, and a negative flexible ramping surplus MW is the capacity that a BAA received from other BAAs.

The WEIM dispatch cost for a BAA with positive flexible ramping surplus MW is increased because some capacities are used to help other BAAs. The flexible ramping surplus cost is subtracted from the BAA's WEIM dispatch cost to reflect the true dispatch cost of a BAA. Please see the Benefit Report Methodology for more details.

CONCLUSION

Using state-of-the-art technology to find and deliver low-cost energy to meet real-time demand, the WEIM demonstrates that utilities can realize financial and operational benefits through increased coordination and optimization. The WEIM provides significant reliability benefits by enhancing situational awareness and supporting access to surplus energy across a broader western footprint. In addition to these benefits, the WEIM provides significant environmental benefits through the reduction of renewable curtailments during periods of oversupply.

Sharing resources across a larger geographic area reduces greenhouse gas emissions by using renewable generation that otherwise would have been turned off. The quantified environmental benefits from avoided curtailments of renewable generation from 2015 to-date reached 1,123,809 metric tons of CO_2, roughly the equivalent of avoiding the emissions from 236,276 passenger cars driven for one year.

APPENDIX 1: GLOSSARY OF ABBREVIATIONS

Abbreviation	Description
APS	Arizona Public Service
AVA	Avista Utilities
AVRN	Avangrid
BAA	Balancing Authority Area
BANC	Balancing Authority of Northern California
BPA	Bonneville Power Administration
CISO, ISO	California ISO
EIM	Energy Imbalance Market
EPE	El Paso Electric
FMM	Fifteen Minute Market
GHG	Greenhouse Gas
IPCO	Idaho Power
LADWP	Los Angeles Department of Water and Power
MW	Megawatt
MWh	Megawatt-Hour
NVE	NV Energy
NWMT	NorthWestern Energy
PAC	PacifiCorp
PACE	PacifiCorp East
PACW	PacifiCorp West
PGE	Portland General Electric
PNM	Public Service Company of New Mexico
PSE	Puget Sound Energy
PWRX	Powerex
RTD	Real Time Dispatch
SCL	Seattle City Light
SRP	Salt River Project
TEP	Tucson Electric Power
TID	Turlock Irrigation District
TPWR	Tacoma Power
WALC	Western Area Power Administration Desert Southwest
WEIM	Western Energy Imbalance Market

APPENDIX 2: WEIM Transfer Volume (MWh)

Month	From BAA	To BAA	15min WEIM transfer (15m – base)	5min WEIM transfer (5m – base)
April	AVA	AVRN	2,720	3,009
	AVA	BPAT	5,682	5,525
	AVA	CISO	0	0
	AVA	IPCO	8,789	8,712
	AVA	NWMT	20,226	26,340
	AVA	PACW	1,175	2,230
	AVA	PGE	0	0
	AVA	PSEI	0	0
	AVA	SCL	0	0
	AVA	TPWR	0	0
	AVRN	AVA	15,007	15,247
	AVRN	BPAT	30,600	33,252
	AVRN	PACW	25,315	36,922
	AVRN	PGE	9,909	9,073
	AVRN	SCL	11,110	9,604
	AZPS	CISO	30,280	21,536
	AZPS	EPE	4,950	0
	AZPS	LADWP	2,999	1,739
	AZPS	NEVP	0	0
	AZPS	PACE	39,810	39,914
	AZPS	PNM	39,175	32,254
	AZPS	SRP	13,192	19,988
	AZPS	TEPC	551	226
	AZPS	WALC	5,824	4,750
	BANC	BPAT	0	0
	BANC	CISO	8,129	8,270
	BANC	TIDC	36	0
	BPAT	AVA	4,761	4,506

	BPAT	AVRN	11,793	12,992
April	BPAT	BANC	0	0
	BPAT	CISO	11,915	32,333
	BPAT	IPCO	3,121	201
	BPAT	LADWP	0	0
	BPAT	NEVP	0	0
	BPAT	NWMT	6,195	560
	BPAT	PACW	2,657	266
	BPAT	PGE	20,107	18,639
	BPAT	PSEI	17,457	12,847
	BPAT	PWRX	2,834	0
	BPAT	SCL	7,224	5,980
	BPAT	TPWR	13,845	12,096
	CISO	AVA	0	0
	CISO	AZPS	85,030	76,417
	CISO	BANC	123,485	124,612
	CISO	BPAT	11,954	22,274
	CISO	LADWP	67,660	64,338
	CISO	NEVP	46,122	27,502
	CISO	PACW	12,583	32,958
	CISO	PGE	80,249	94,727
	CISO	PSEI	42,936	10,129
	CISO	PWRX	157,884	176,043
April	CISO	SRP	181,933	166,413
	CISO	TEPC	0	0
	CISO	TIDC	11,578	11,454
	CISO	WALC	35,098	22,815
	EPE	AZPS	501	0
	EPE	PNM	19,724	17,134
	EPE	TEPC	32,414	31,355
	IPCO	AVA	2,916	2,822
	IPCO	BPAT	1,080	19

	IPCO	NEVP	43,271	44,980
	IPCO	NWMT	12,594	12,355
April	IPCO	PACE	81,352	81,321
	IPCO	PACW	8,174	8,817
	IPCO	PSEI	9,452	10,242
	IPCO	SCL	746	687
	LADWP	AZPS	2,334	4,539
	LADWP	BPAT	0	0
	LADWP	CISO	18,434	25,439
	LADWP	NEVP	6,319	5,834
	LADWP	PACE	15,491	10,171
	LADWP	TEPC	0	0
	LADWP	WALC	6,844	8,814
	NEVP	AZPS	0	0
	NEVP	BPAT	0	0
	NEVP	CISO	110,784	115,134
	NEVP	IPCO	36,044	30,771
	NEVP	LADWP	80,183	88,253
	NEVP	PACE	85,804	68,746
April	NEVP	WALC	63,409	78,713
	NWMT	AVA	25,180	21,852
	NWMT	BPAT	2,494	809
	NWMT	IPCO	2,679	2,860
	NWMT	PACE	27,192	30,432
	NWMT	PACW	2	0
	NWMT	PGE	144	0
	NWMT	PSEI	160	0
	NWMT	TPWR	0	0
	PACE	AZPS	30,733	26,142
	PACE	IPCO	10,495	16,943
	PACE	LADWP	32,334	32,515
	PACE	NEVP	80,229	81,964

	PACE	NWMT	17,835	17,694
	PACE	PACW	33,989	32,201
April	PACE	SRP	0	0
	PACE	TEPC	3,552	4,141
	PACW	AVA	25,519	29,493
	PACW	AVRN	15,881	28,088
	PACW	BPAT	2,467	1,217
	PACW	CISO	30,661	86,767
	PACW	IPCO	43,035	41,582
	PACW	NWMT	2	0
	PACW	PGE	35,896	37,863
	PACW	PSEI	45,343	38,156
	PACW	SCL	2,283	1,901
	PGE	AVA	0	0
	PGE	AVRN	4,764	5,333
	PGE	BPAT	27,778	29,232
	PGE	CISO	34,536	33,155
	PGE	NWMT	20	0
	PGE	PACW	27,176	25,960
April	PGE	PSEI	1,919	1,616
	PGE	SCL	2,062	1,736
	PGE	TPWR	0	0
	PNM	AZPS	24,951	27,734
	PNM	EPE	13,238	14,963
	PNM	SRP	2,505	3,681
	PNM	TEPC	11,894	14,991
	PSEI	AVA	48	0
	PSEI	BPAT	12,529	13,046
	PSEI	CISO	48,258	2,923
	PSEI	IPCO	4,272	6,033
	PSEI	NWMT	110	0
	PSEI	PACW	3,714	8,558

	PSEI	PGE	509	908
April	PSEI	PWRX	26,470	23,474
	PSEI	SCL	53,067	51,139
	PSEI	TPWR	13,764	15,993
	PWRX	BPAT	4,815	0
	PWRX	CISO	0	0
	PWRX	PSEI	2,919	6,533
	SCL	AVA	2	0
	SCL	AVRN	809	1,875
	SCL	BPAT	529	419
	SCL	IPCO	0	0
	SCL	PACW	131	370
	SCL	PGE	320	547
	SCL	PSEI	3,608	4,852
	SRP	AZPS	13,972	17,376
	SRP	CISO	53,049	44,989
	SRP	PACE	0	0
	SRP	PNM	2,022	2,569
	SRP	TEPC	19,146	10,308
	SRP	WALC	9,396	10,447
	TEPC	AZPS	1,183	0
	TEPC	CISO	1,726	1,281
	TEPC	EPE	12,313	10,954
April	TEPC	LADWP	0	0
	TEPC	PACE	189	290
	TEPC	PNM	22,331	17,113
	TEPC	SRP	6,480	5,503
	TEPC	WALC	47,926	47,081
	TIDC	BANC	16	0
	TIDC	CISO	5,079	4,695
	TPWR	AVA	0	0
	TPWR	BPAT	866	1,261

	TPWR	NWMT	0	0
April	TPWR	PGE	0	0
	TPWR	PSEI	11,634	9,774
	WALC	AZPS	11,774	20,828
	WALC	CISO	25,603	21,884
	WALC	LADWP	27,614	28,190
	WALC	NEVP	6,462	7,726
	WALC	SRP	9,624	11,600
	WALC	TEPC	64,825	66,468
May	AVA	AVRN	9,126	7,475
	AVA	BPAT	8,298	6,203
	AVA	CISO	0	0
	AVA	IPCO	20,155	28,226
	AVA	NWMT	8,223	13,211
	AVA	PACW	9,927	7,416
	AVA	PGE	0	0
	AVA	PSEI	2	0
	AVA	SCL	0	0
	AVA	TPWR	0	0
	AVRN	AVA	4,189	5,606
	AVRN	BPAT	47,625	46,031
	AVRN	PACW	21,030	31,875
	AVRN	PGE	8,601	8,719
	AVRN	SCL	7,648	7,112
	AZPS	CISO	67,675	53,178
	AZPS	EPE	845	0
	AZPS	LADWP	9,082	7,410
	AZPS	NEVP	0	0
	AZPS	PACE	77,417	70,878
	AZPS	PNM	39,691	47,682
	AZPS	SRP	25,974	29,567
	AZPS	TEPC	1,558	190

	AZPS	WALC	5,004	3,616
May	BANC	BPAT	0	0
	BANC	CISO	36,035	36,457
	BANC	TIDC	30	0
	BPAT	AVA	3,304	2,652
	BPAT	AVRN	5,135	6,901
	BPAT	BANC	0	0
	BPAT	CISO	310	5,328
	BPAT	IPCO	1,727	17
	BPAT	LADWP	0	0
	BPAT	NEVP	0	0
	BPAT	NWMT	2,866	158
	BPAT	PACW	2,913	19
	BPAT	PGE	10,732	10,231
	BPAT	PSEI	10,993	11,235
	BPAT	PWRX	1,801	0
	BPAT	SCL	1,407	901
	BPAT	TPWR	9,420	8,192
	CISO	AVA	0	0
	CISO	AZPS	113,086	115,095
	CISO	BANC	112,471	112,069
	CISO	BPAT	5,745	22,732
	CISO	LADWP	99,317	86,689
May	CISO	NEVP	93,305	82,398
	CISO	PACW	18,845	48,858
	CISO	PGE	116,521	129,421
	CISO	PSEI	62,124	5,534
	CISO	PWRX	188,120	207,891
	CISO	SRP	210,721	199,804
	CISO	TEPC	7	43
	CISO	TIDC	11,870	11,512
	CISO	WALC	47,442	42,003

	EPE	AZPS	1,313	0
May	EPE	PNM	16,064	15,559
	EPE	TEPC	44,968	40,016
	IPCO	AVA	44,470	36,734
	IPCO	BPAT	1,212	60
	IPCO	NEVP	31,836	39,247
	IPCO	NWMT	250	899
	IPCO	PACE	22,470	30,812
	IPCO	PACW	2,330	1,946
	IPCO	PSEI	28,676	19,574
	IPCO	SCL	3,927	2,925
	LADWP	AZPS	677	1,694
	LADWP	BPAT	0	0
	LADWP	CISO	29,437	29,131
	LADWP	NEVP	15,718	11,382
	LADWP	PACE	17,924	14,085
	LADWP	TEPC	0	0
	LADWP	WALC	2,384	2,672
	NEVP	AZPS	0	0
	NEVP	BPAT	0	0
	NEVP	CISO	80,505	82,179
	NEVP	IPCO	51,160	40,884
	NEVP	LADWP	60,899	62,031
	NEVP	PACE	107,096	107,084
	NEVP	WALC	26,122	33,851
	NWMT	AVA	21,524	15,837
	NWMT	BPAT	2,898	54
	NWMT	IPCO	7,991	7,041
	NWMT	PACE	6,907	9,136
May	NWMT	PACW	0	0
	NWMT	PGE	15	0
	NWMT	PSEI	175	0

	NWMT	TPWR	0	0
May	PACE	AZPS	105,368	103,762
	PACE	IPCO	83,629	71,557
	PACE	LADWP	58,313	62,613
	PACE	NEVP	54,820	47,680
	PACE	NWMT	9,729	7,397
	PACE	PACW	11,630	10,312
	PACE	SRP	0	0
	PACE	TEPC	305	649
	PACW	AVA	12,674	18,758
	PACW	AVRN	22,008	34,929
	PACW	BPAT	1,909	104
	PACW	CISO	18,439	54,501
	PACW	IPCO	13,856	17,759
	PACW	NWMT	1	0
	PACW	PGE	35,128	30,585
	PACW	PSEI	34,101	29,982
	PACW	SCL	1,733	1,527
	PGE	AVA	0	0
	PGE	AVRN	6,814	7,585
	PGE	BPAT	39,920	37,683
	PGE	CISO	24,060	21,980
	PGE	NWMT	241	0
	PGE	PACW	34,722	33,835
	PGE	PSEI	564	579
	PGE	SCL	1,553	1,433
	PGE	TPWR	0	0
	PNM	AZPS	33,454	32,281
May	PNM	EPE	10,818	8,541
	PNM	SRP	1,796	1,555
	PNM	TEPC	22,167	15,576
	PSEI	AVA	0	0

	PSEI	BPAT	33,483	31,029
May	PSEI	CISO	24,454	3,488
	PSEI	IPCO	4,907	9,665
	PSEI	NWMT	170	0
	PSEI	PACW	14,713	14,567
	PSEI	PGE	152	197
	PSEI	PWRX	21,556	21,191
	PSEI	SCL	38,583	37,290
	PSEI	TPWR	23,312	24,668
	PWRX	BPAT	3,198	0
	PWRX	CISO	0	0
	PWRX	PSEI	7,419	9,163
	SCL	AVA	0	0
	SCL	AVRN	1,813	2,752
	SCL	BPAT	765	764
	SCL	IPCO	830	1,467
	SCL	PACW	290	430
	SCL	PGE	534	707
	SCL	PSEI	2,804	3,958
	SRP	AZPS	19,996	20,153
	SRP	CISO	101,860	96,407
	SRP	PACE	0	0
	SRP	PNM	1,060	1,631
	SRP	TEPC	28,545	26,403
	SRP	WALC	13,668	14,139
	TEPC	AZPS	1,040	0
May	TEPC	CISO	325	309
	TEPC	EPE	6,046	7,433
	TEPC	LADWP	0	0
	TEPC	PACE	45	30
	TEPC	PNM	10,958	11,207
	TEPC	SRP	5,226	4,573

	TEPC	WALC	57,070	50,756
May	TIDC	BANC	83	0
	TIDC	CISO	11,835	11,894
	TPWR	AVA	0	0
	TPWR	BPAT	5,515	5,687
	TPWR	NWMT	0	0
	TPWR	PGE	0	0
	TPWR	PSEI	4,610	3,812
	WALC	AZPS	3,710	3,459
	WALC	CISO	37,475	36,928
	WALC	LADWP	13,379	13,574
	WALC	NEVP	8,473	9,014
	WALC	SRP	4,103	4,838
	WALC	TEPC	39,452	51,327
June	AVA	AVRN	6,331	5,758
	AVA	BPAT	18,235	15,569
	AVA	CISO	0	0
	AVA	IPCO	8,815	13,287
	AVA	NWMT	1,729	5,830
	AVA	PACW	2,274	1,704
	AVA	PGE	0	0
	AVA	PSEI	276	0
	AVA	SCL	0	0
	AVA	TPWR	0	0
	AVRN	AVA	1,958	2,884
	AVRN	BPAT	89,729	78,495
	AVRN	PACW	12,545	20,085
	AVRN	PGE	12,299	9,875
	AVRN	SCL	8,029	7,003
	AZPS	CISO	99,242	81,460
	AZPS	EPE	398	0
	AZPS	LADWP	24,487	21,069

	AZPS	NEVP	0	0
June	AZPS	PACE	97,529	85,802
	AZPS	PNM	32,356	55,055
	AZPS	SRP	11,673	10,448
	AZPS	TEPC	829	212
	AZPS	WALC	3,539	2,111
	BANC	BPAT	0	0
	BANC	CISO	6,187	6,540
	BANC	TIDC	48	10
	BPAT	AVA	413	433
	BPAT	AVRN	1,344	1,837
	BPAT	BANC	0	0
	BPAT	CISO	133	2,388
	BPAT	IPCO	1,019	0
	BPAT	LADWP	0	0
	BPAT	NEVP	0	0
	BPAT	NWMT	4,236	0
	BPAT	PACW	2,540	0
	BPAT	PGE	5,631	4,786
	BPAT	PSEI	3,903	3,746
	BPAT	PWRX	3,563	0
	BPAT	SCL	746	818
	BPAT	TPWR	4,402	4,482
	CISO	AVA	0	0
	CISO	AZPS	209,097	204,158
June	CISO	BANC	194,313	192,441
	CISO	BPAT	7,218	34,498
	CISO	LADWP	106,791	85,334
	CISO	NEVP	98,115	82,789
	CISO	PACW	12,675	58,049
	CISO	PGE	119,990	148,401
	CISO	PSEI	112,723	1,276

	CISO	PWRX	170,761	188,441
June	CISO	SRP	188,773	190,221
	CISO	TEPC	13	26
	CISO	TIDC	7,597	7,112
	CISO	WALC	34,101	34,275
	EPE	AZPS	1,476	0
	EPE	PNM	29,399	28,926
	EPE	TEPC	61,149	54,371
	IPCO	AVA	32,081	25,169
	IPCO	BPAT	704	151
	IPCO	NEVP	11,054	12,823
	IPCO	NWMT	824	2,428
	IPCO	PACE	6,538	10,313
	IPCO	PACW	54,645	33,574
	IPCO	PSEI	20,777	14,797
	IPCO	SCL	3,830	2,739
	LADWP	AZPS	1,308	2,504
	LADWP	BPAT	0	0
	LADWP	CISO	15,201	16,656
	LADWP	NEVP	15,429	10,434
	LADWP	PACE	23,573	20,290
	LADWP	TEPC	0	0
	LADWP	WALC	2,562	2,123
	NEVP	AZPS	0	0
	NEVP	BPAT	0	0
June	NEVP	CISO	62,496	59,068
	NEVP	IPCO	92,510	82,605
	NEVP	LADWP	51,133	57,649
	NEVP	PACE	107,182	107,109
	NEVP	WALC	19,115	23,588
	NWMT	AVA	28,980	20,582
	NWMT	BPAT	3,589	286

	NWMT	IPCO	5,902	5,319
June	NWMT	PACE	6,466	8,455
	NWMT	PACW	1	0
	NWMT	PGE	97	0
	NWMT	PSEI	132	0
	NWMT	TPWR	0	0
	PACE	AZPS	72,678	72,490
	PACE	IPCO	60,972	46,128
	PACE	LADWP	64,217	63,798
	PACE	NEVP	31,240	25,435
	PACE	NWMT	24,414	23,573
	PACE	PACW	79,897	53,364
	PACE	SRP	0	0
	PACE	TEPC	1	83
	PACW	AVA	4,235	9,370
	PACW	AVRN	47,847	53,871
	PACW	BPAT	2,424	438
	PACW	CISO	7,223	31,615
	PACW	IPCO	9,574	18,780
	PACW	NWMT	5	0
	PACW	PGE	82,667	66,827
	PACW	PSEI	34,970	32,489
	PACW	SCL	2,337	1,893
	PGE	AVA	0	0
June	PGE	AVRN	6,093	7,265
	PGE	BPAT	51,498	48,928
	PGE	CISO	7,972	6,953
	PGE	NWMT	69	0
	PGE	PACW	20,592	26,066
	PGE	PSEI	165	177
	PGE	SCL	1,628	1,518
	PGE	TPWR	0	0

	PNM	AZPS	40,965	36,630
June	PNM	EPE	6,049	5,590
	PNM	SRP	1,126	1,155
	PNM	TEPC	13,214	8,773
	PSEI	AVA	46	0
	PSEI	BPAT	55,518	53,047
	PSEI	CISO	5,962	3,585
	PSEI	IPCO	275	2,134
	PSEI	NWMT	244	0
	PSEI	PACW	5,245	11,276
	PSEI	PGE	227	184
	PSEI	PWRX	13,918	16,073
	PSEI	SCL	67,088	61,649
	PSEI	TPWR	24,246	24,134
	PWRX	BPAT	2,762	0
	PWRX	CISO	0	0
	PWRX	PSEI	8,557	11,435
	SCL	AVA	2	0
	SCL	AVRN	1,175	2,594
	SCL	BPAT	1,239	1,053
	SCL	IPCO	58	209
	SCL	PACW	178	481
	SCL	PGE	726	923
	SCL	PSEI	1,313	3,105
June	SRP	AZPS	10,571	9,969
	SRP	CISO	111,535	115,545
	SRP	PACE	0	0
	SRP	PNM	359	492
	SRP	TEPC	33,030	29,909
	SRP	WALC	6,329	4,690
	TEPC	AZPS	655	0
	TEPC	CISO	1,888	1,944

June	TEPC	EPE	5,490	6,601
	TEPC	LADWP	0	0
	TEPC	PACE	143	216
	TEPC	PNM	15,873	17,722
	TEPC	SRP	9,858	9,664
	TEPC	WALC	106,803	104,439
	TIDC	BANC	128	0
	TIDC	CISO	10,595	11,604
	TPWR	AVA	0	0
	TPWR	BPAT	10,045	9,327
	TPWR	NWMT	0	0
	TPWR	PGE	0	0
	TPWR	PSEI	2,677	2,231
	WALC	AZPS	6,116	5,490
	WALC	CISO	51,609	54,712
	WALC	LADWP	18,663	15,694
	WALC	NEVP	10,454	9,011
	WALC	SRP	1,766	1,473
	WALC	TEPC	20,542	28,742

APPENDIX 3: Minimum & Maximum Flexible Ramping Requirements

Month	BAA	Direction	Minimum requirement	Maximum requirement
	AVA	up	9	106
April	*AVRN*	up	0	381
	AZPS	up	17	536
	BANC	up	0	124
	BPAT	up	14	422
	CISO	up	390	3,375
	EPE	up	6	96
	IPCO	up	11	312
	LADWP	up	17	332
	NEVP	up	25	854
	NWMT	up	14	132
	PACE	up	0	739
	PACW	up	9	177
	PGE	up	4	214
	PNM	up	9	468
	PSEI	up	18	265
	PWRX	up	42	237
	SCL	up	4	42
	SRP	up	30	321
	TEPC	up	0	214
	TIDC	up	1	17
	TPWR	up	4	24
	WALC	up	7	57
	ALL EIM	**up**	**377**	**4,566**
	AVA	down	13	111
	AVRN	down	0	377
	AZPS	down	0	413
	BANC	down	5	120
April	*BPAT*	down	0	523
	CISO	down	0	1,988
	EPE	down	0	74
	IPCO	down	0	365

	LADWP	down	15	290
April	*NEVP*	down	0	721
	NWMT	down	0	127
	PACE	down	39	973
	PACW	down	0	241
	PGE	down	1	223
	PNM	down	34	443
	PSEI	down	50	246
	PWRX	down	0	244
	SCL	down	6	36
	SRP	down	2	237
	TEPC	down	0	134
	TIDC	down	0	18
	TPWR	down	4	25
	WALC	down	6	56
	ALL EIM	**down**	**0**	**2,654**
May	*AVA*	up	13	104
	AVRN	up	0	399
	AZPS	up	19	492
	BANC	up	0	128
	BPAT	up	21	377
	CISO	up	299	3,363
	EPE	up	5	105
	IPCO	up	0	312
	LADWP	up	10	317
	NEVP	up	20	918
	NWMT	up	11	127
	PACE	up	0	739
	PACW	up	12	183
	PGE	up	19	189
	PNM	up	1	520
	PSEI	up	0	265
	PWRX	up	34	207
	SCL	up	4	36
	SRP	up	13	354
	TEPC	up	0	223

	TIDC	up	2	17
	TPWR	up	3	21
May	*WALC*	up	7	57
	ALL WEIM	**up**	**519**	**6,070**
	AVA	down	8	111
	AVRN	down	0	379
	AZPS	down	0	423
	BANC	down	7	127
	BPAT	down	26	523
	CISO	down	0	1,988
	EPE	down	7	94
	IPCO	down	0	364
	LADWP	down	0	294
	NEVP	down	21	753
	NWMT	down	12	124
	PACE	down	0	973
	PACW	down	0	260
	PGE	down	0	213
	PNM	down	0	535
	PSEI	down	12	246
	PWRX	down	26	242
	SCL	down	4	33
	SRP	down	17	315
	TEPC	down	0	175
	TIDC	down	2	18
	TPWR	down	0	23
	WALC	down	8	56
	ALL EIM	**down**	**0**	**5,340**
June	*AVA*	up	7	95
	AVRN	up	0	399
	AZPS	up	62	492
	BANC	up	28	101
	BPAT	up	37	399
	CISO	up	411	3,299
	EPE	up	0	105

June	*IPCO*	up	36	312
	LADWP	up	25	315
	NEVP	up	27	918
	NWMT	up	11	127
	PACE	up	26	739
	PACW	up	18	188
	PGE	up	0	189
	PNM	up	14	532
	PSEI	up	20	265
	PWRX	up	28	260
	SCL	up	3	43
	SRP	up	51	361
	TEPC	up	0	215
	TIDC	up	2	17
	TPWR	up	4	22
	WALC	up	7	55
	ALL WEIM	**up**	**0**	**4,854**
	AVA	down	8	111
	AVRN	down	0	387
	AZPS	down	55	423
	BANC	down	8	112
	BPAT	down	21	531
	CISO	down	41	1,880
	EPE	down	9	94
	IPCO	down	32	365
	LADWP	down	32	299
	NEVP	down	28	753
	NWMT	down	15	124
	PACE	down	30	973
June	*PACW*	down	9	216
	PGE	down	0	240
	PNM	down	0	535
	PSEI	down	15	246
	PWRX	down	0	254
	SCL	down	1	40
	SRP	down	52	318

	TEPC	down	36	175
	TIDC	down	2	18
	TPWR	down	0	19
	WALC	down	8	56
	ALL WEIM	**down**	**0**	**5,001**