



California ISO

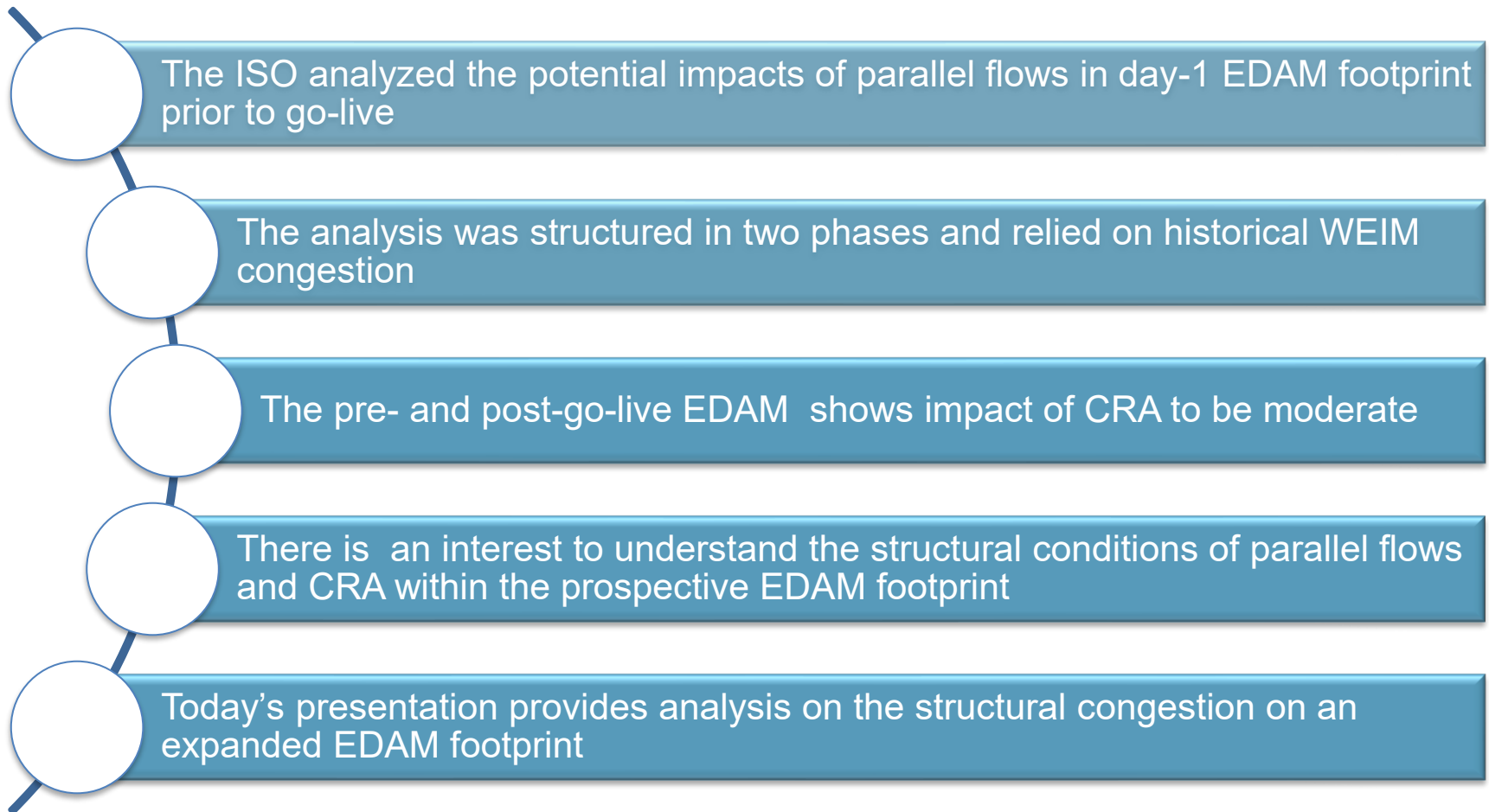
Congestion cost analysis for future EDAM footprint

Guillermo Bautista Alderete

Director, Market Performance & Advanced Analytics

July 28, 2026

The ISO's analysis pre- and post-go live for impact of CRA for day-1 EDAM footprint was moderate analysis to not raise a concern



Highlights of the structural congestion for prospective EDAM footprint

Transactions in EDAM can materially impact parallel-flow on some major transmission constraints in the California ISO area

- On average, 137 congested constraints are in the California ISO area; this represents about 86 percent of all constraints
- About 34 percent of all constraints located in the ISO area are affected by parallel flows generated by transactions in EDAM areas
- A few constraints, such as Path26, can experience up to 40 percent flow impacts from transactions between PacifiCorp east and west
- Impacted constraints are infrequently congested (less than 15 percent of intervals) but occur more frequently in middle of day solar hours

Transactions in the California ISO area have *de minimis* parallel-flow impacts on EDAM areas constraints

- On average, 21 constraints are congested in non-CAISO EDAM areas
- With the exception of few constraints in PAC, frequency of congestion in EDAM areas is negligible
- The impact of parallel flows on these constraints due to California ISO transaction is negligible

Highlights of the structural congestion for prospective EDAM footprint

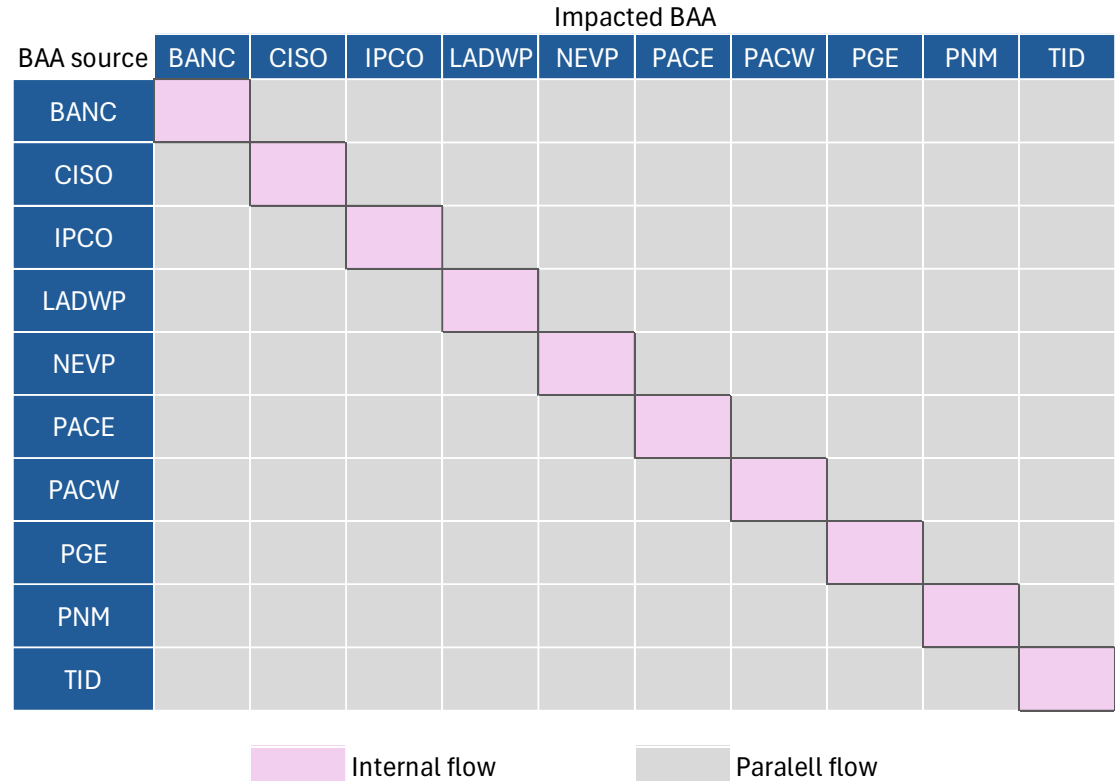
- Congestion across all areas is concentrated during solar hours and increases during evening peak hours in the summer months
- Although there is a relatively high number of constraints congested (150 constraint on average) the frequency of congestion is relatively low
- Patterns observed in the Analysis for PAC continue to be observed among other EDAM areas
- Congestion sourced in non-CAISO EDAM areas has minimal impact on prices relative to congestion sourced in the California ISO area

Flow contributions from transactions on transmission constraints reveal structural patterns of congestion

A transaction is defined between a source and a sink

Shift factors for each location are available from the WEIM market solution

The shift factor difference between source and sink measures the flow contribution of a transaction



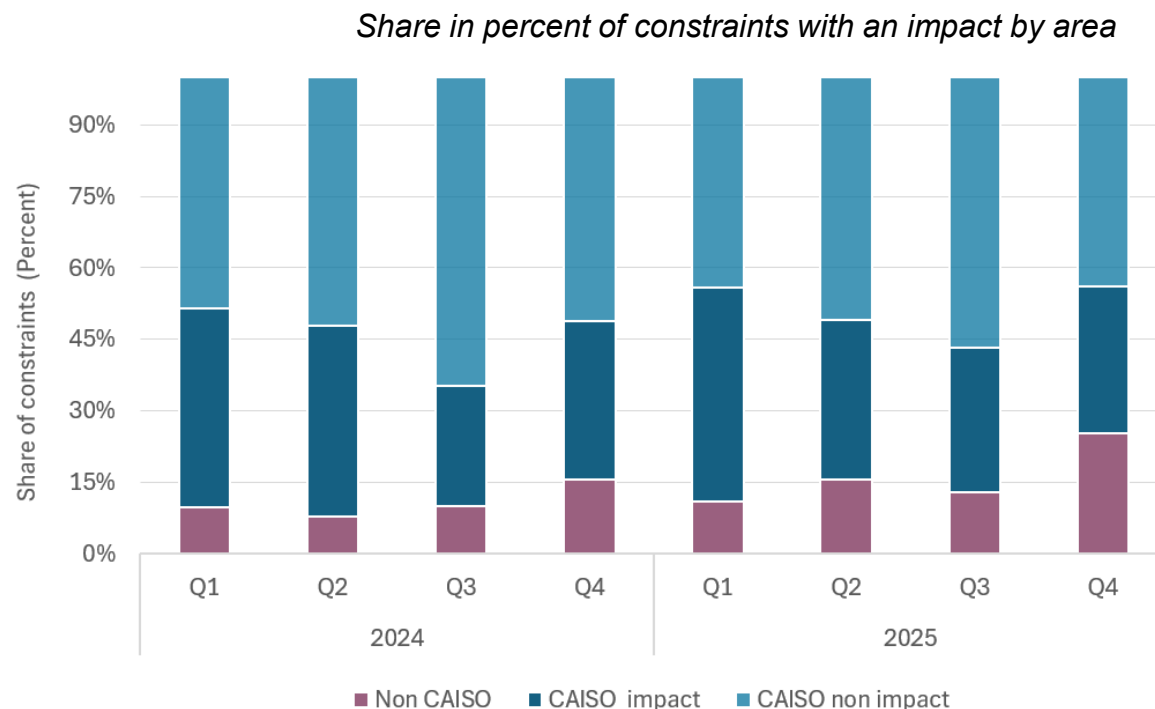
WEIM shift factors are a proxy for EDAM shift factors

For this analysis, the EDAM footprint consists of: BANC, CAISO, IPCO, LADWP, PACE, PACW, PNM, PGE, TID

Assumptions and their implications

- Historical congestion in WEIM is used as a proxy to estimate the potential impact of EDAM parallel flows on congestion rents
- The assessment uses
 - Fifteen-minute historical prices for transmission constraints (shadow prices)
 - Shift factors from the fifteen-minute solution, representing the transmission configuration in the real-time market
- Congestion management in WEIM achieves optimal solutions by optimizing resource schedules in the WEIM footprint, which is a wider footprint than the EDAM's footprint
- Assessment based on real-time congestion need to be considered with caveats as it may not reflect precisely EDAM congestion
- All generators with base schedules are used as a reference to estimate flow contributions (sources) while ELAPs are used as a reference for demand (sinks)

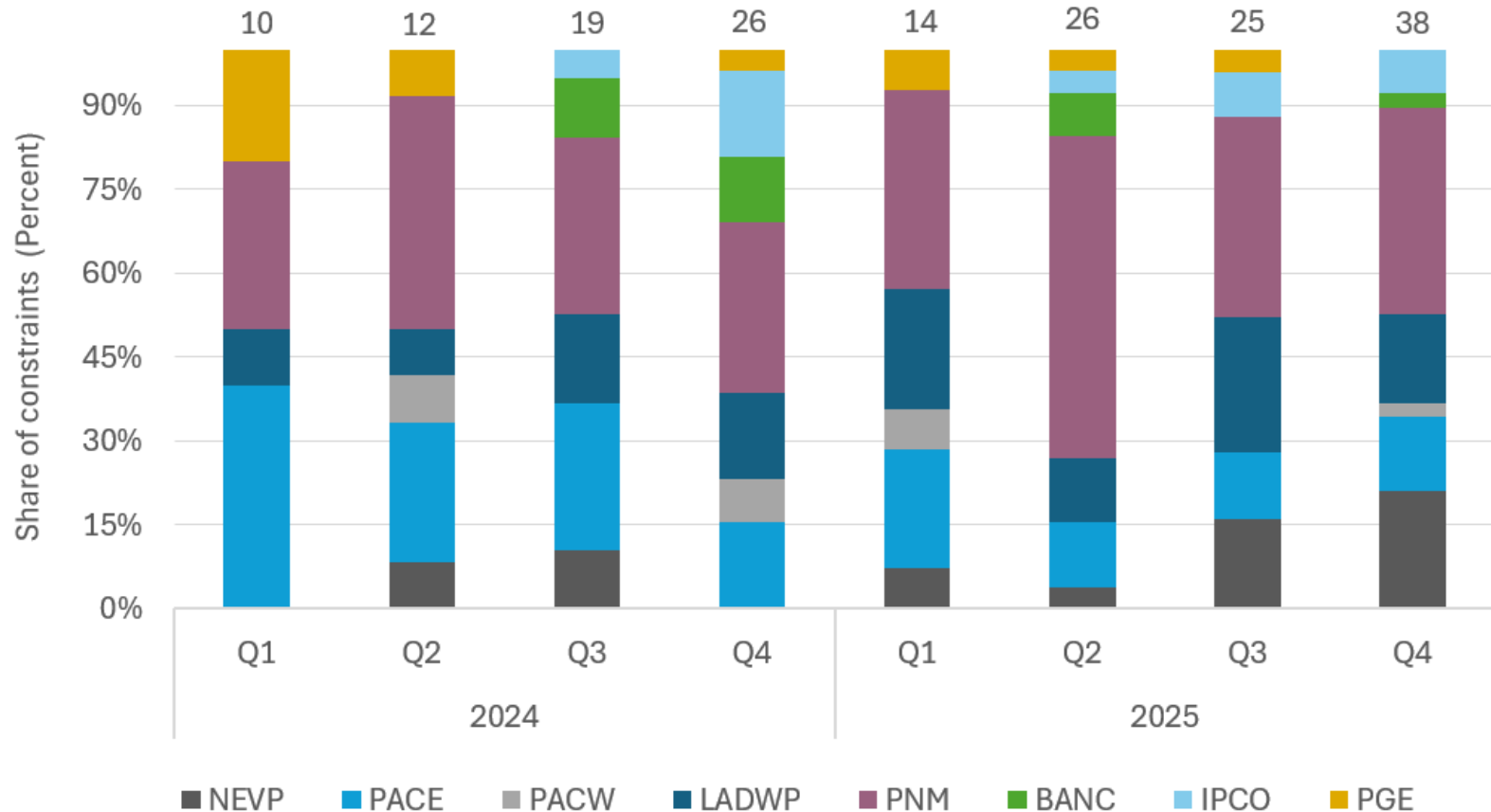
There are many more transmission constraints in CAISO area impacted by parallel flows than constraints in EDAM areas



From the set of all impacted constraints in prospective EDAM footprint, on average:

- 14 percent are in non-CAISO EDAM areas
- 34 are in CAISO area and impacted by parallel flows
- 52 percent are in CAISO area but are not impacted by EDAM area transactions
- On a quarterly average, there are 157 constraints impacted

On average, 21 constraints in non-CAISO EDAM areas can have a parallel flow impact



Most of congestion prices in prospective EDAM areas are originated from CAISO constraints. Prices in \$/MWh in Q1 2024

BAA source	Constraint name	PGE	PACW	PG&E	BANC	TIDC	SCE	LADWP	SDGE	NEVP	PACE	IPOC	PNM
CISO	6110_COI_S-N	4.896	4.910	-5.876	-6.118	-6.065	-4.560	-4.452	-4.321	-3.262	0.032	2.150	-3.123
CISO	30040_TESLA_500_30050_LOSBANOS_500_BR_1_1	1.980	2.024	0.777	2.344	2.377	-3.203	-3.127	-3.055	-1.706	-0.391	0.652	-2.315
CISO	30055_GATES1_500_30060_MIDWAY_500_BR_1_1	1.603	1.645	1.879	2.212	2.290	-3.061	-2.994	-2.933	-1.724	-0.570	0.401	-2.279
CISO	30750_MOSSLD_230_30797_LASAGUIL_230_BR_1_1	0.299	0.305	0.555	0.387	1.204	-1.468	-1.430	-1.399	-0.292			-0.658
CISO	30005_ROUND MT_500_30245_ROUND MT_230_XF_1_P	0.265	0.252	-0.291	-0.512	-0.286	-0.189	-0.182	-0.177	-0.075		0.146	-0.109
CISO	7820_TL230S_OVERLOAD_NG			0.012		0.000	0.046	0.000	0.756	-0.024	-0.022	0.000	-0.055
CISO	7820_TL50002_IV-NG-OUT_TDM			0.008			0.027		0.411				-0.002
CISO	OMS 14513059_LOSBNS_BUS_OUTAGE	0.057	0.058	0.053	0.072	0.081	-0.166	-0.161	-0.159	-0.057	-0.017	0.014	-0.077
CISO	30790_PANOCHE_230_30900_GATES_230_BR_2_1	0.025	0.030	0.096	0.093	0.100	-0.162	-0.147	-0.155	-0.022			-0.087
CISO	30055_GATES1_500_30900_GATES_230_XF_11_P	0.013	0.013	-0.088	-0.013	-0.015	-0.021	-0.020	-0.021	-0.034	-0.016		-0.027
CISO	OMS 14862147_ML_BK81_NG			0.005			0.019		0.167				-0.040
CISO	OMS 50004_IV-ML_OUTAGE_NG			0.005			0.017		0.161	-0.008	-0.008		-0.019
CISO	30055_GATES1_500_30057_DIABLO_500_BR_1_1	0.094	0.095	0.114	0.139	0.144	-0.174	-0.169	-0.168	-0.083	-0.030	0.025	-0.123
CISO	22886_SUNCREST_230_22885_SUNCREST_500_XF_2_P			0.008			0.021		0.177	-0.013	-0.017		-0.043
CISO	MIGUEL_BKs_MXFLW_NG			0.005			0.015		0.130				-0.029
CISO	OMS 15244989_TL23054_NG			0.006			0.016		0.124	-0.003	-0.006		-0.030
CISO	6110_COI_N-S	-0.043	-0.043	0.037	0.039	0.038	0.026	0.025	0.024	0.011	-0.009	-0.024	0.013
CISO	30050_LOSBANOS_500_30055_GATES1_500_BR_1_2	0.049	0.050	0.034	0.061	0.064	-0.082	-0.081	-0.079	-0.046	-0.009	0.016	-0.061
CISO	33530_KASSONJ2_115_33548_TRACY_115_BR_1_1			-0.083			0.004		0.004				
CISO	OMS 15244988_TL23054_NG			0.004			0.011		0.092	-0.004	-0.005		-0.025
CISO	OMS_14707909_SUNCREST_BK81			0.003			0.010		0.077				-0.018
CISO	7690-INYOKN_VOLTAGE_EX_NG						-0.049		-0.017				
CISO	7820_13810A_RAS_MS-SA_NG			0.010			0.028		-0.088				-0.012
CISO	OMS_14675470_Suncrest_BK80_NG			0.004			0.010		0.068	-0.001	-0.002		-0.017
CISO	OMS 15073046_SUNCREST_BK81_NG			0.003			0.008		0.066	0.000	0.000		-0.015
CISO	22442_MELRSETP_69.0_22724_SANMRCOS_69.0_BR_1_1			0.005			0.009		-0.067				
CISO	24801_DEVERS_500_24804_DEVERS_230_XF_2_P		0.000	0.100	0.091	0.095	0.032	0.104	-0.008	-0.073	-0.097		-0.290
CISO	30055_GATES1_500_30060_MIDWAY_500_BR_1_3	0.036	0.037	0.042	0.047	0.049	-0.062	-0.060	-0.059	-0.035	-0.004	0.013	-0.046
CISO	OMS_14830999_IV-SX_Outage_NG			0.001			0.005		0.048	-0.003	-0.003		-0.007
CISO	99002_MOE-ELD_500_24042_ELDORDO_500_BR_1_2	0.001	0.003	0.065	0.057	0.060	0.091	0.102	0.022	0.066	-0.102	-0.023	-0.375
LADWP	Victorville_Los_Angeles			0.000			0.003	0.045	-0.003	-0.007	-0.004	-0.003	-0.006
PACE	WINDSTAR_EXPORT_TCOR			0.101			0.101		0.101		-1.294		
PACE	TOTAL_WYOMING_EXPORT			0.027			0.027		0.027		-0.373		
PACE	EAST_WYO_EXP			0.020			0.020		0.020		-0.254		
PACE	CASPER_SPENCE_230						-0.039		-0.050				
PGE	MCL_PE_SHW_V682	0.576		-0.063	-0.064	-0.064	-0.060	-0.059	-0.059	-0.053			-0.052
PGE	MRHL_STMW_V11712	0.017		-0.004			-0.004		-0.004				
PNM	115kv_MEB_Mi_AL												0.371
PNM	115kv_MEB_Ca_AL												0.112
PNM	115kv_WE_So_EI												0.058

Most of congestion prices in prospective EDAM areas are originated from CAISO constraints. Prices in \$/MWh in Q3 2024

BAA source	Constraint name	PGE	PAOW	PGAE	BANC	TIDC	SCE	LADWP	SDGE	NEVP	PACE	IPCO	PNM
BANC	XFMR2_230.HED			-0.001	0.003		0.000		0.000				
BANC	KES_OBN			0.000	0.001								
CISO	30765_LOSBANOS_230_30790_PANOCHE_230_BR_2_1	0.012	0.014	0.051	0.810	1.764	-0.376	-0.001	-0.357				
CISO	32214_RIO_OSO_115_30330_RIO_OSO_230_XF_1			0.788			-0.004		-0.004				
CISO	30060_MIDWAY_500_24156_VINCENT_500_BR_2_3	-0.346	-0.351	-0.492	-0.474	-0.488	0.387	0.377	0.372	0.251	0.011	-0.145	0.280
CISO	7820_CP3_NG			0.004		0.000	0.031	0.000	0.809	-0.049	-0.052	-0.011	-0.122
CISO	7430_CP6_NG			0.213	0.869		-0.259		-0.246				
CISO	22208_EL_CAJON_69.0_22408_LOSCOCOS_69.0_BR_1_1								0.534				
CISO	30750_MOSSLD_230_30797_LASAGUIL_230_BR_1_1			0.315			-0.357	-0.001	-0.340				
CISO	34116_LE_GRAND_115_34115_ADRA_TAP_115_BR_1_1			-0.162			-0.026		-0.023				
CISO	22846_SANJCP_230-22260_ESONDO_230-BR1			0.018			0.028		-0.216				-0.023
CISO	30790_PANOCHE_230_30900_GATES_230_BR_2_1	0.055	0.061	0.096	0.136	0.269	-0.152	-0.087	-0.145	-0.014			-0.034
CISO	30330_RIO_OSO_230_30335_ATLANTC_230_BR_1_1			0.037	0.125		0.006		0.005				
CISO	6110_COI_N-S	-0.986	-0.991	0.576	0.623	0.589	0.349	0.336	0.316	0.103	-0.313	-0.615	0.161
CISO	30055_GATES1_500_30900_GATES_230_XF_11_P	-0.039	-0.039	-0.114	-0.087	-0.094	0.062	0.060	0.058	0.027	-0.002	-0.018	0.045
CISO	30105_COTTINWD_230_30245_ROUND_MT_230_BR_3_1	-0.303	-0.303	0.197	0.358	0.000	0.095		0.084				
CISO	32056_CORTINA_60.0_30451_CRTNA_M_1.0_XF_1			0.124									
CISO	7820_TL23040_IV_SPS_NG			0.002			0.011		0.117				-0.008
CISO	30733_VASONA_230_30735_METCALF_230_BR_1_1			0.287			-0.098		-0.095				
CISO	COI_600 N-S	-0.120	-0.120	0.079	0.085	0.080	0.049	0.048	0.045	0.015	-0.035	-0.073	0.023
CISO	30114_DELEVAN_230_30450_CORTINA_230_BR_1_1	-0.013	-0.013	0.067			0.017		0.014			0.000	
CISO	30050_LOSBANOS_500_30055_GATES1_500_BR_1_2	0.080	0.081	0.065	0.097	0.099	-0.087	-0.084	-0.083	-0.054	-0.007	0.028	-0.065
CISO	32214_RIO_OSO_115_32225_BRNSWKT1_115_BR_1_1			0.066									
CISO	30056_GATES2_500_30060_MIDWAY_500_BR_2_1	0.133	0.134	0.138	0.172	0.176	-0.158	-0.154	-0.151	-0.104	-0.027	0.029	-0.124
CISO	30440_TULUCAY_230_30460_VACA-DIX_230_BR_1_1			0.084			-0.013		-0.013				
CISO	OMS_16244394_COI_DLO	-0.363	-0.365	0.205	0.221	0.210	0.126	0.122	0.114	0.039	-0.102	-0.218	0.060
CISO	32018_GOLDHILL_115_30337_GOLDHILL_230_XF_1			0.081			-0.019		-0.019				
CISO	30460_VACA-DIX_230_30465_BAHIA_230_BR_1_1			0.037			0.000		0.000				
CISO	30055_GATES1_500_30060_MIDWAY_500_BR_1_1	0.058	0.059	0.067	0.077	0.079	-0.069	-0.067	-0.066	-0.046	-0.013	0.010	-0.054
CISO	99013_CALCAPS_500_24801_DEVERS_500_BR_1_1	0.000	0.000	0.016	0.015	0.016	0.035	0.016	0.001	-0.013	-0.014		-0.044
IPCO	CTWT-EKTP1_A											0.000	
LADWP	TAR BK E			-0.001			-0.001	0.016	0.000				
LADWP	VAL_TOL 2			-0.002			-0.002	0.015					
LADWP	HAR_WILE							-0.003					
NEVP	BVY-FCN_167						0.000		0.000	0.000		0.000	
NEVP	LVC-QR-PE2								0.000				
PACE	WINDSTAR EXPORT TCOR			0.018			0.021		0.022		-0.266	-0.019	0.001
PACE	TOTAL_WYOMING_EXPORT			0.016			0.016		0.016		-0.236		
PACE	EAST_WYO_EXP			0.005			0.005		0.005		-0.073		
PACE	AEOLUS_EXP						-0.001		-0.001			0.000	
PACE	BONANZA\$ MONA_345								0.000		0.002		-0.002
PACE	CASPER_SPENCE_230						0.000		0.000				
PNM	115kv Pic Fro												0.081
PNM	115kv DL_Mi_Wm						-0.005		-0.008				0.068
PNM	115kv ML			-0.001			-0.002		-0.002				0.034
PNM	LunaPNM345_115X						-0.001		-0.001				0.021
PNM	FRCE-PINT1			0.001			0.001		0.000				-0.019
PNM	CZ 345kV			0.000			0.000		0.000				-0.001

CAISO constraints have the most impact price contribution on EDAM areas while EDAM area constraints have a minimal price impact among EDAM areas

Average MCC in \$/MWh. Period January 2024-December 2025

BAA source	PGE	PACW	BANC	TIDC	PGAE	SCE	SDGE	LADWP	NEVP	PACE	IPCO	PNM
PGE	0.07	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01			-0.01
PACW	0.01	0.01	0.00	0.00	0.00	-0.01	-0.01		-0.01	-0.02	-0.03	-0.01
BANC	-0.01	-0.01	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
TID	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CISO	2.15	2.20	2.81	3.95	2.24	-4.47	-1.94	-3.87	-1.90	-0.63	0.55	-3.49
LADWP	0.00	0.01	0.02	0.02	0.01	0.02	-0.01	0.08	-0.03	-0.01	0.00	-0.03
NEVP			-0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
PACE					0.03	0.01	0.01		0.00	-0.42	0.04	-0.02
IPCO	0.02	0.02			0.00	-0.01	-0.01	-0.01	-0.02	-0.04	0.07	-0.02
PNM					0.02	0.02	0.02					-1.09

- CAISO constraints generally created price separations with higher prices in the Pacific Northwest and lower prices in the desert southwest

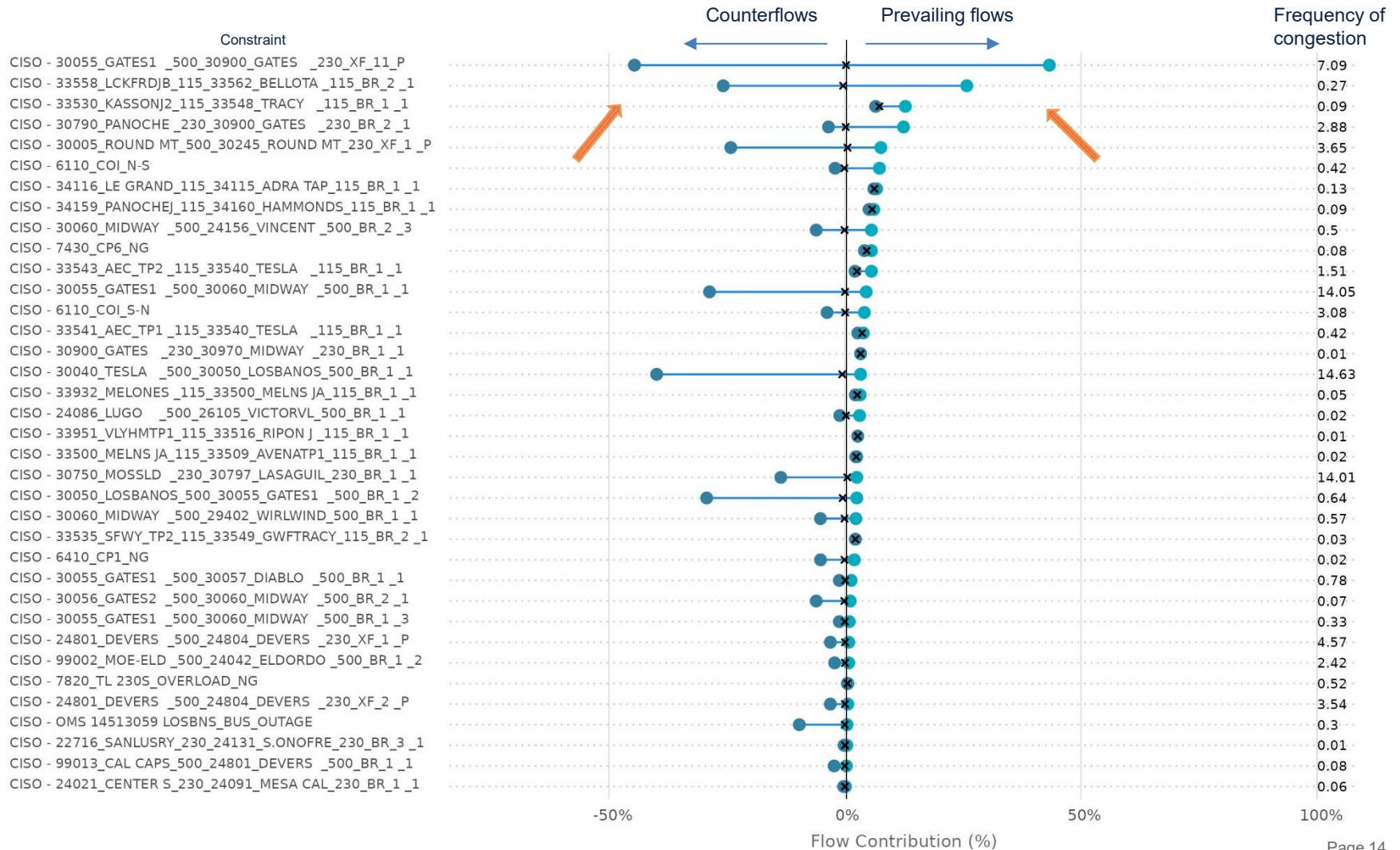
Congestion in the prospective EDAM happens mainly during solar hours and exhibit price separation with higher prices in the Pacific Northwest. Prices in \$/MWh in Q1 2024

Year	Quarter	Hour	PGE	PACW	PG&E	BANC	TIDC	SCE	LADWP	SDGE	NEVP	PACE	IPCO	PNM
2024	1	1	1.041	1.039	-0.585	-1.155	-1.097	-0.653	0.096	1.373	-0.896	-2.775	0.387	-0.308
2024	1	2	2.979	2.991	-2.608	-3.069	-3.007	-2.464	-2.639	-0.849	-1.913	-2.846	1.303	-1.780
2024	1	3	1.285	1.299	-0.631	-1.292	-1.260	-1.046	-1.253	0.311	-0.921	-2.903	0.511	-0.764
2024	1	4	0.049	0.047	0.662	0.095	0.112	0.072	-0.119	1.127	-0.080	-2.660	0.001	0.223
2024	1	5	0.383	0.381	0.338	-0.349	-0.328	-0.324	-0.493	1.285	-0.350	-2.368	0.177	0.036
2024	1	6	-0.096	-0.100	0.287	0.042	0.105	0.182	0.038	1.192	0.010	-2.529	-0.055	0.870
2024	1	7	-0.065	-0.065	0.461	0.139	0.197	0.332	-0.047	0.642	-0.055	-2.712	-0.066	0.827
2024	1	8	2.375	2.414	2.121	2.102	2.445	-2.858	-3.429	-1.979	-2.490	-3.036	0.703	-3.498
2024	1	9	12.192	11.481	1.620	3.321	4.784	-16.244	-16.127	-11.703	-10.111	-4.107	3.891	-13.678
2024	1	10	15.385	15.620	2.619	6.735	9.388	-24.553	-24.015	-20.720	-13.680	-4.720	5.083	-19.071
2024	1	11	21.315	21.593	-2.623	2.900	6.340	-33.200	-32.533	-29.229	-18.661	-5.267	7.070	-25.853
2024	1	12	24.788	22.181	-3.561	1.361	5.224	-35.522	-34.712	-32.313	-19.722	-5.262	7.173	-27.698
2024	1	13	23.740	20.572	-2.536	1.722	5.623	-33.780	-33.126	-30.117	-18.460	-4.995	6.506	-26.166
2024	1	14	22.889	20.530	-2.289	2.291	6.002	-32.765	-32.072	-29.426	-17.984	-4.951	6.660	-25.734
2024	1	15	18.842	17.551	2.784	7.957	11.632	-28.683	-28.103	-24.096	-15.199	-4.612	5.523	-22.569
2024	1	16	22.622	20.076	-4.156	0.363	3.129	-27.279	-26.759	-23.342	-15.682	-4.046	7.139	-20.967
2024	1	17	19.274	19.450	-11.277	-9.447	-7.742	-21.966	-21.604	-18.715	-13.749	-2.913	7.727	-15.792
2024	1	18	11.124	11.215	-7.595	-7.650	-6.624	-11.116	-11.030	-8.456	-7.449	-2.482	4.739	-8.213
2024	1	19	10.461	10.523	-8.202	-8.683	-8.464	-9.738	-9.471	-8.272	-5.971	-2.188	4.608	-6.743
2024	1	20	9.329	9.392	-7.388	-7.689	-7.485	-8.687	-8.545	-7.727	-5.829	-2.131	4.115	-5.370
2024	1	21	9.104	9.150	-7.529	-7.915	-7.700	-8.297	-8.151	-7.244	-5.746	-2.255	4.102	-5.216
2024	1	22	5.476	5.500	-5.320	-5.699	-5.529	-4.589	-4.660	-2.398	-3.373	-2.152	2.478	-2.965
2024	1	23	0.126	0.119	0.077	-0.299	-0.181	0.266	-0.025	3.045	-0.185	-2.276	0.058	0.238
2024	1	24	1.918	1.921	-1.694	-2.309	-2.236	-1.580	-1.724	-0.245	-1.299	-2.350	0.867	-0.523

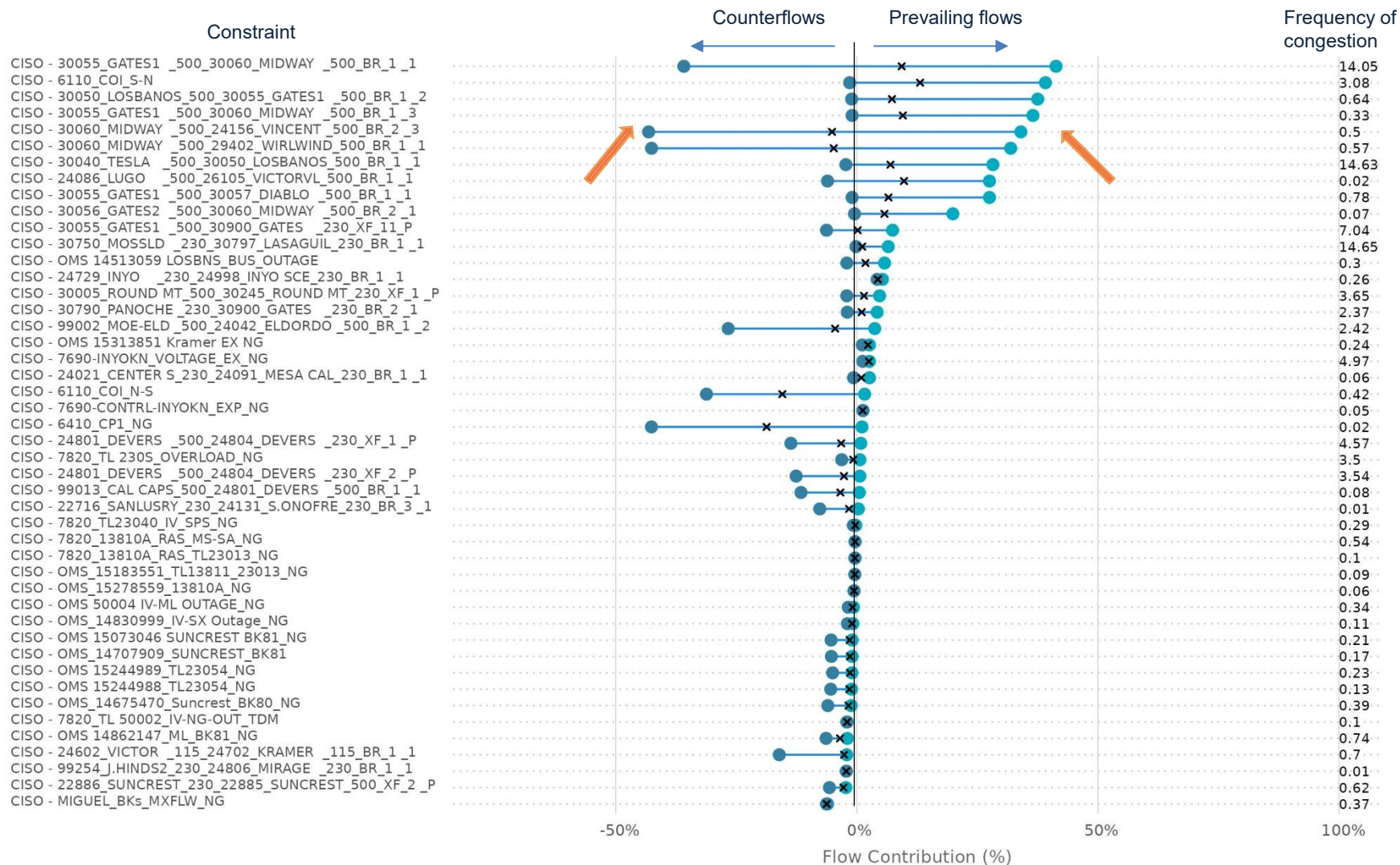
Congestion in the prospective EDAM happens mainly during solar hours and exhibit price separation with higher prices in the California areas. Prices in \$/MWh in Q3 2024

Year	Quarter	Hour	PGE	PACW	PGAE	BANC	TIDC	SCE	LADWP	SDGE	NEVP	PACE	IPCO	PNM
2024	3	1	-0.355	-0.360	0.173	-0.168	-0.142	0.305	0.254	0.518	0.097	-0.576	-0.202	0.478
2024	3	2	-0.631	-0.637	0.139	-0.077	-0.051	0.458	0.397	0.766	0.169	-0.523	-0.364	0.601
2024	3	3	-0.548	-0.552	0.073	-0.017	-0.043	0.380	0.335	0.575	0.145	-0.378	-0.302	0.605
2024	3	4	-0.421	-0.425	0.046	-0.032	-0.042	0.302	0.255	0.415	0.090	-0.447	-0.238	0.628
2024	3	5	-0.231	-0.233	0.021	-0.035	-0.045	0.192	0.144	0.355	0.034	-0.450	-0.149	0.676
2024	3	6	-0.264	-0.265	0.267	0.050	0.006	0.181	0.133	0.283	0.029	-0.438	-0.163	1.083
2024	3	7	-0.625	-0.629	0.146	0.061	-0.064	0.454	0.375	0.614	0.161	-0.590	-0.308	1.592
2024	3	8	0.053	0.056	0.711	0.734	0.731	-0.678	-0.374	-0.388	-0.202	-0.521	-0.060	0.196
2024	3	9	0.707	0.718	1.881	2.697	3.709	-2.900	-1.144	-2.343	-0.568	-0.619	0.116	-1.507
2024	3	10	0.918	0.929	2.413	2.998	5.115	-4.022	-1.221	-3.308	-0.698	-0.579	0.153	-1.261
2024	3	11	0.934	0.948	1.333	3.686	6.459	-3.406	-1.035	-2.786	-0.662	-0.503	0.174	-1.315
2024	3	12	0.739	0.770	1.433	4.090	6.825	-3.523	-0.879	-3.059	-0.487	-0.425	0.063	-1.057
2024	3	13	0.487	0.527	0.839	3.823	6.999	-2.689	-0.482	-3.513	-0.242	-0.312	0.014	-0.515
2024	3	14	0.499	0.543	1.302	4.488	7.645	-2.783	-0.515	-3.922	-0.332	-0.411	0.011	-0.600
2024	3	15	0.334	0.368	0.999	4.559	6.775	-2.230	-0.234	-1.885	-0.284	-0.539	-0.046	-0.602
2024	3	16	-0.550	-0.508	3.136	6.033	6.549	-2.029	0.281	-0.478	-0.146	-0.748	-0.221	-0.455
2024	3	17	-1.261	-1.253	5.478	5.647	3.030	-1.684	0.663	0.736	0.155	-0.695	-0.410	0.190
2024	3	18	-2.521	-2.516	10.295	3.662	0.832	-0.838	1.209	4.248	0.383	-1.033	-0.929	0.457
2024	3	19	-11.485	-11.555	14.724	6.875	0.858	2.617	5.168	6.876	2.352	-3.622	-5.798	2.723
2024	3	20	-14.224	-14.295	16.616	13.573	5.418	3.605	4.939	6.653	1.726	-6.489	-7.794	2.100
2024	3	21	-9.441	-9.482	11.405	7.831	3.758	2.619	2.994	6.623	0.916	-3.516	-4.978	0.997
2024	3	22	-5.543	-5.578	4.743	3.200	1.573	2.106	1.854	6.468	0.451	-2.204	-2.906	0.535
2024	3	23	-0.832	-0.840	0.595	0.010	-0.427	0.613	0.583	0.953	0.322	-0.827	-0.407	0.638
2024	3	24	-0.530	-0.536	0.034	-0.345	-0.515	0.512	0.466	0.706	0.255	-0.643	-0.261	0.535

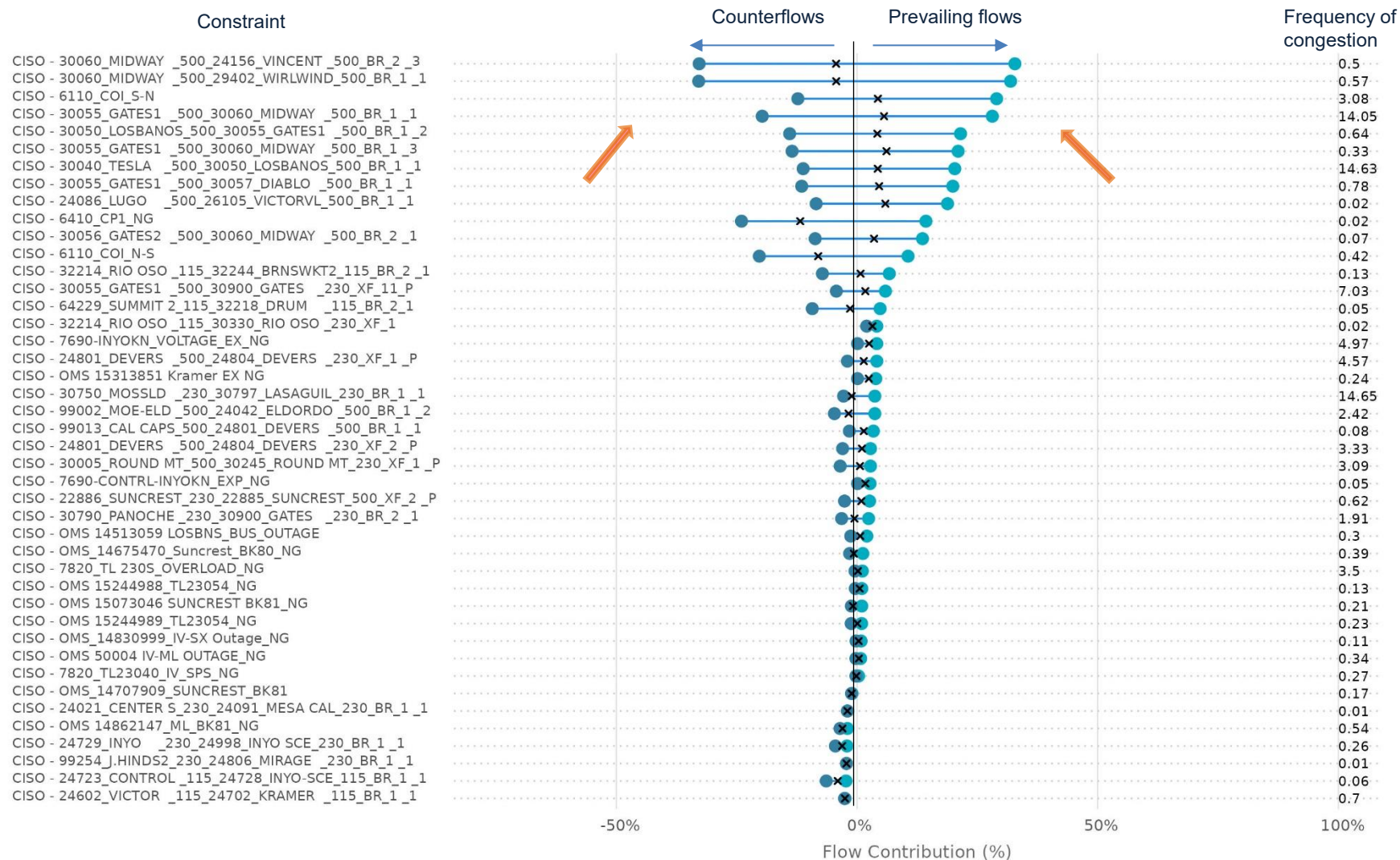
Generation and demand within BANC area will have meaningful impact on few CAISO transmission constraints



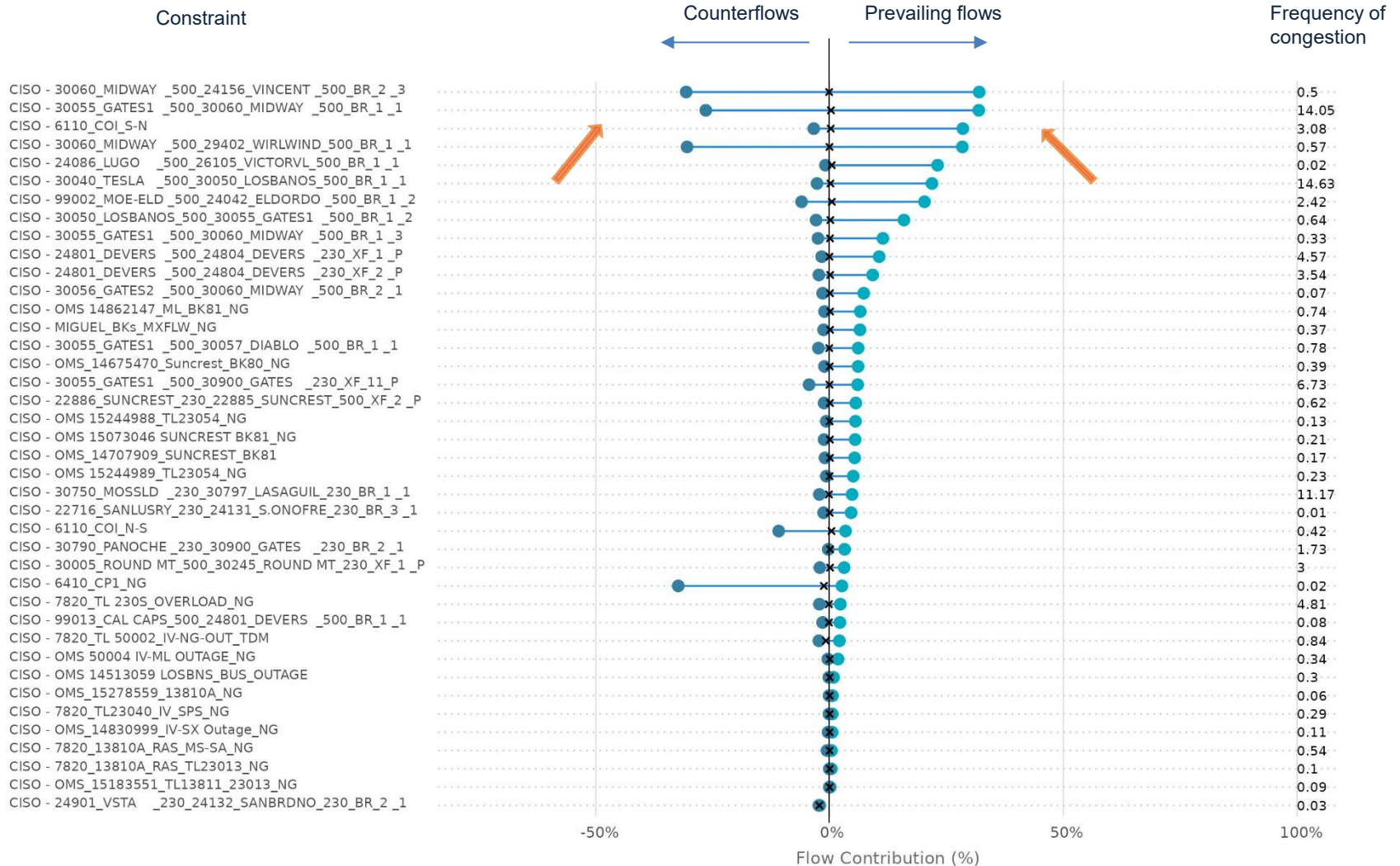
Generation and demand within LADWP area will have more meaningful impact on more CAISO transmission constraints



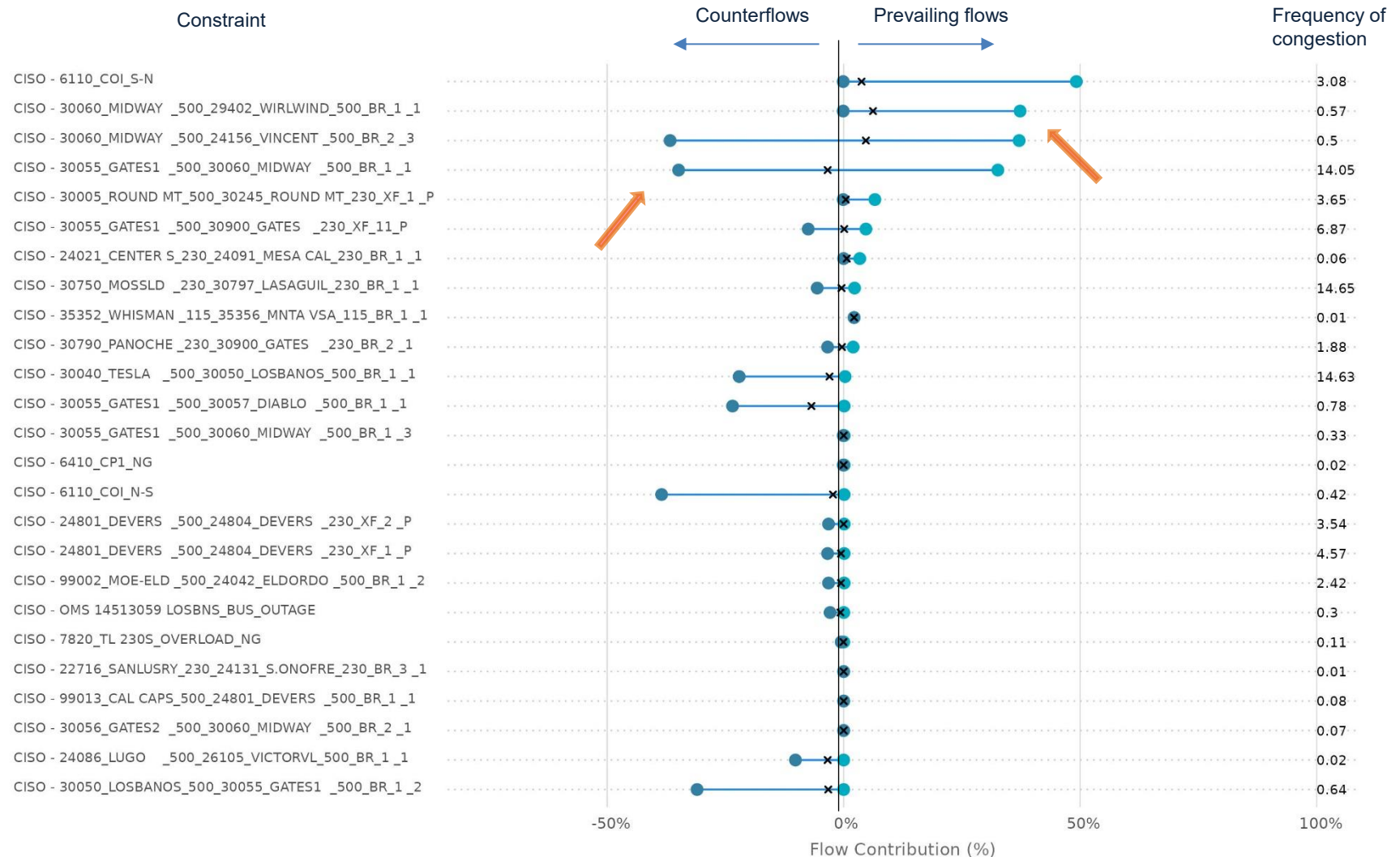
Generation and demand within NEVP area will have more meaningful impact on more CAISO transmission constraints



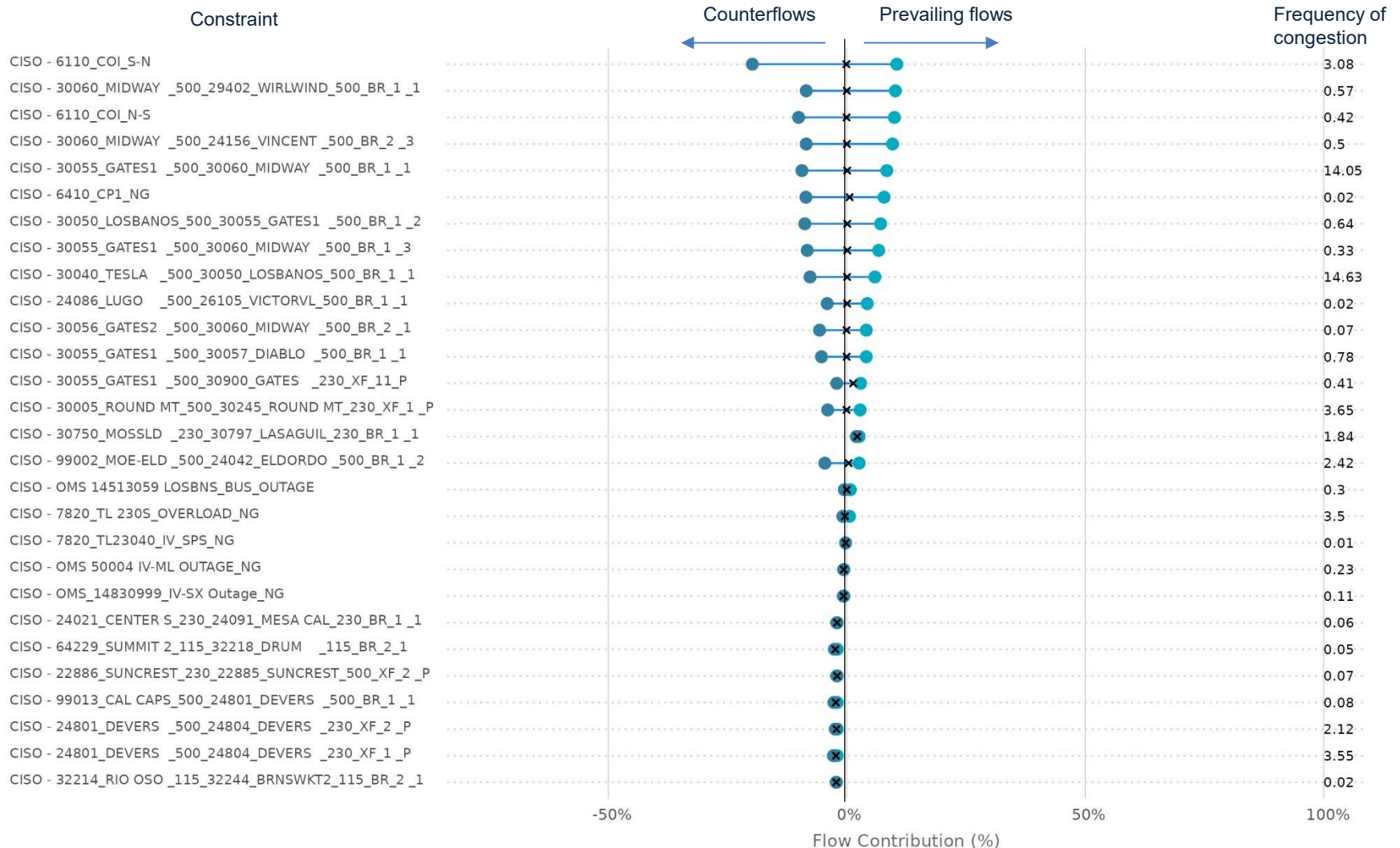
Generation and demand within PNM area will have moderate impact on several CAISO transmission constraints



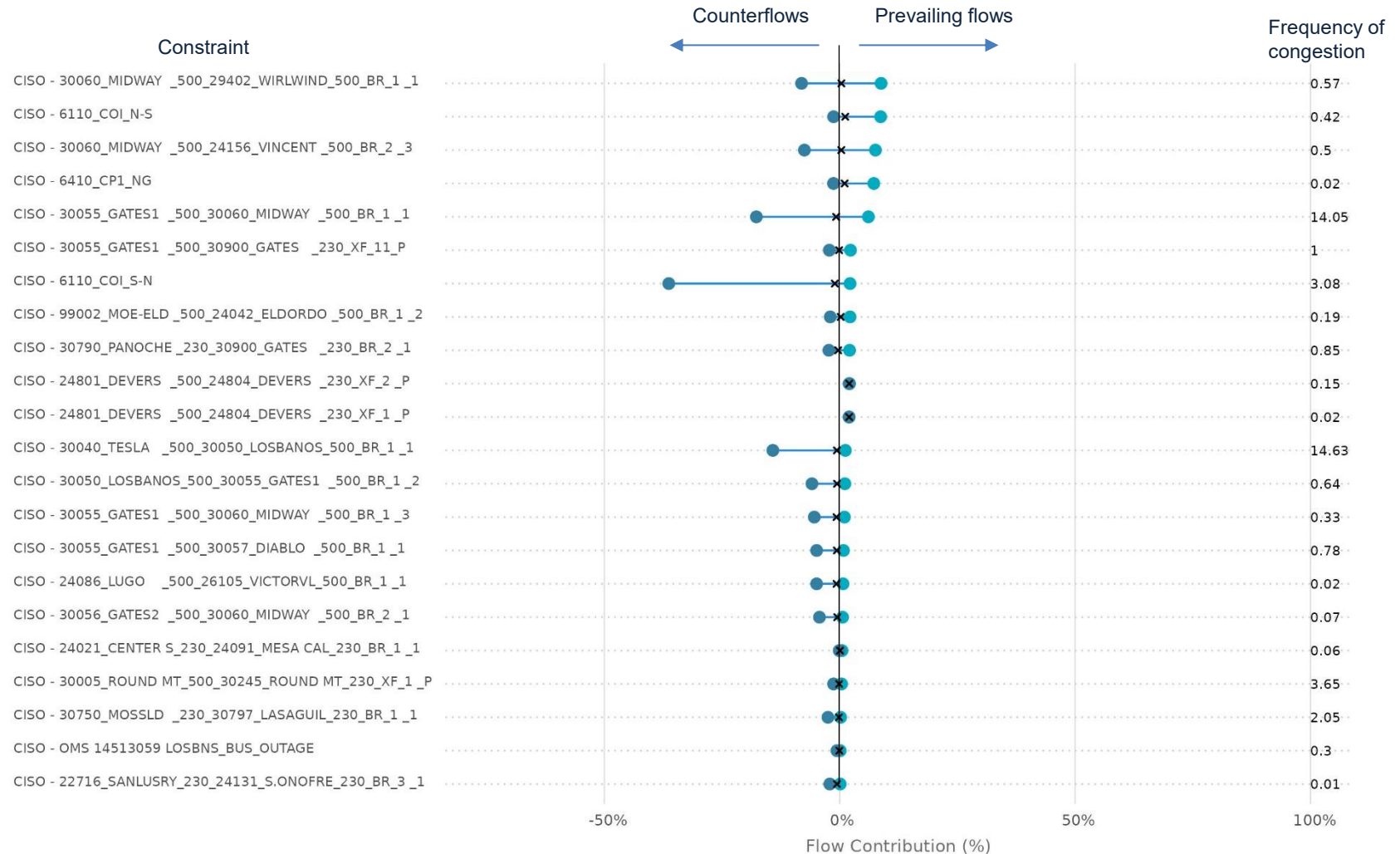
Generation and demand within TID area will have meaningful impact on a few CAISO transmission constraints



Generation and demand within IPCO area will have moderate impact on a few CAISO transmission constraints

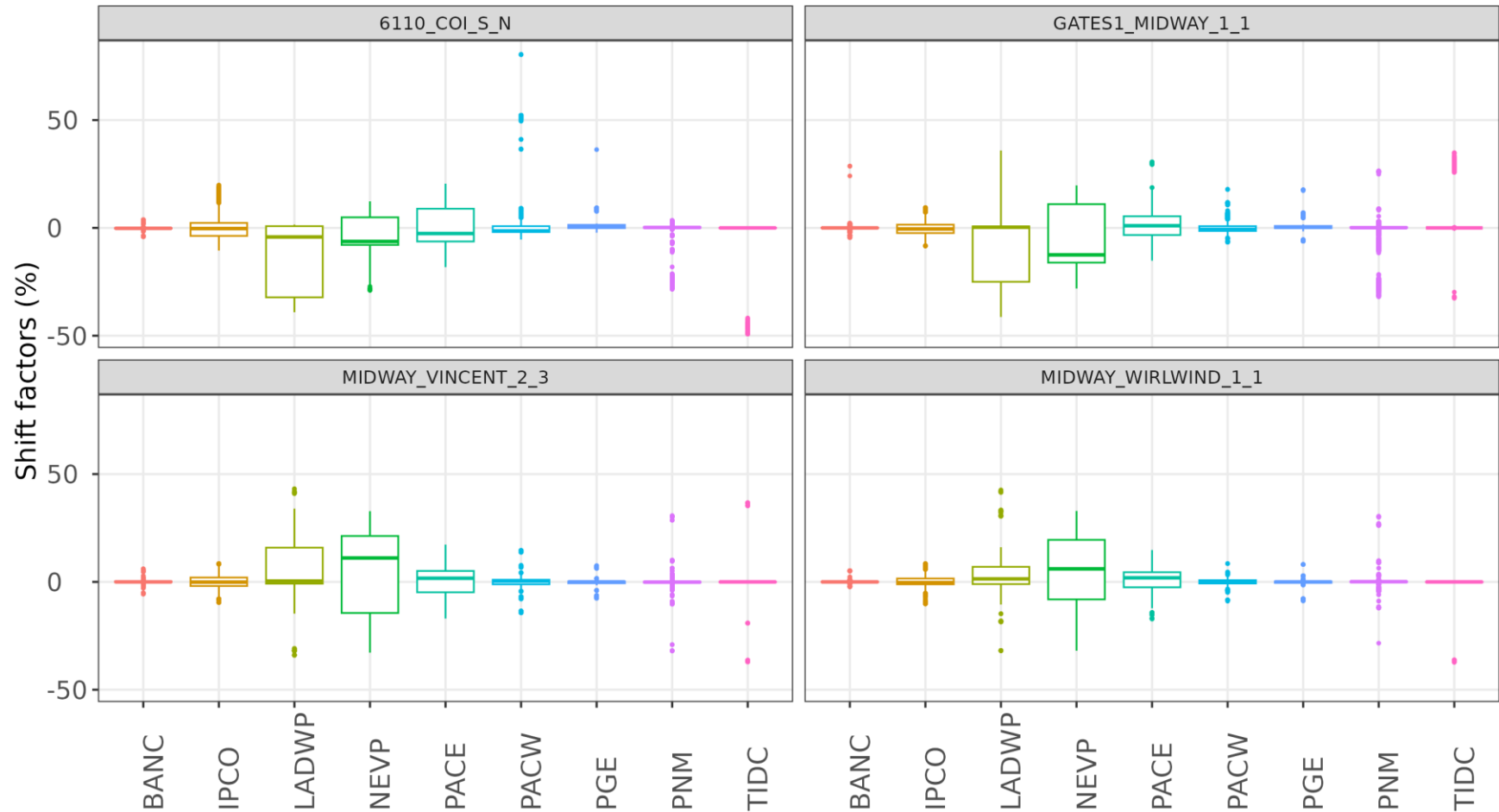


Generation and demand within PGE area will have minimal impact on a few CAISO transmission constraints

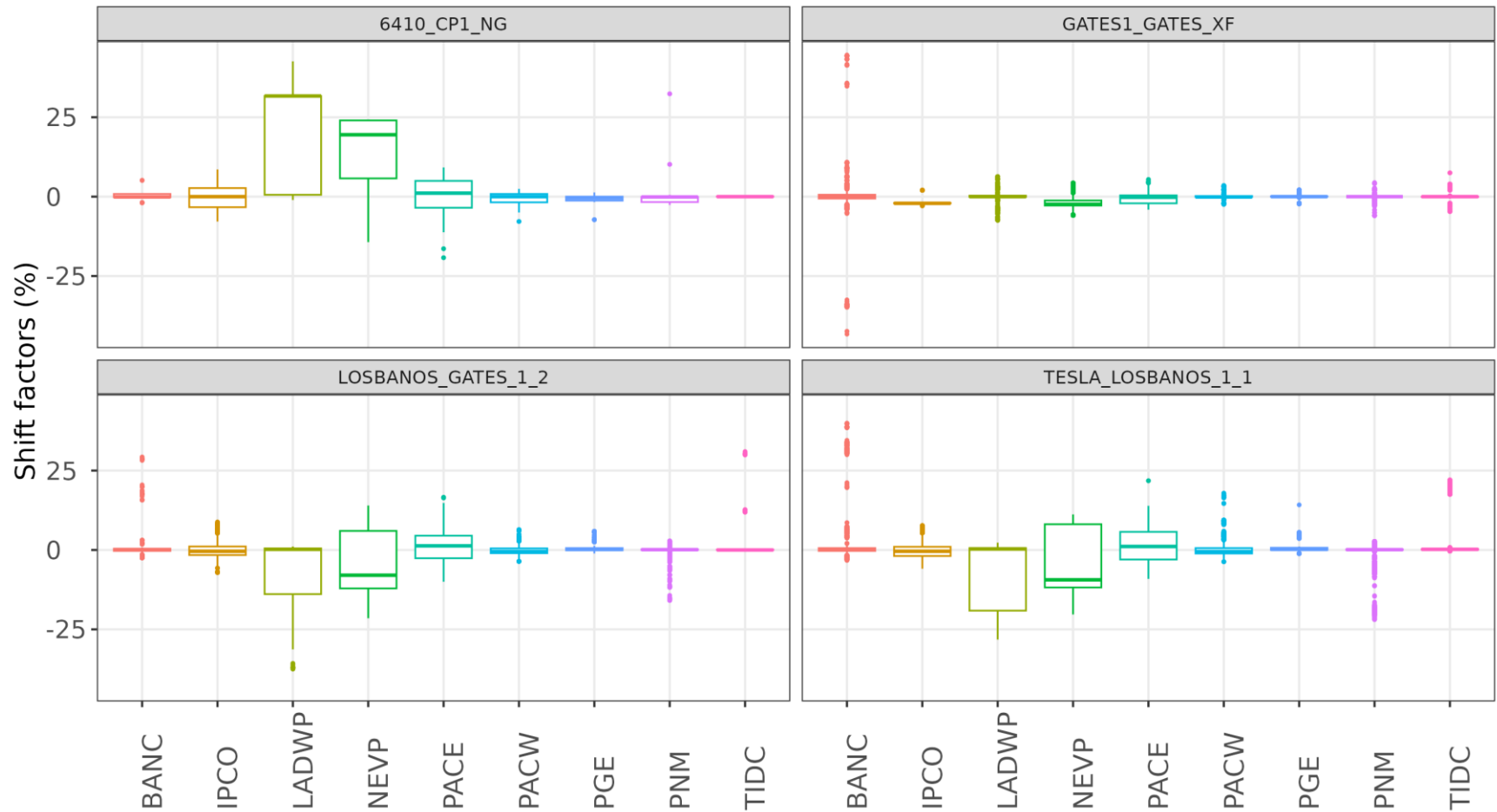


ISO Public

Top eight CAISO constraints can exhibit material parallel flows from prospective EDAM areas



Top eight CAISO constraints can exhibit material parallel flows from prospective EDAM areas



CAISO transactions had *de minimis* impact of parallel flows on EDAM areas

Flow contributions in percent*

BAA Source	CONSTRAINT_NAME	Limit (MW)			SP15 to PG&E				NP15 to SCE			
		Min	Avg	Max	Min	Avg	Max	Freq	Min	Avg	Max	Freq
LADWP	Victorville_Los_Angeles	1,650	1,650	1,650	0.4	0.4	0.4	0.0	2.8	2.8	2.8	0.0
PACE	AEOLUS_EXP	217	487	832								
PACE	WINDSTAR EXPORT TCOR	299	727	1,357	0	0.0	0	47.8	0	0.0	0	47.8
PACE	EAST_WYO_EXP	1,526	1,836	2,134	0.0	0.0	0.0	10.2	0.0	0.0	0.0	10.2
PACE	TOTAL_WYOMING_EXPORT	1,582	1,998	2,323	0.0	0.0	0.0	9.8	0.0	0.0	0.0	9.8
PACE	CASPER_SPENCE_230	274	345	419	0.2	0.4	0.5	5.8	-0.4	-0.4	-0.2	5.8
PGE	MCL_PE_SHW_V682	809	843	880	-0.2	-0.1	-0.1	0.3	0.1	0.1	0.2	0.3
PGE	MRHL_STMW_V11712	422	422	423	-0.1	-0.1	-0.1	0.1	0.1	0.1	0.1	0.1
PNM	115kv WE_So_EI	17	20	23								
PNM	115kv MEB_Ca_AL	9	17	28								
PNM	115kv MEB_Mi_AL	9	20	37								
TIDC	DPP_HAW_LN	84	84	84								
TIDC	HAW_GER_LN	83	83	84								

- The highest flow impact of CAISO transactions is on LADWP constraint with a 2.8 percent
- CAISO transactions had no impact on PNM and TID constraints

*Flow contributions are measured by the shift factors between a source and a sink location

Parallel flows among prospective EDAM areas is minimal. Main congestion is due to internal EDAM areas flows

Internal flows

BAA Source	CONSTRAINT_NAME	Limit (MW)			BANC				LADWP				PACE				PACW				PGE			
		Min	Avg	Max	Min	Avg	Max	Freq	Min	Avg	Max	Freq	Min	Avg	Max	Freq	Min	Avg	Max	Freq	Min	Avg	Max	Freq
LADWP	Victorville_Los_Angeles	1,650	1,650	1,650					-4.0	37.7	60.0	0.0	-1.6	-0.1	2.0	0.0								
PACE	AEOLUS_EXP	217	487	832									99.9	99.9	99.9	11.1								
PACE	WINDSTAR_EXPORT_TCOR	299	727	1,357									-6.5	10.1	96.2	47.8								
PACE	EAST_WYO_EXP	1,526	1,836	2,134									-6.5	16.8	94.7	10.2								
PACE	TOTAL_WYOMING_EXPORT	1,582	1,998	2,323									-13.3	16.1	89.0	9.8								
PACE	CASPER_SPENCE_230	274	345	419									-7.0	2.8	22.7	5.8								
PGE	MCL_PE_SHW_V682	809	843	880	-2.5	-0.1	0.1	0.3	-2.4	-0.7	0.1	0.3	2.0	2.1	2.1	0.2	-11.7	1.9	4.0	0.3	8.4	19.1	24.8	0.3
PGE	MRHL_STMW_V11712	422	422	423													-10.0	0.8	4.0	0.1	-3.8	5.4	6.6	0.1
PNM	115kv WE_So_El	17	20	23					-2.5	-2.5	-2.5	0.1												
PNM	115kv MEB_Ca_AL	9	17	28																				
PNM	115kv MEB_Mi_AL	9	20	37																				
TIDC	DPP_HAW_LN	84	84	84																				
TIDC	HAW_GER_LN	83	83	84																				

BAA Source	CONSTRAINT_NAME	Limit (MW)			PNM				TID				IPCO				NEVP			
		Min	Avg	Max	Min	Avg	Max	Freq	Min	Avg	Max	Freq	Min	Avg	Max	Freq	Min	Avg	Max	Freq
LADWP	Victorville_Los_Angeles	1,650	1,650	1,650	-7.2	-0.6	0.3	0.0					-1.0	0.1	1.1	0.0	-7.4	-2.3	2.0	0.0
PACE	AEOLUS_EXP	217	487	832																
PACE	WINDSTAR_EXPORT_TCOR	299	727	1,357																
PACE	EAST_WYO_EXP	1,526	1,836	2,134																
PACE	TOTAL_WYOMING_EXPORT	1,582	1,998	2,323																
PACE	CASPER_SPENCE_230	274	345	419	2.2	4.6	6.7	5.8					-7.0	-3.2	-2.0	5.8				
PGE	MCL_PE_SHW_V682	809	843	880	-2.2	0.0	0.1	0.2	-2.5	-0.6	0.0	0.3					-2.2	0.0	2.1	0.3
PGE	MRHL_STMW_V11712	422	422	423																
PNM	115kv WE_So_El	17	20	23	-5.2	2.7	34.4	0.4												
PNM	115kv MEB_Ca_AL	9	17	28	-9.1	1.8	16.6	0.8												
PNM	115kv MEB_Mi_AL	9	20	37	-83.5	2.1	8.8	2.4												
TIDC	DPP_HAW_LN	84	84	84					100.0	100.0	100.0	0.1								
TIDC	HAW_GER_LN	83	83	84					100.0	100.0	100.0	0.1								

*Flow contributions are measured by the shift factors between a source and a sink location

ISO Public