Q3 2024 Report on Market Issues and Performance

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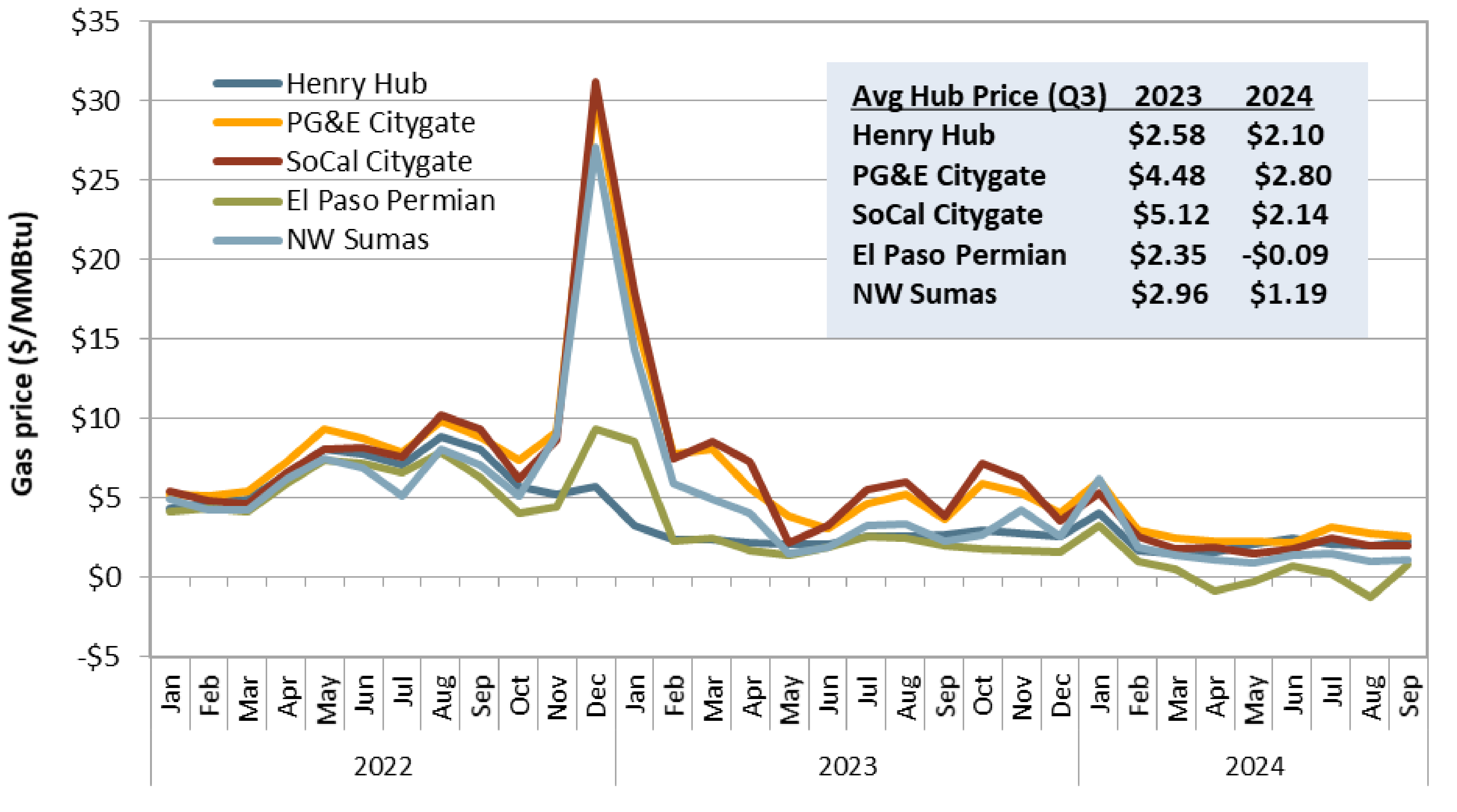
https://www.caiso.com/documents/2024-third-quarter-report-on-market-issues-and-performance-dec-23-2024.pdf

Gas prices down significantly from Q3 2023

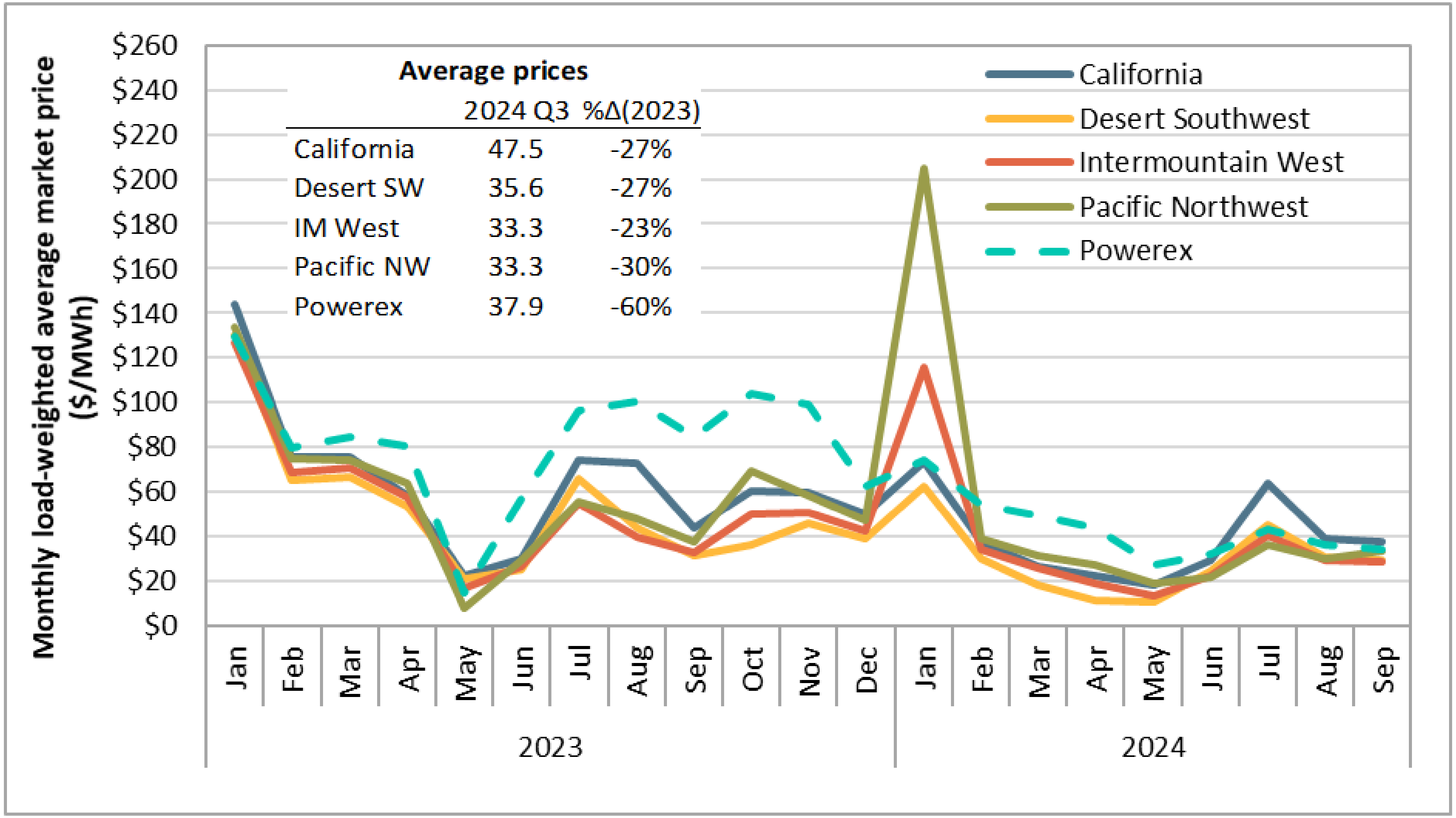
Average monthly natural gas prices by hub



Avg Hub Price (Q3)	2023	2024
Henry Hub	$2.58	$2.10
PG&E Citygate	$4.48	$2.80
SoCal Citygate	$5.12	$2.14
El Paso Permian	$2.35	-$0.09
NW Sumas	$2.96	$1.19

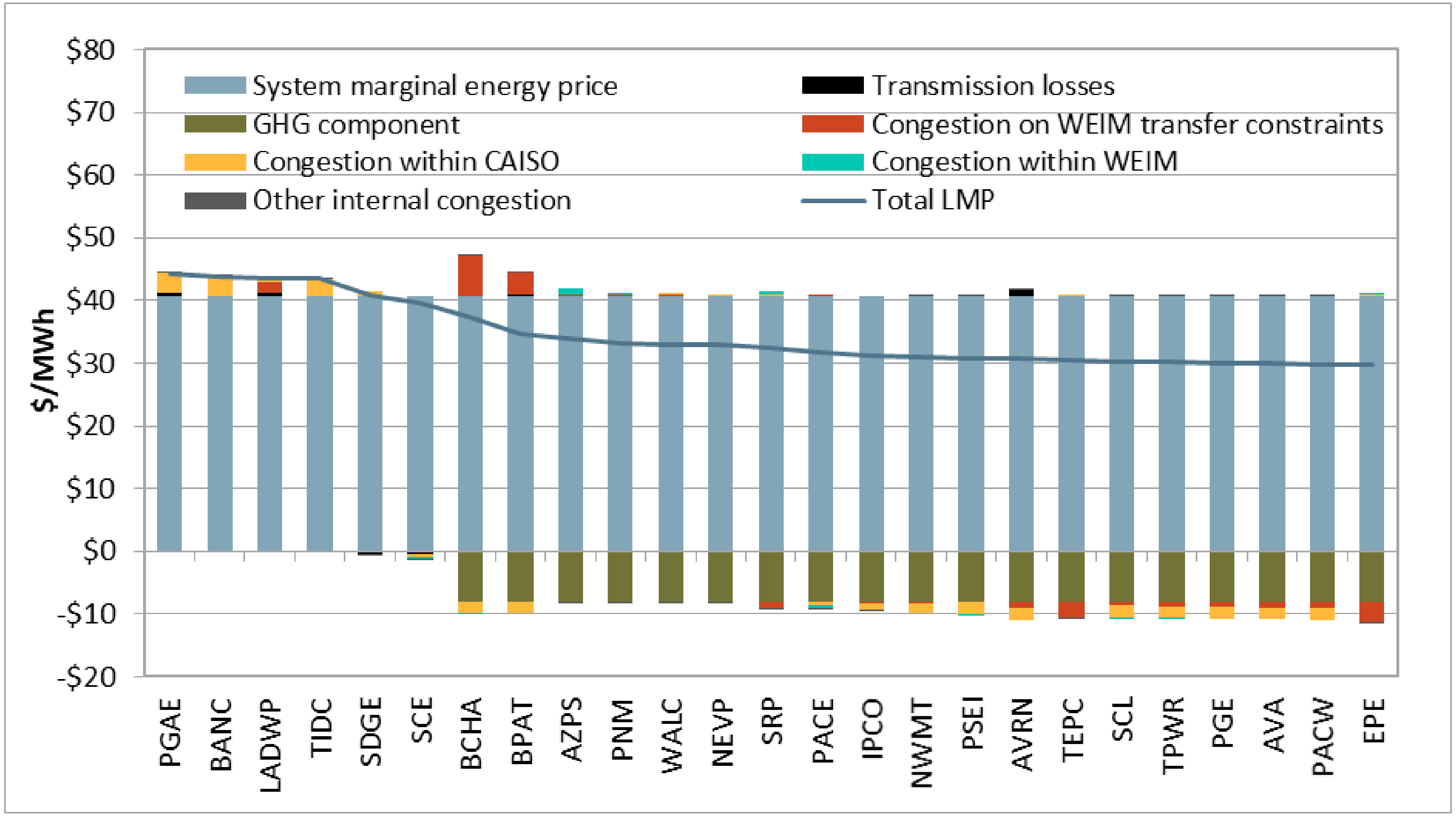
Electricity prices in West decreased with the lower gas prices

Weighted average monthly 15-minute market prices by region



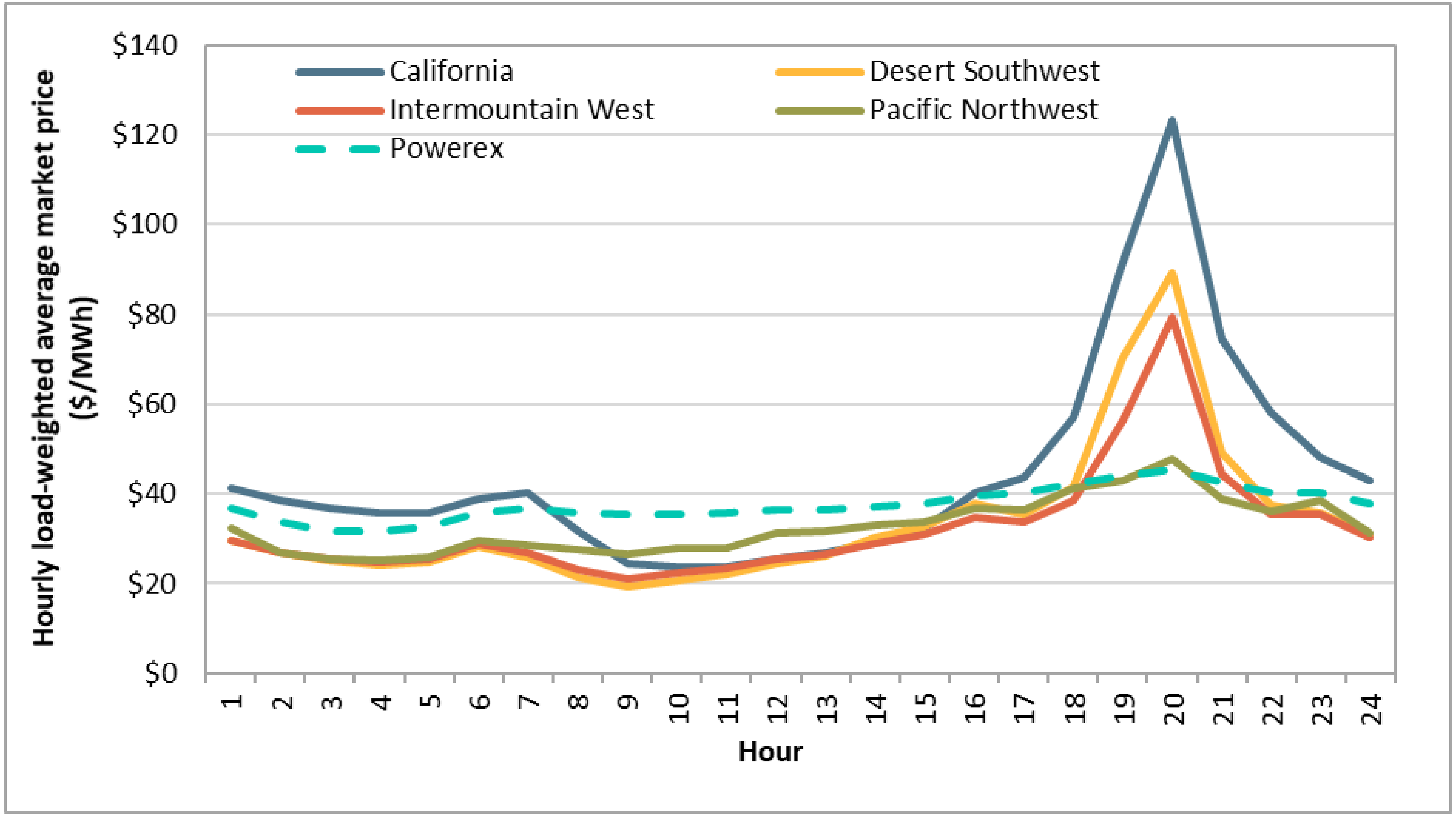
Average price separation driven mainly by greenhouse gas costs in California

Average 15-minute market prices by component (July–September 2024)



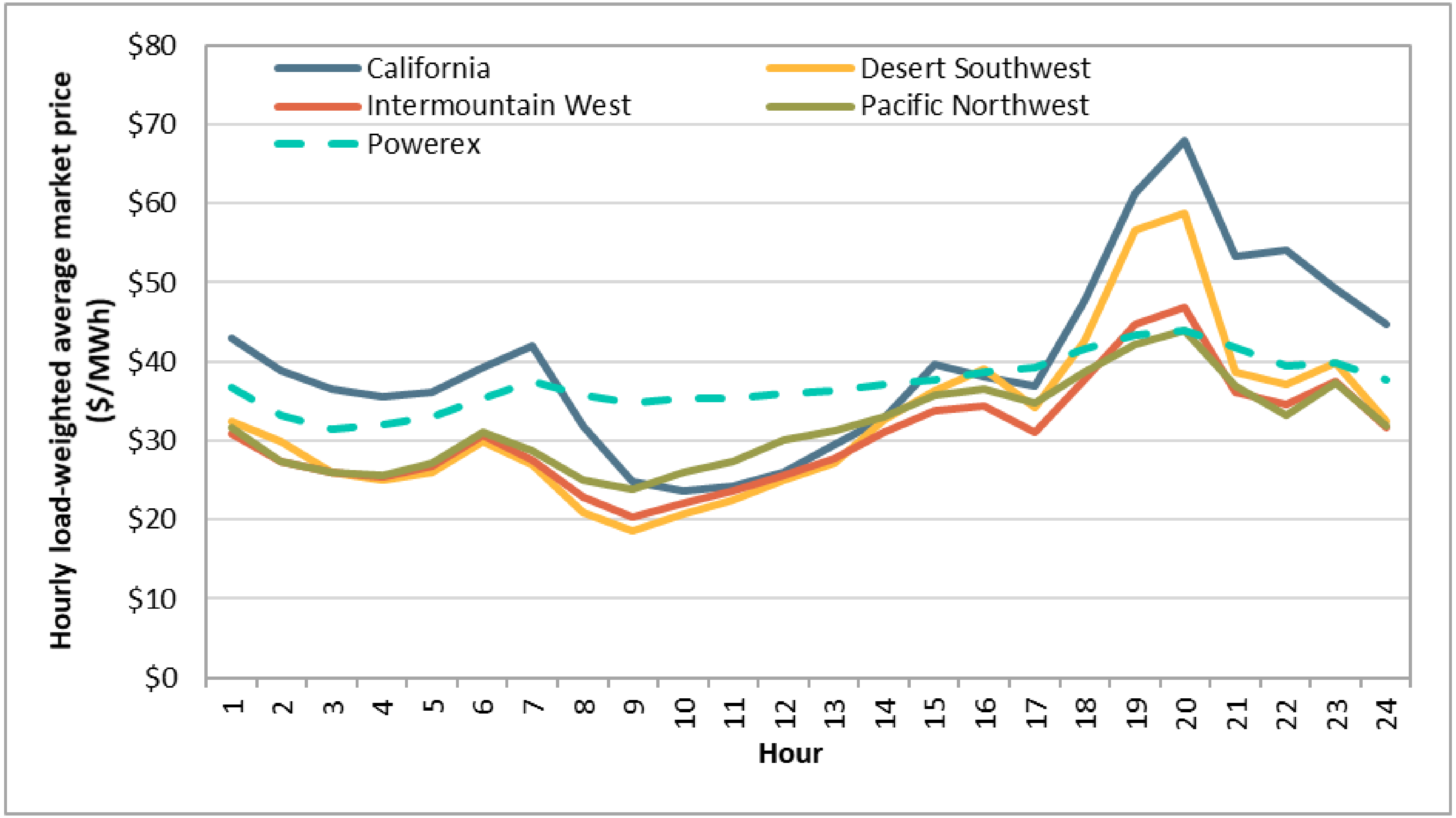
Prices in Northwest lower than rest of system over peak net load hours

Weighted average hourly 15-minute market prices by region (July–September 2024)



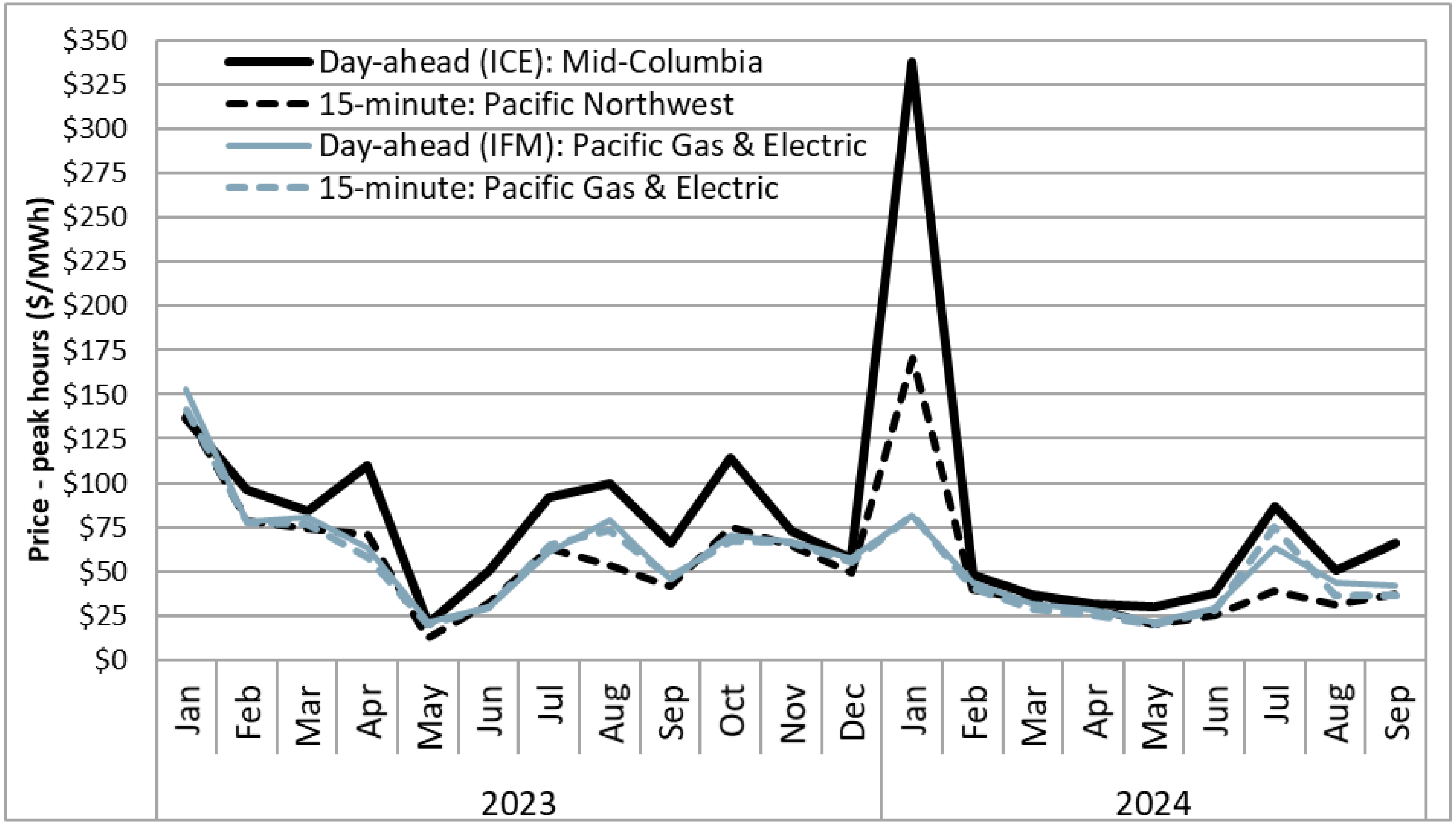
Non-Pacific Northwest prices in 5-minute market lower than 15-minute market prices over peak net load hours

Weighted average hourly 5-minute market prices by region (July–September 2024)



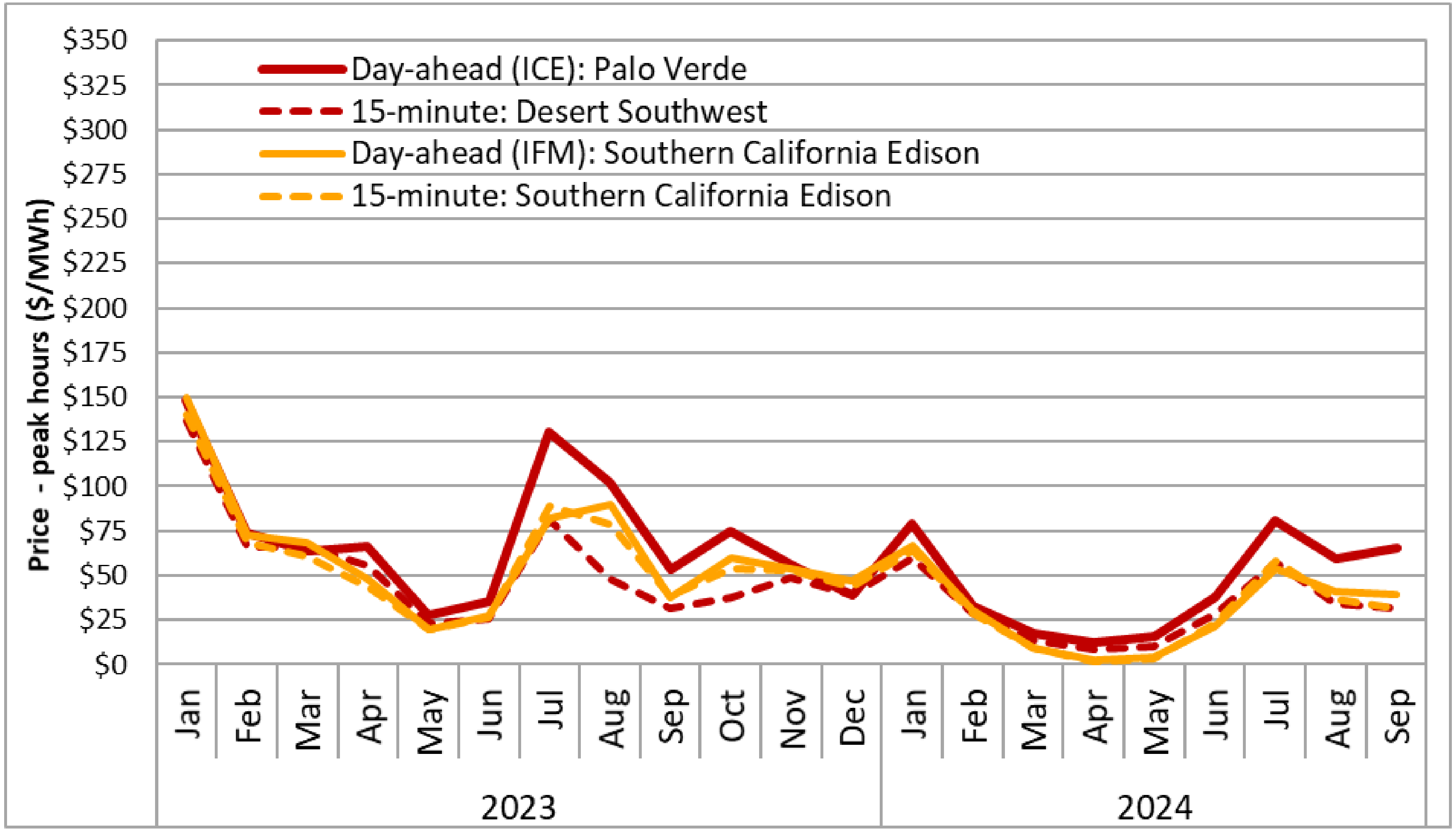
Bilateral day-ahead prices at Mid-C higher than WEIM 15-minute market prices in Pacific Northwest

Mid-C bilateral day-ahead ICE vs. Pacific Northwest 15-minute market prices (peak hours)



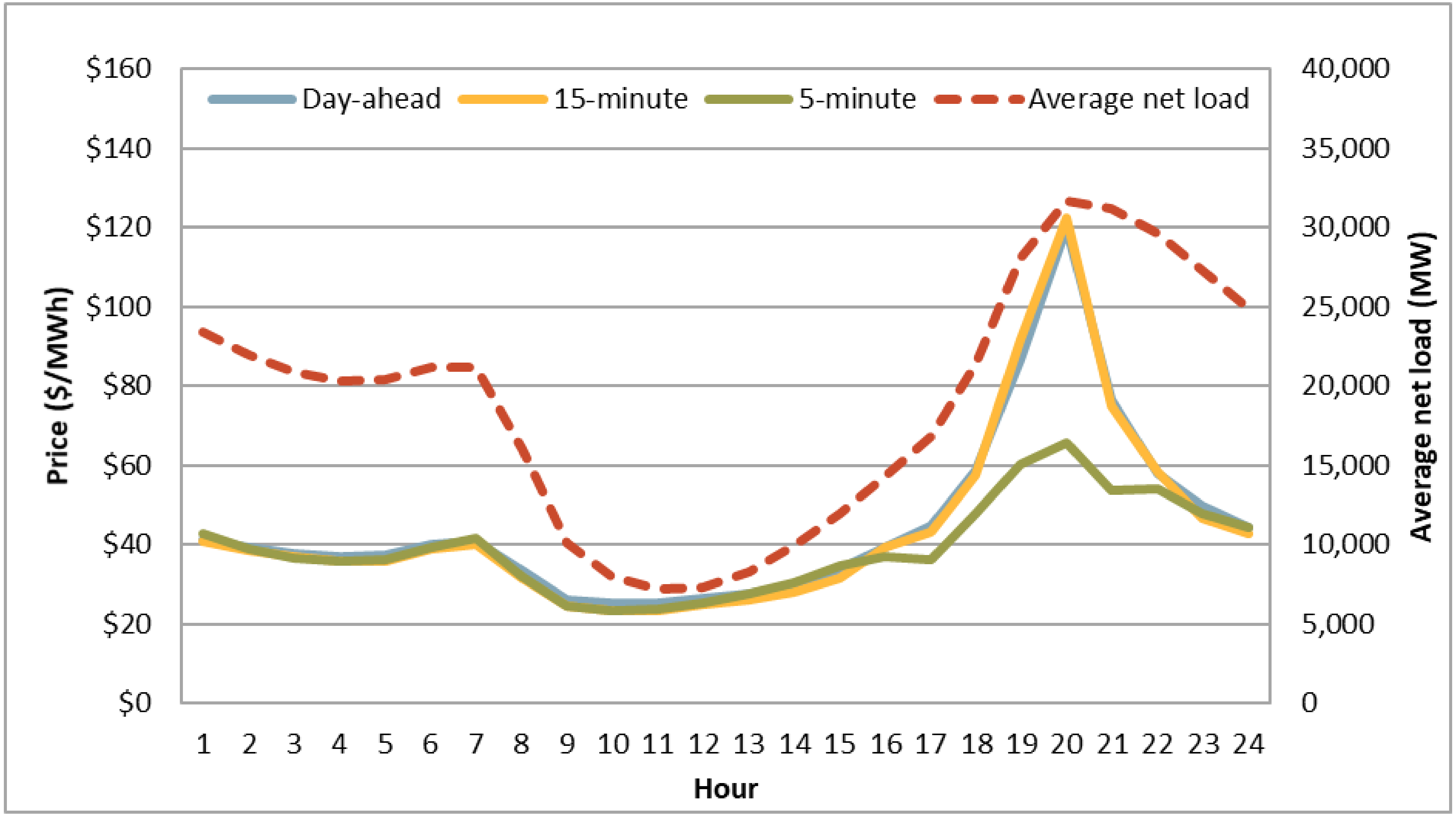
Bilateral day-ahead prices at Palo Verde higher than WEIM 15-minute market prices in Desert Southwest

Palo Verde bilateral day-ahead ICE vs. Desert Southwest 15-minute market prices (peak hours)



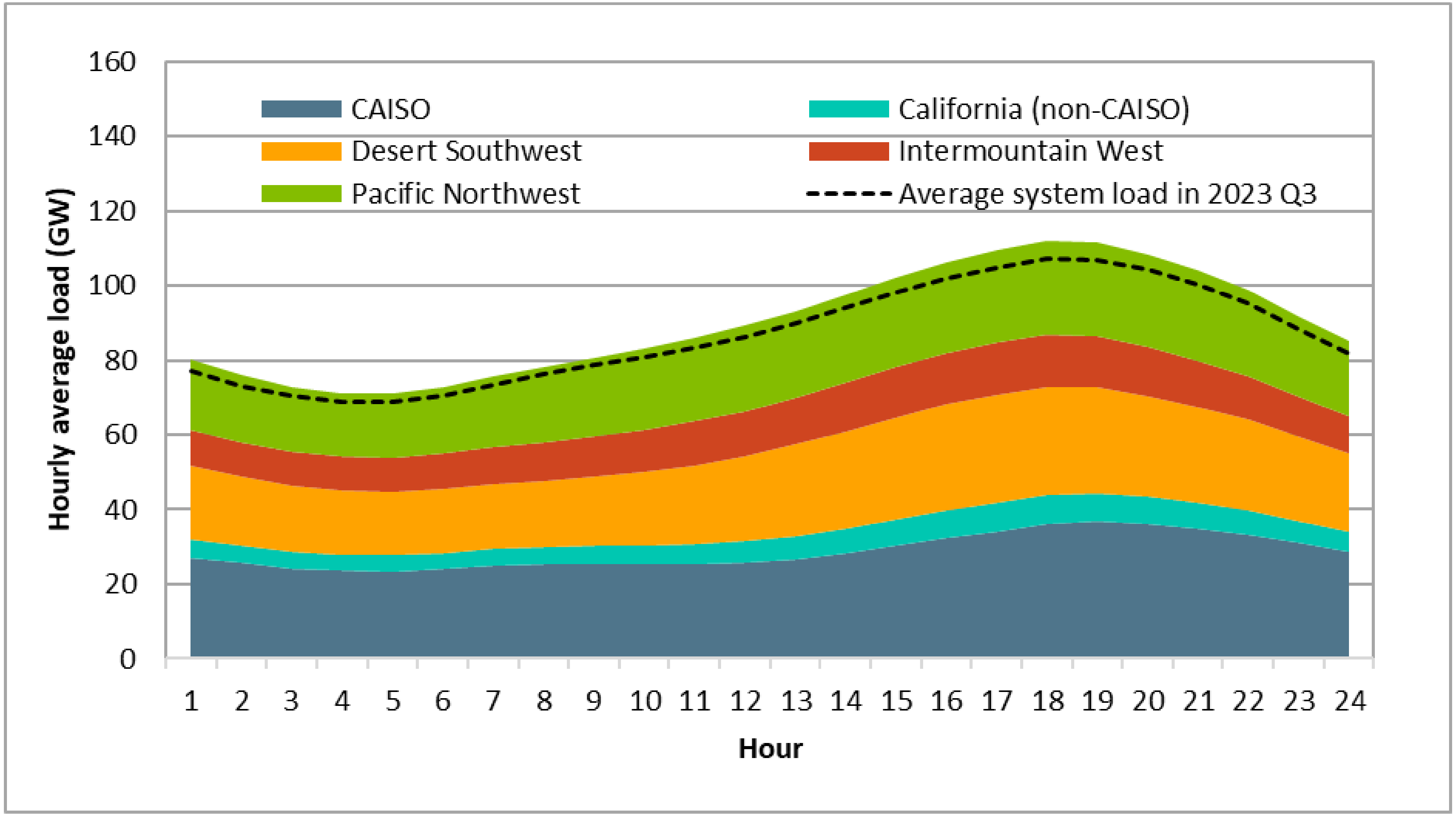
Hourly ISO market prices continue to follow shape of net load

Hourly load-weighted average energy prices for balancing area (CAISO) in day-ahead market (July–September)



WEIM system load up 4% compared to Q3 2023

Hourly average 5-minute market load by region (July–September 2024)



Most areas' peak loads not coincident with WEIM system peak load day

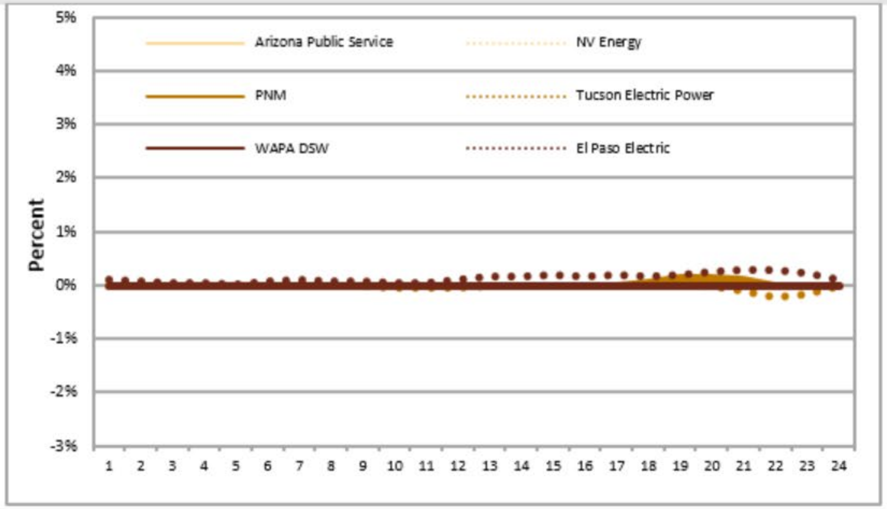
Peak WEIM 5-minute market load (July–September 2024)

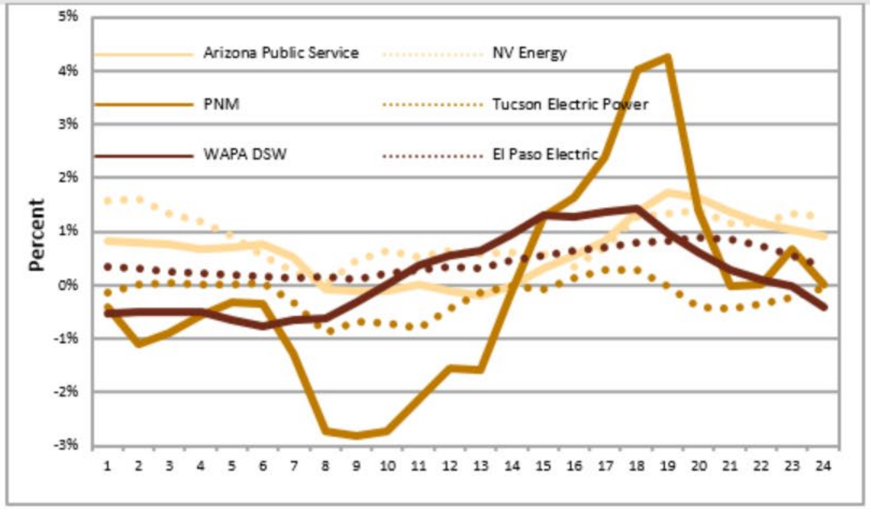
Region/ balancing area	Peak load (July - September, 2024) Date	Load (MW)	Load during WEIM system peak (10-Jul-24) Load (MW)	Percent
WEIM system	**10-Jul-24**	**135,299**	**135,299**	
California	**5-Sep-24**	**57,201**	**52,109**	**39%**
California ISO	5-Sep-24	46,830	42,428	31%
BANC	11-Jul-24	4,582	4,317	3%
LADWP	6-Sep-24	6,371	4,694	3%
Turlock Irrig. District	11-Jul-24	715	670	0.5%
Desert Southwest	**9-Jul-24**	**34,377**	**34,237**	**25%**
Arizona Public Service	4-Aug-24	8,309	8,052	6%
El Paso Electric	16-Aug-24	2,252	1,758	1%
NV Energy	11-Jul-24	9,702	9,670	7%
PSC New Mexico	20-Aug-24	2,645	2,288	2%
Salt River Project	4-Aug-24	8,314	7,914	6%
Tucson Electric	8-Jul-24	3,015	3,002	2%
WAPA - Desert SW	10-Jul-24	1,588	1,553	1%
Intermountain West	**11-Jul-24**	**17,867**	**17,672**	**13%**
Avista Utilities	10-Jul-24	2,120	2,108	2%
Idaho Power	10-Jul-24	4,229	4,058	3%
NorthWestern Energy	23-Jul-24	2,029	1,914	1%
PacifiCorp East	11-Jul-24	9,932	9,593	7%
Pacific Northwest	**9-Jul-24**	**33,317**	**31,281**	**23%**
BPA	9-Jul-24	9,204	8,688	6%
PacifiCorp West	9-Jul-24	4,030	3,863	3%
Portland General Electric	9-Jul-24	4,405	3,985	3%
Powerex	9-Jul-24	9,490	9,031	7%
Puget Sound Energy	9-Jul-24	4,183	3,778	3%
Seattle City Light	9-Jul-24	1,417	1,300	1%
Tacoma Power	9-Jul-24	694	636	0.5%

Average hourly load adjustments as a percent of average load by balancing area

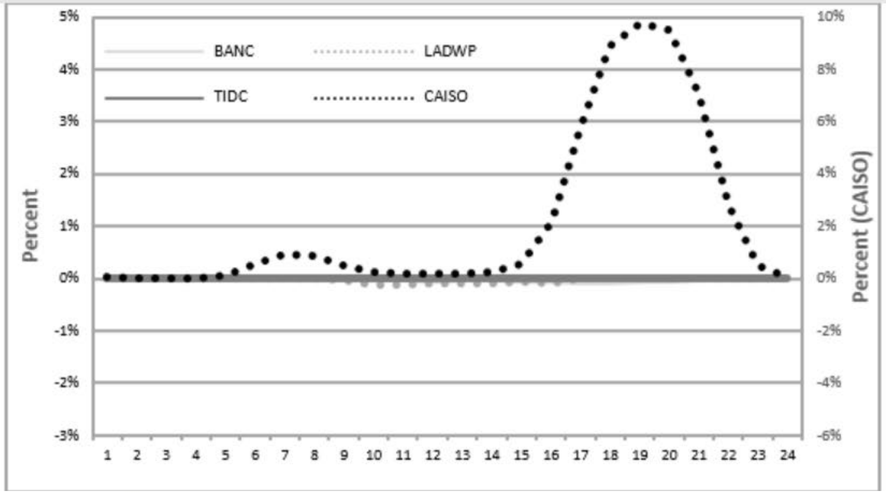
15-minute market | *5-minute market*

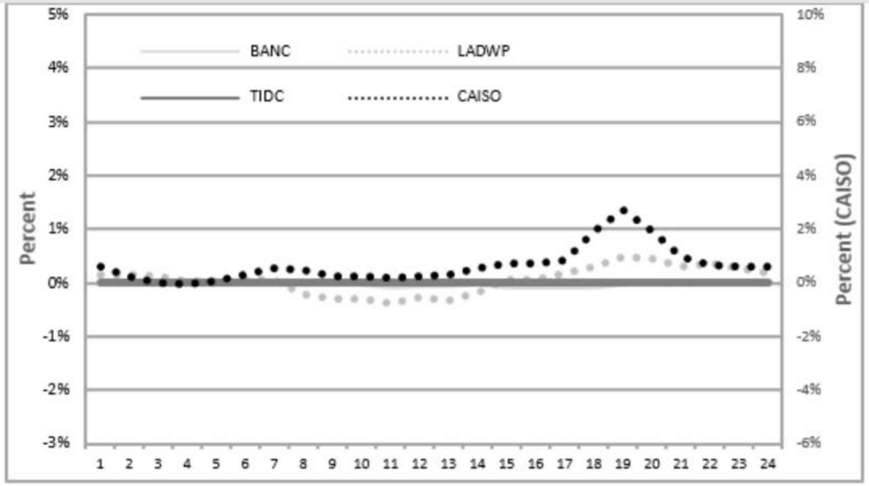
Desert Southwest





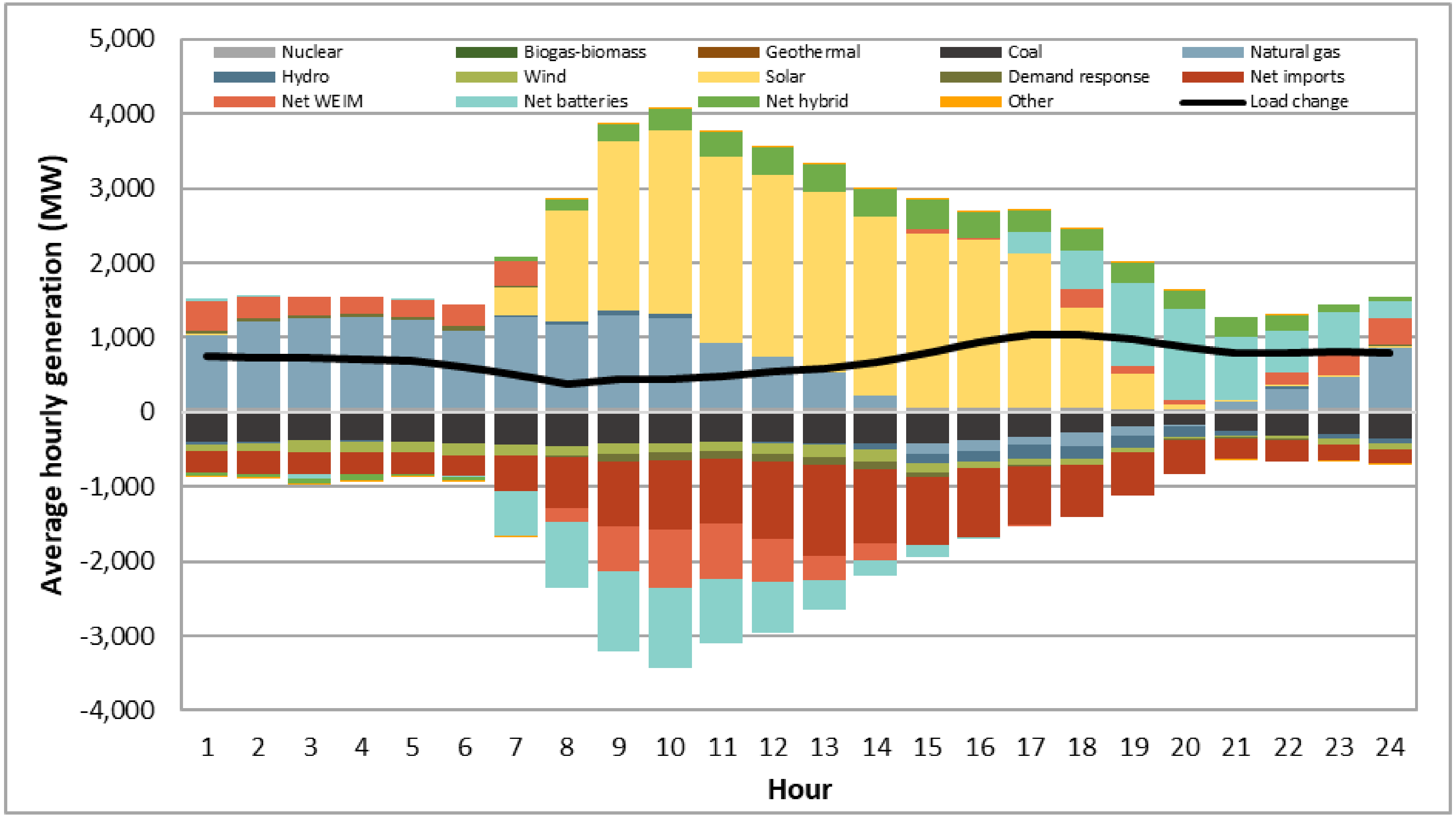
California WEIM





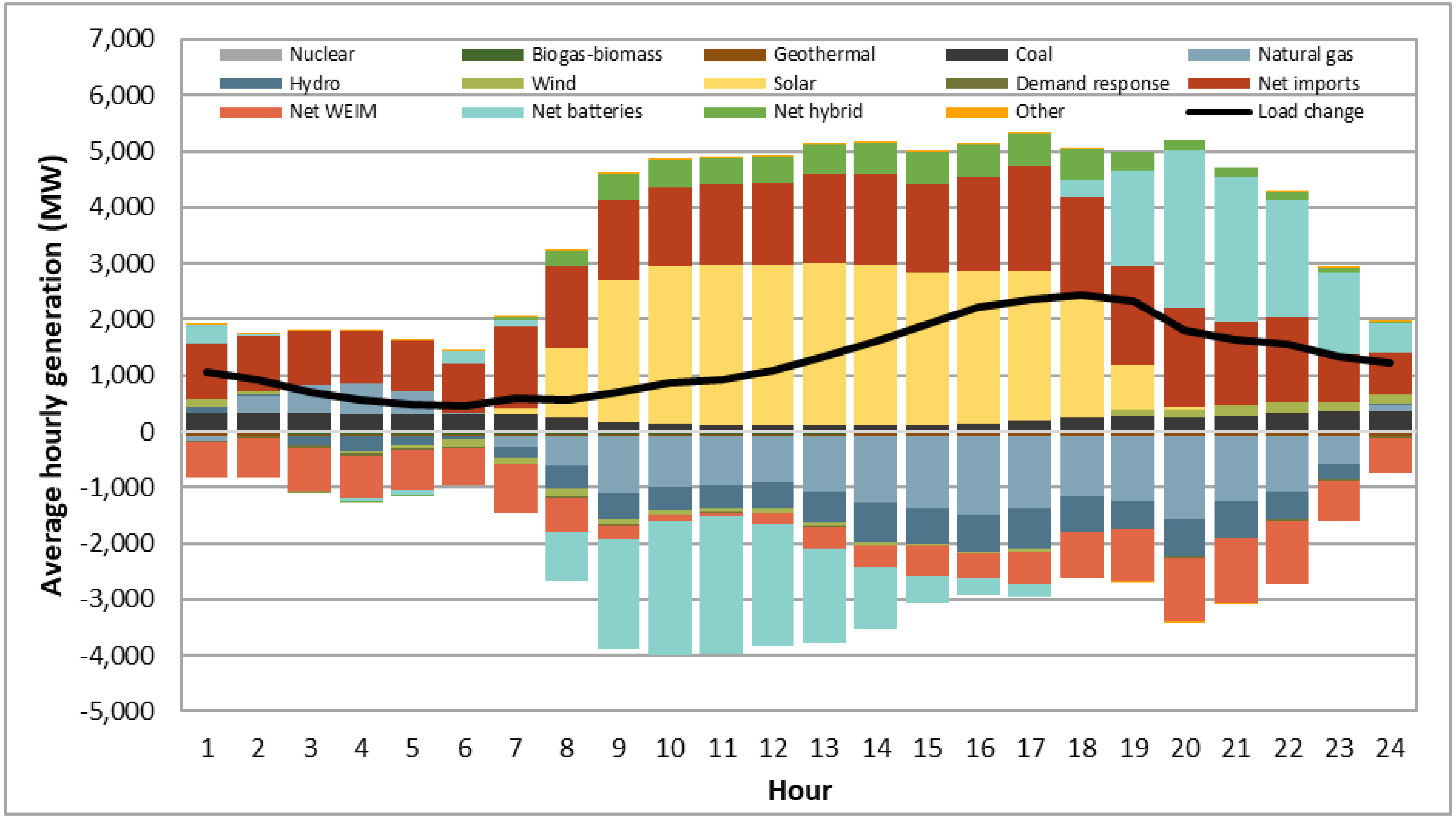
Change in average hourly generation by fuel type in the Desert Southwest Region

Q3 2024 vs. Q3 2023



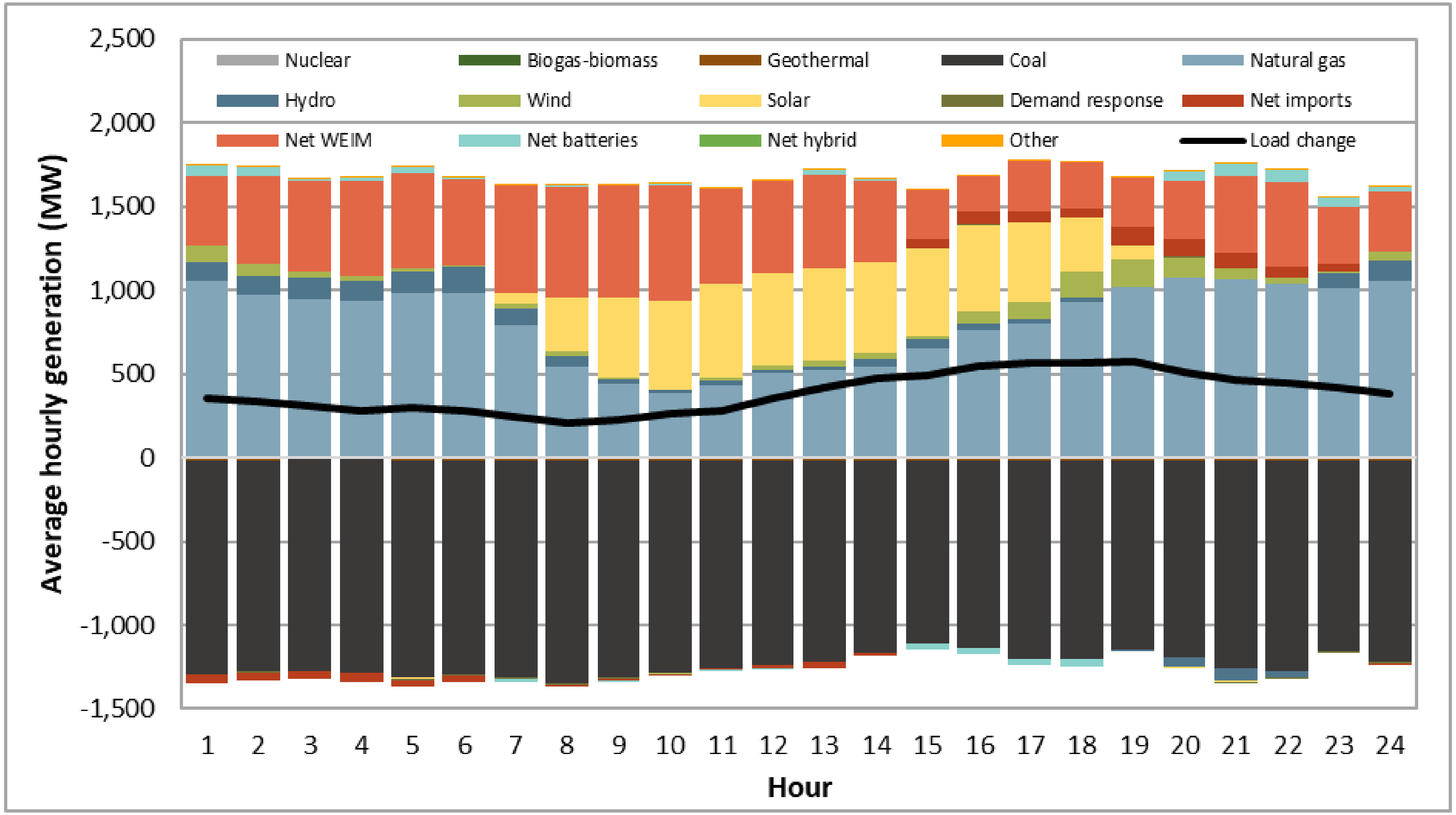
Change in average hourly generation by fuel type in the California Region

Q3 2024 vs. Q3 2023



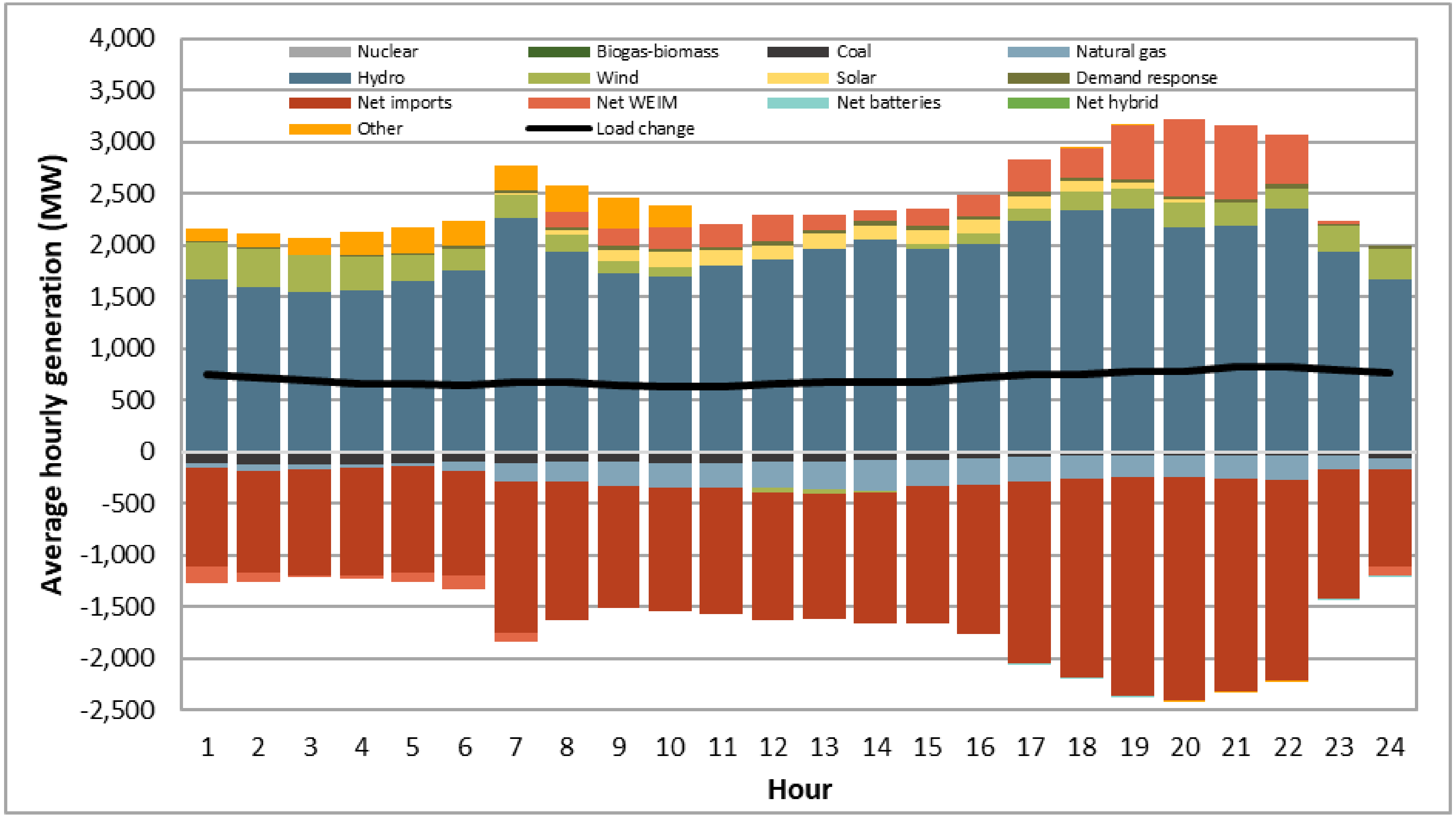
Change in average hourly generation by fuel type in the Intermountain West Region

Q3 2024 vs. Q3 2023



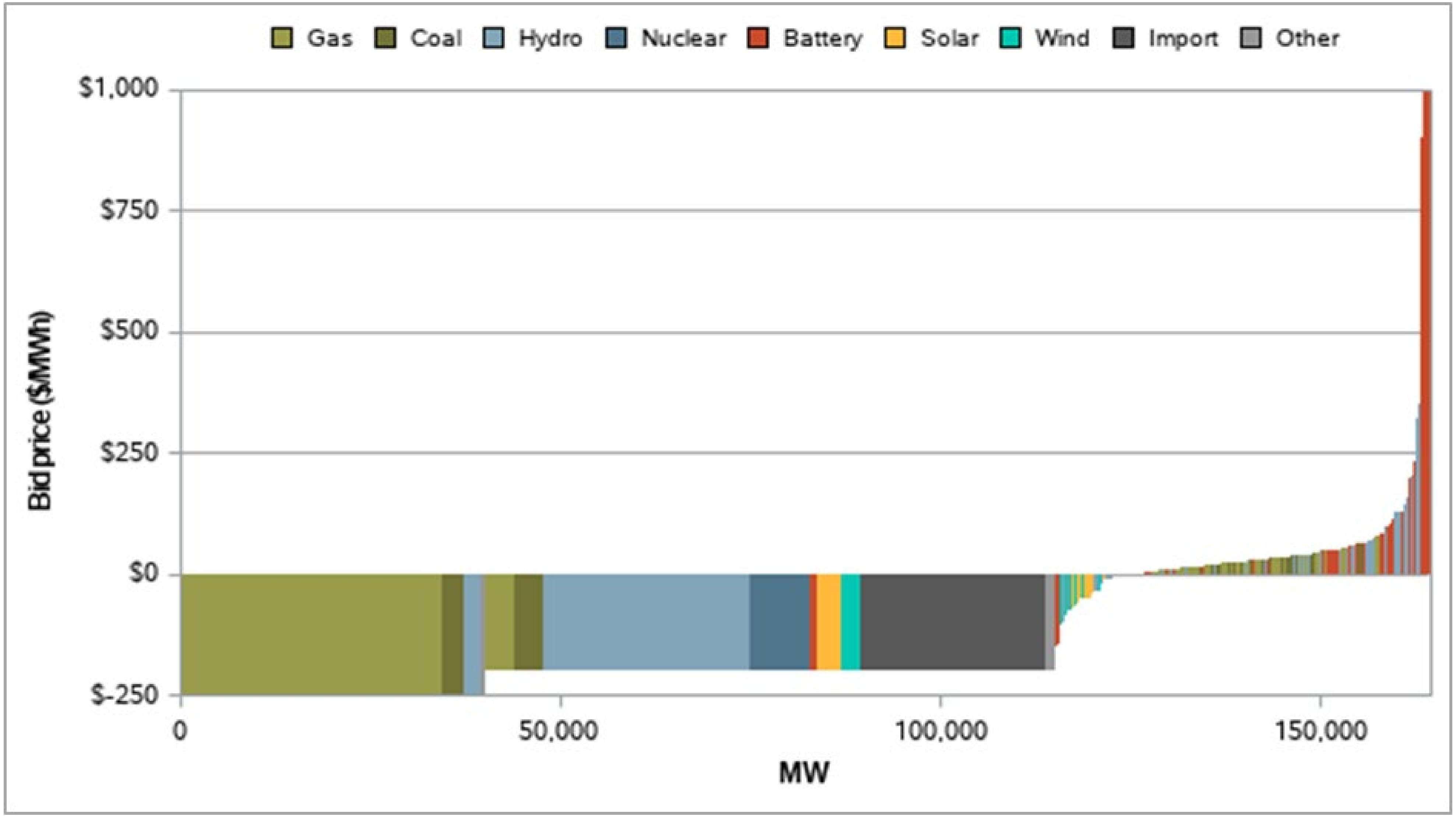
Change in average hourly generation by fuel type in the Pacific Northwest Region

Q3 2024 vs. Q3 2023



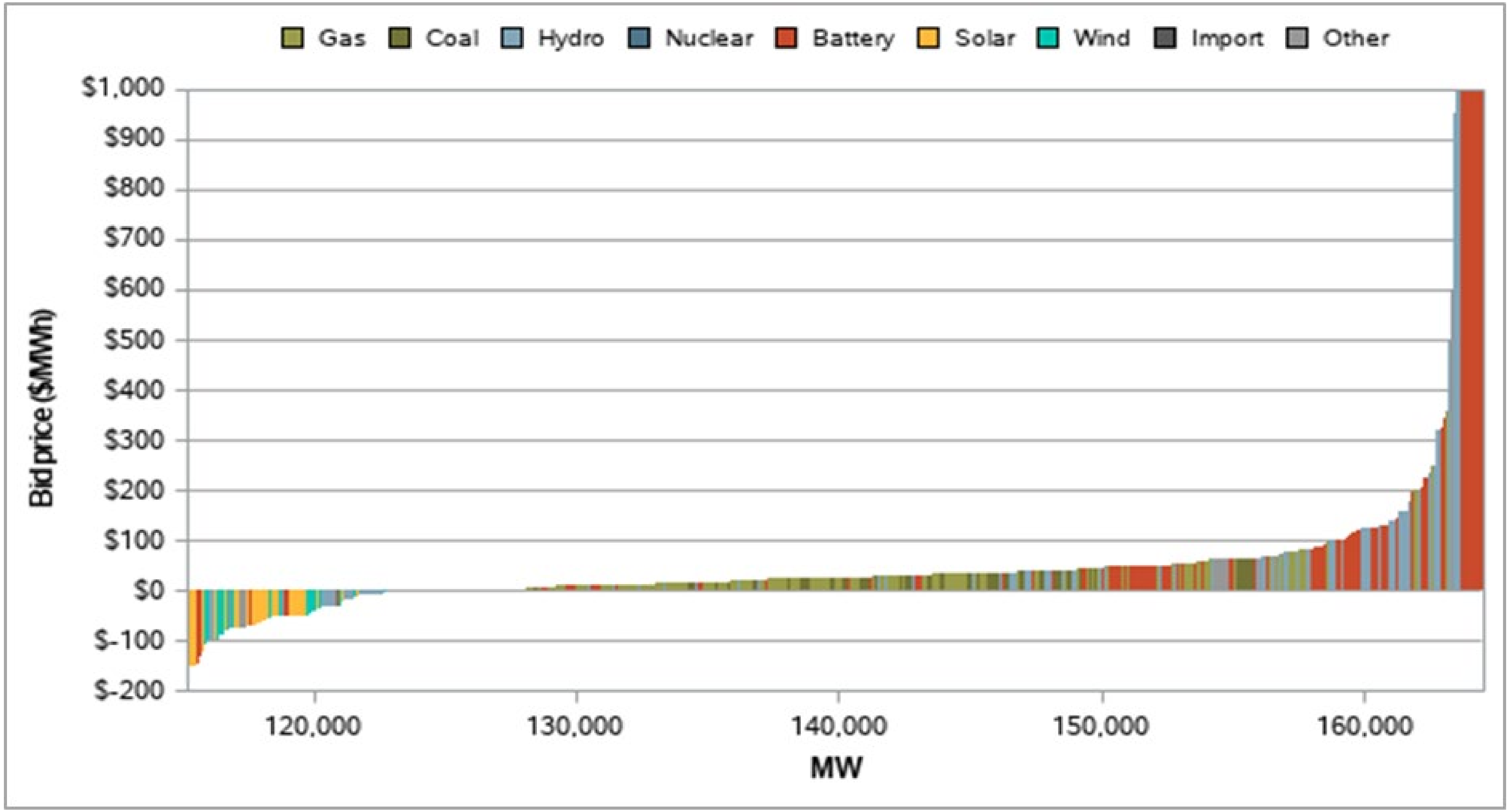
Case study in bidding conduct

15-minute market system supply by fuel type (September 6, 2024 18:15)



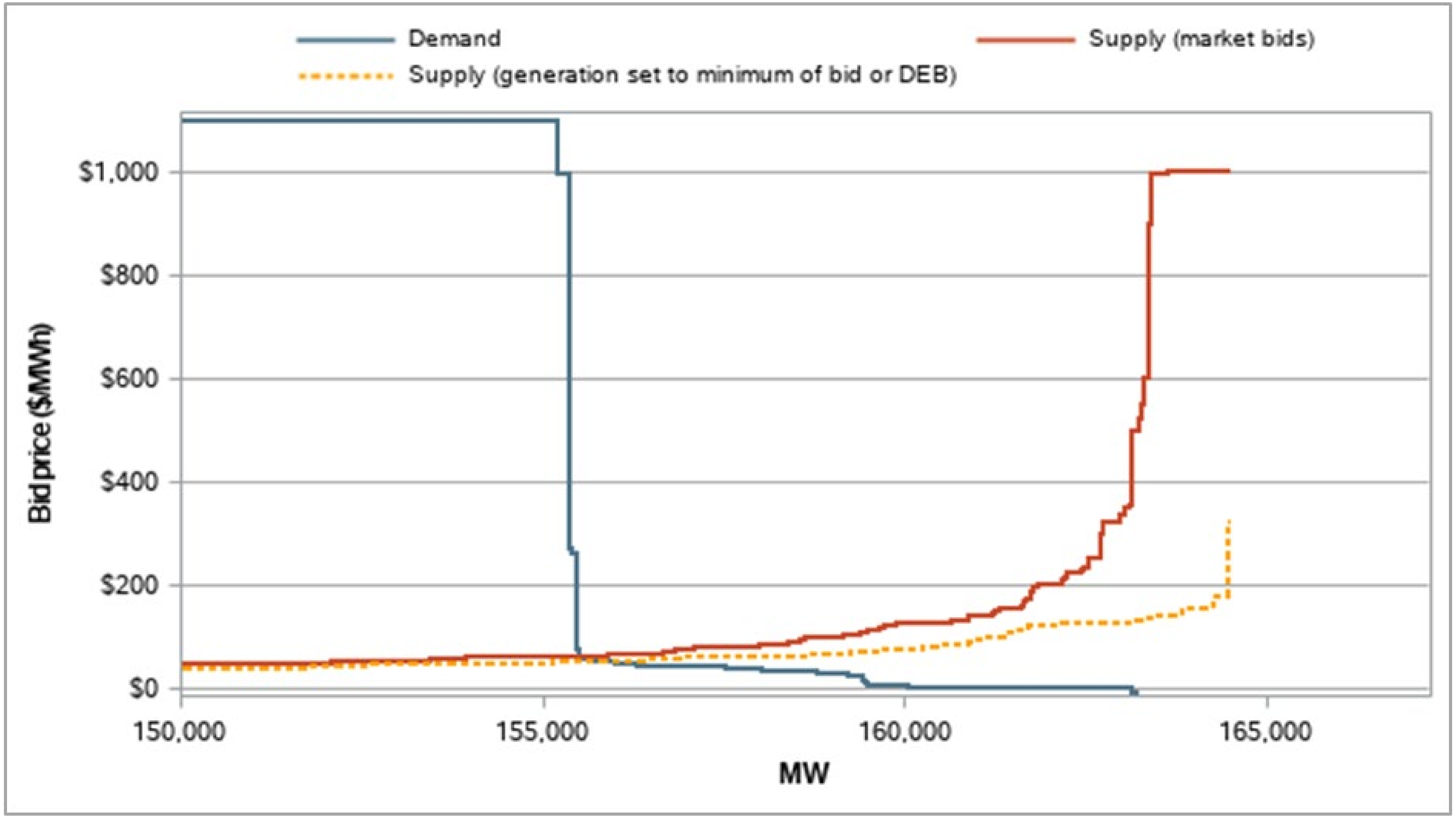
Case study in bidding conduct

Economic 15-minute market system supply by fuel type (September 6, 2024 18:15)



Case study in bidding conduct

15-minute market supply and demand with generation at competitive reference levels (September 6, 2024 18:15)



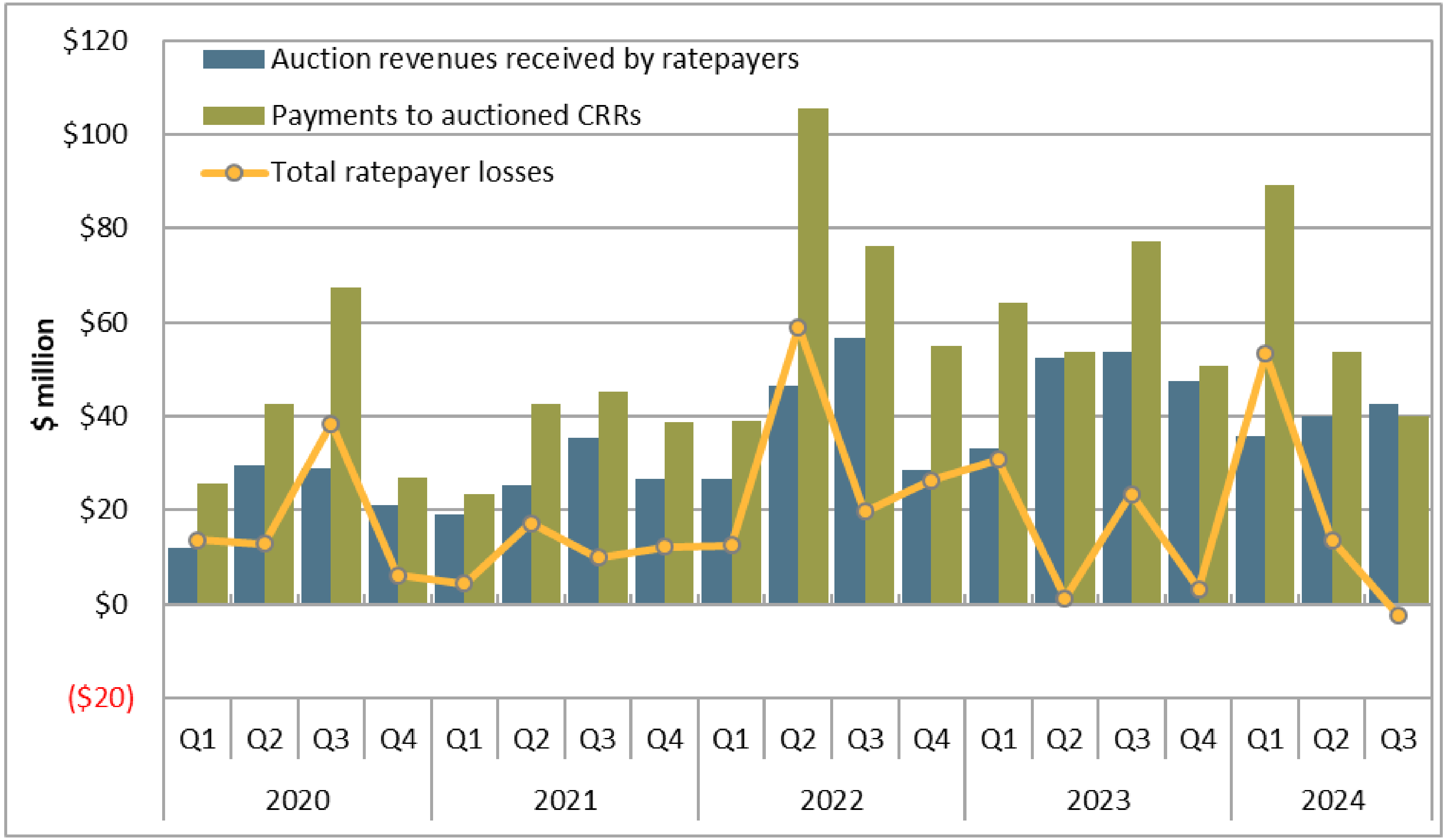
Assistance energy transfers increased WEIM transfers for seven entities

Resource sufficiency evaluation failures during assistance energy transfer opt-in

Balancing area	Days opted in to AET	RSE failures under AET (15-min. intervals)	Percent of failure intervals with additional WEIM imports due to AET	Average WEIM imports added (MW)	Max WEIM imports added (MW)	Total WEIM imports added (MWh)
Avangrid	92	10	33%	23	151	58
California ISO	16	1	0%	0	0	0
Idaho Power	92	4	33%	11	42	11
NorthWestern Energy	92	19	40%	14	157	65
NV Energy	92	3	56%	104	336	78
PacifiCorp East	92	3	33%	61	203	45
PacifiCorp West	92	0	N/A	N/A	N/A	N/A
PNM	78	79	41%	49	434	973
Portland General Electric	10	0	N/A	N/A	N/A	N/A
WAPA Desert Southwest	85	9	56%	99	277	223

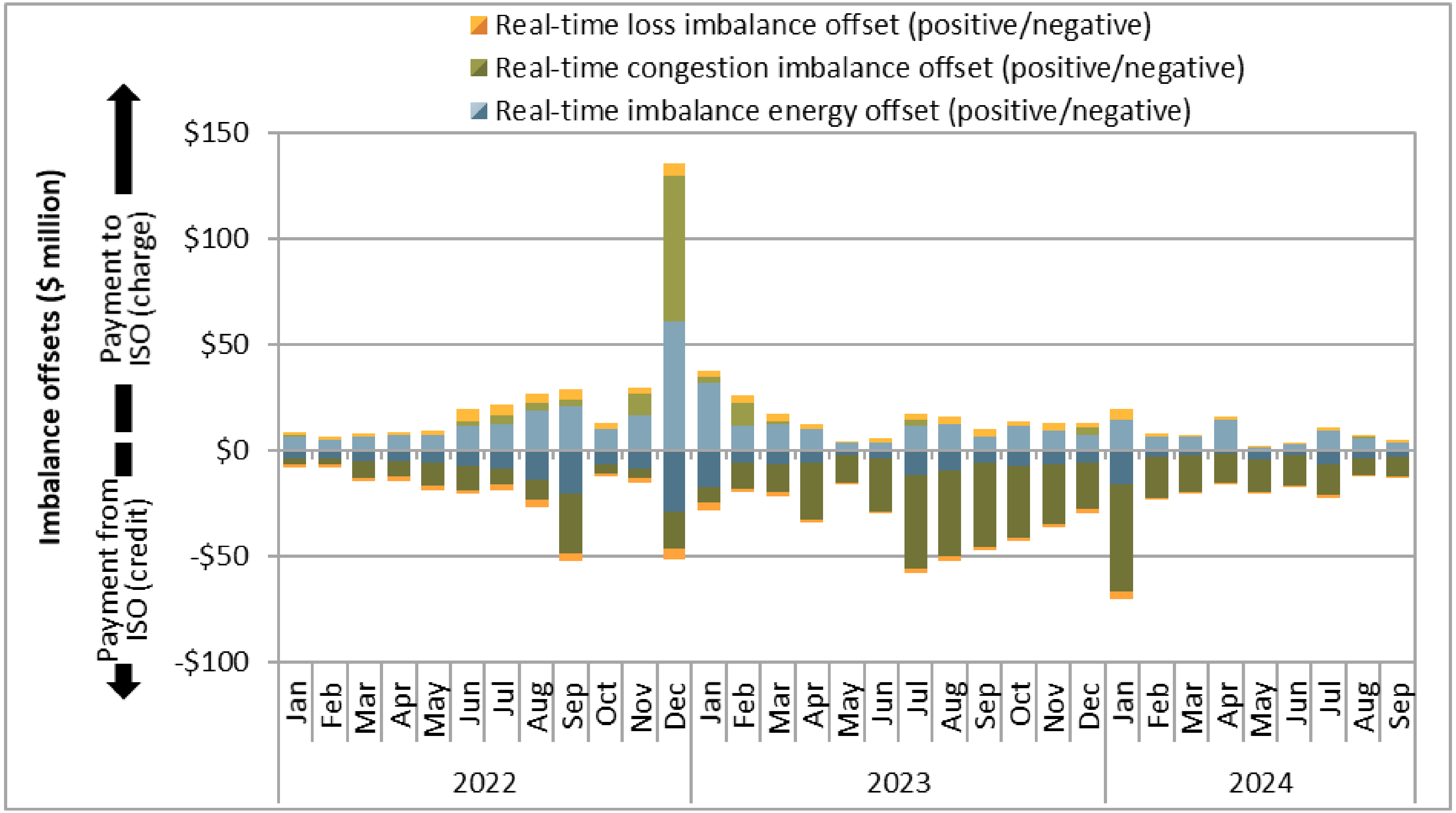
Transmission ratepayers made about $2 million from auctioned CRRs in Q3 2024, mainly from active LSE trading earning over $14 million

Auction revenues and payments to non-load serving entities



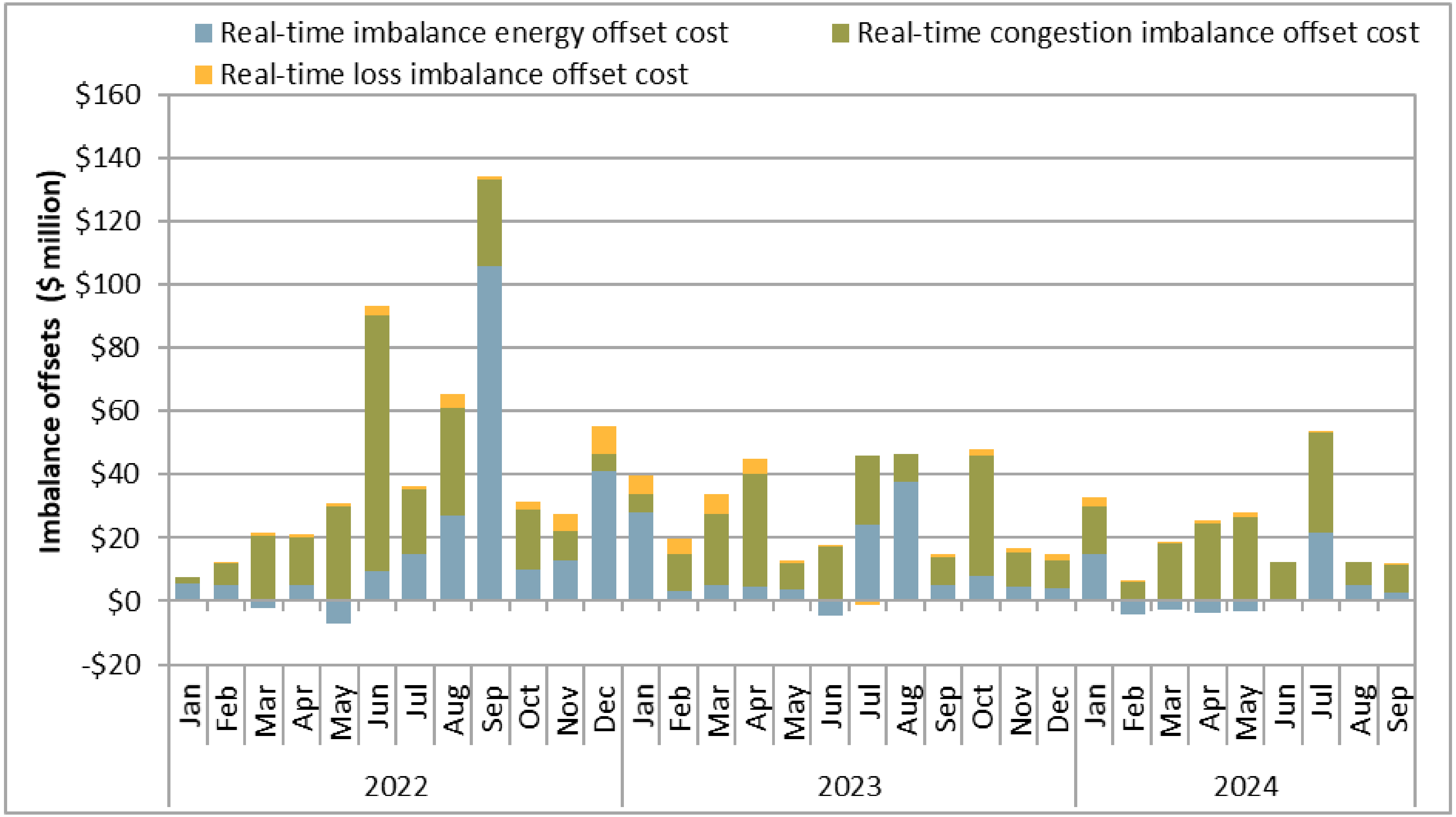
Real-time imbalance offsets in WEIM areas only participating in real-time were $28 million credit to entities, down from $115 million in Q3 2023

Monthly WEIM real-time imbalance offsets



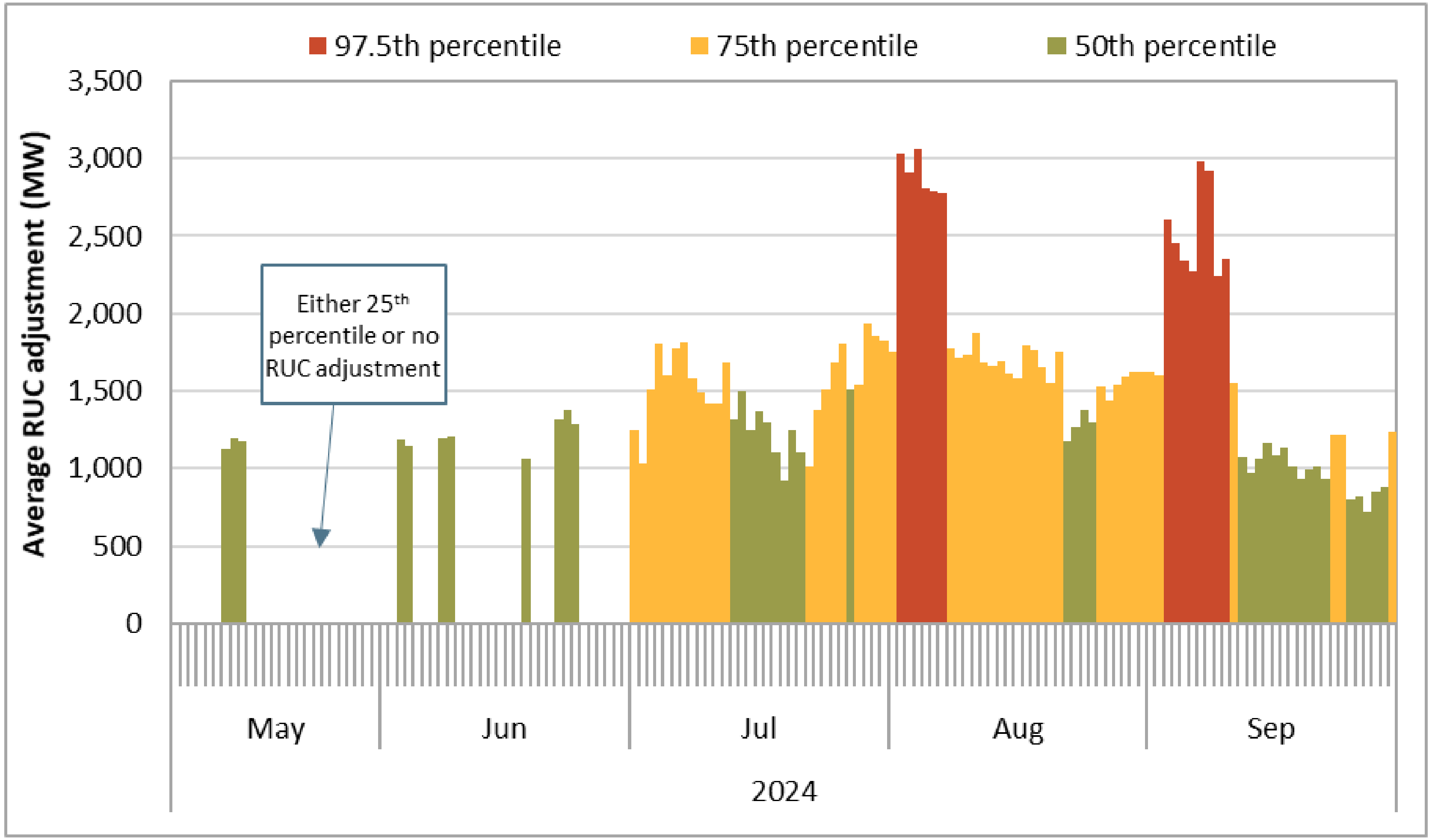
Real-time imbalance offset costs in areas participating in day-ahead market were $78 million, down from $106 million in Q3 2023

Monthly California ISO real-time imbalance offset costs



CAISO RUC adjustment targeted covering 97.5th percentile of uncertainty on only 15% of days in Q3 2024

Average residual unit commitment adjustment by day (peak morning and evening hours, May 7–September 30, 2024)



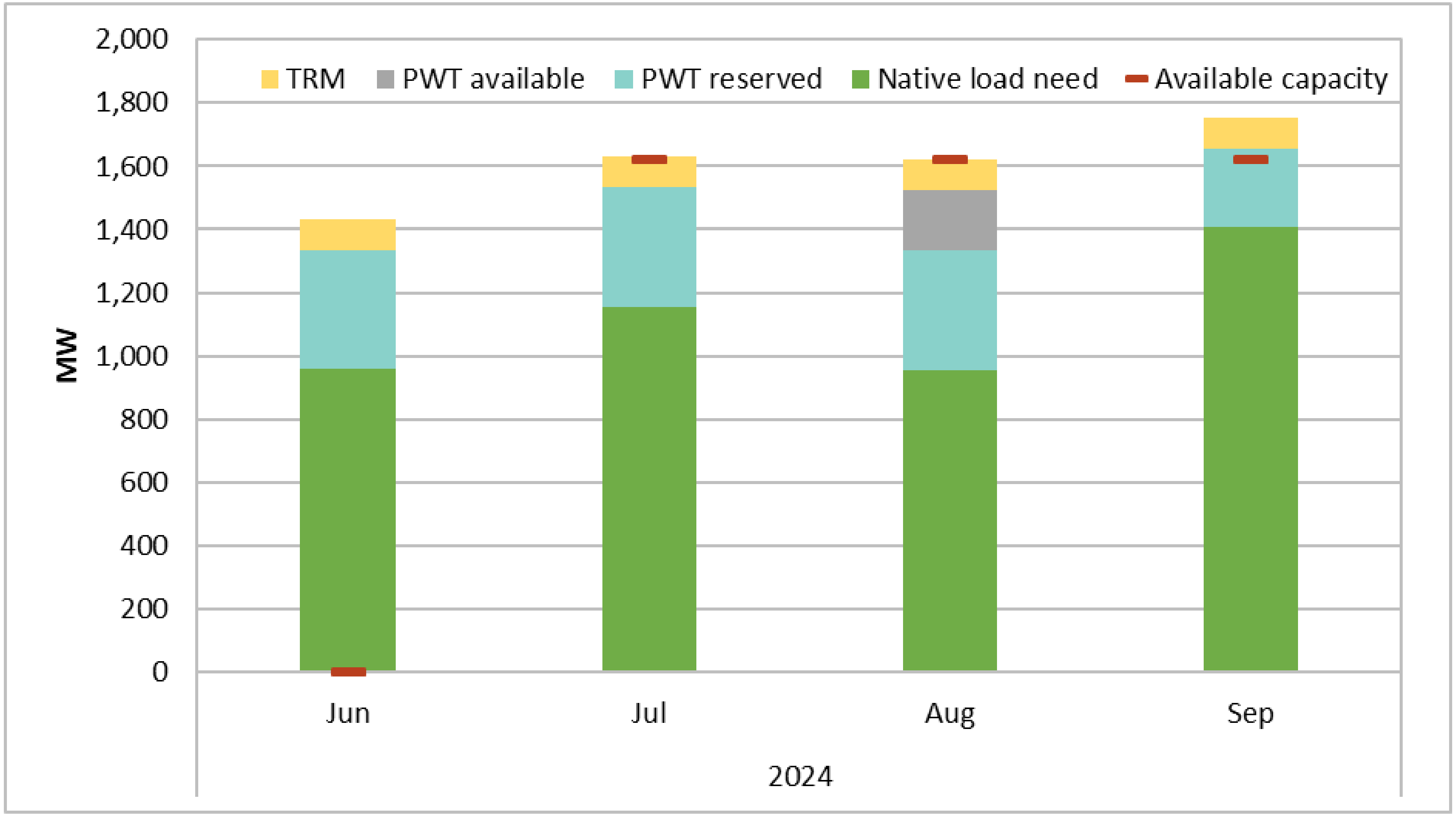
Most priority wheel-through reservations were at NOB and RDM230 ties in Q3

2024 monthly high priority wheel-through reservations by constraint

Quarter	Month	Constraint	Monthly PWT
Q2	Jun	MALIN500_ISL	72
		NOB_ITC	378
		RDM230_ITC	225
Q3	Jul	MALIN500_ISL	77
		NOB_ITC	378
		PALOVRDE_ITC	10
		RDM230_ITC	225
	Aug	IPP	25
		MALIN500_ISL	97
		NOB_ITC	378
		PALOVRDE_ITC	10
		RDM230_ITC	225
	Sep	IPP	25
		NOB_ITC	250
		PALOVRDE_ITC	10
		RDM230_ITC	225

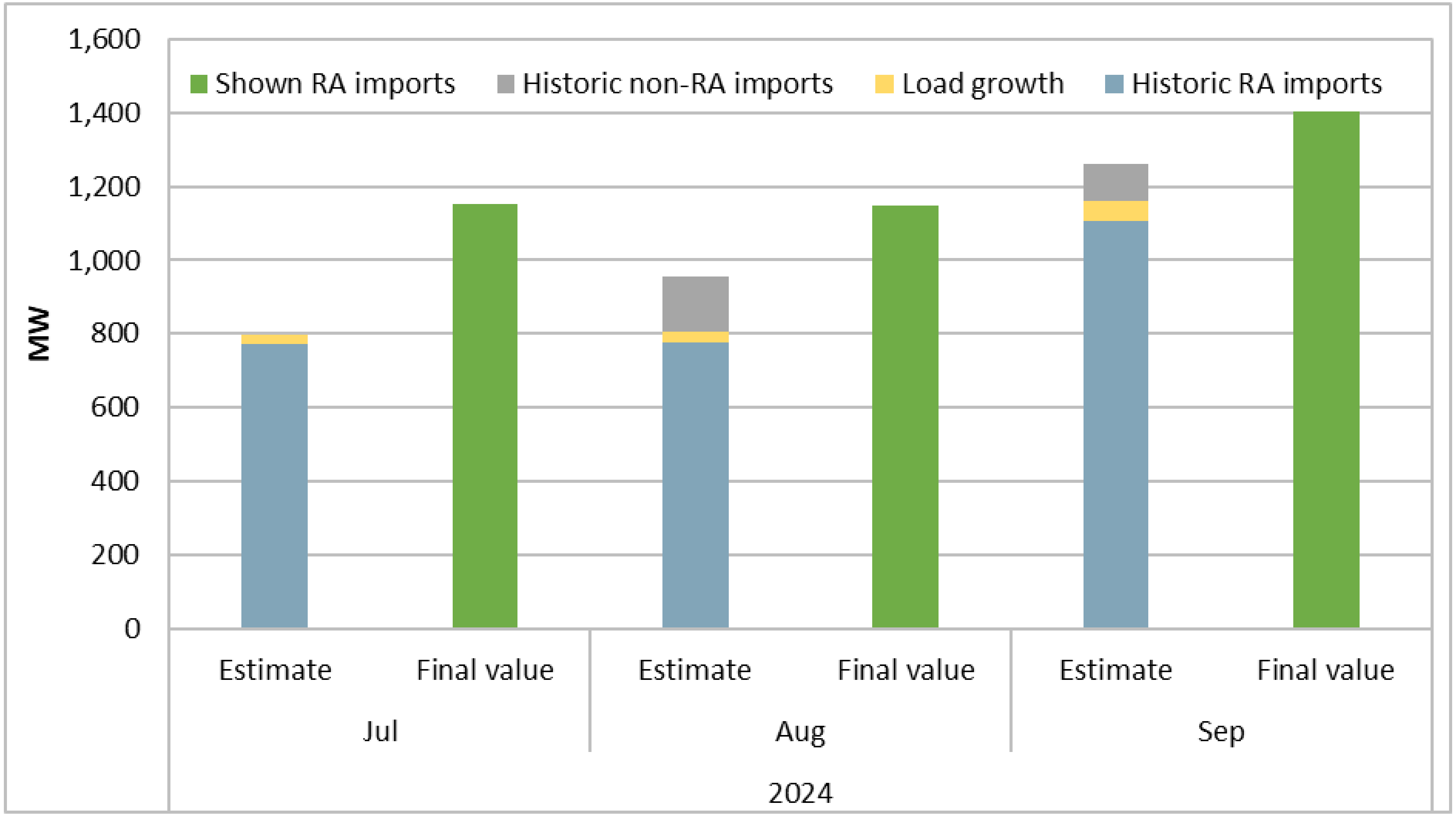
CAISO BA slightly oversubscribed NOB intertie in September

Monthly transmission capacity values at NOB



CAISO underestimated native load needs at NOB in Q3

Native load need estimate vs. final import RA at NOB



For more information …..

- Q3 2024 report on market issues and performance
  – https://www.caiso.com/documents/2024-third-quarter-report-on-market-issues-and-performance-dec-23-2024.pdf
- Department of Market Monitoring webpage
  – http://https://www.caiso.com/market-operations/market-monitoring
- CAISO Tariff, Appendix P
  – http://www.caiso.com/Documents/AppendixP_CAISODepartmentOfMarketMonitoring_asof_Apr1_2017.pdf
- Email questions to:
  – Ryan Kurlinski, rkurlinski@caiso.com
  – DMM, DMM@caiso.com