



California ISO

WESTERN ENERGY MARKETS

Extended Day-Ahead Market congestion revenue allocation analytics

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Background

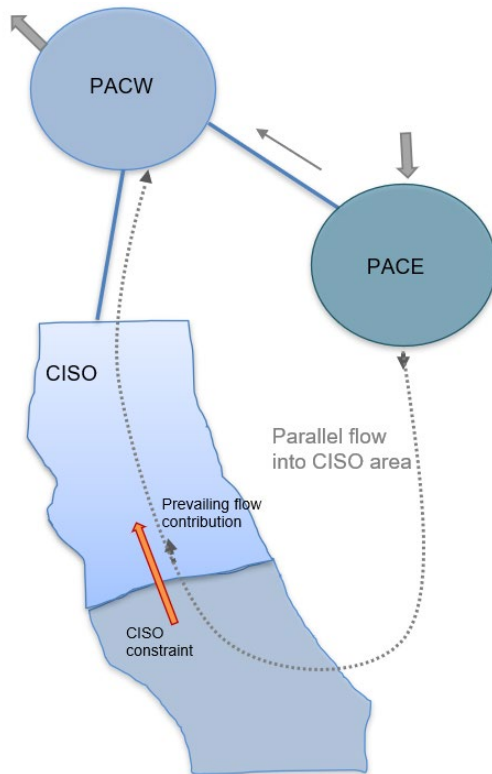
FERC approved the Extended Day-Ahead Market policy in December 2023. This policy includes a methodology to allocate congestion revenues among entities

This methodology allocated congestion revenues from parallel flows to the balancing area where the congestion occurs

The ISO initiated an expedited stakeholder process with limited scope to revise the methodology for congestion revenue allocation, which was approved by FERC in August 2025

The revised methodology allocates day-ahead congestion revenues attributable to parallel flows to the areas where market participants paid the congestion costs

Transactions in PacifiCorp areas can exacerbate or relieve congestion on California ISO area transmission constraints*

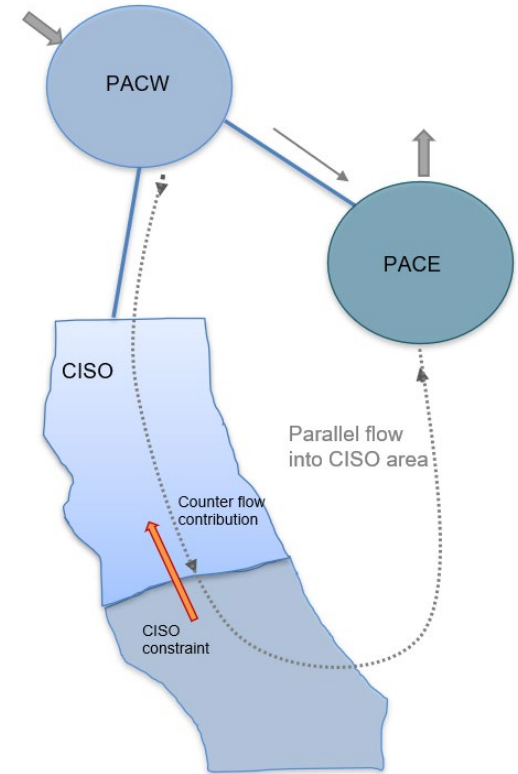


Transactions in one area can create parallel flows in another area

Prevailing flows are charged for contributing to congestion

Counter-flows get paid for relieving congestion

Transactions with prevailing flows contribute to congestion rents

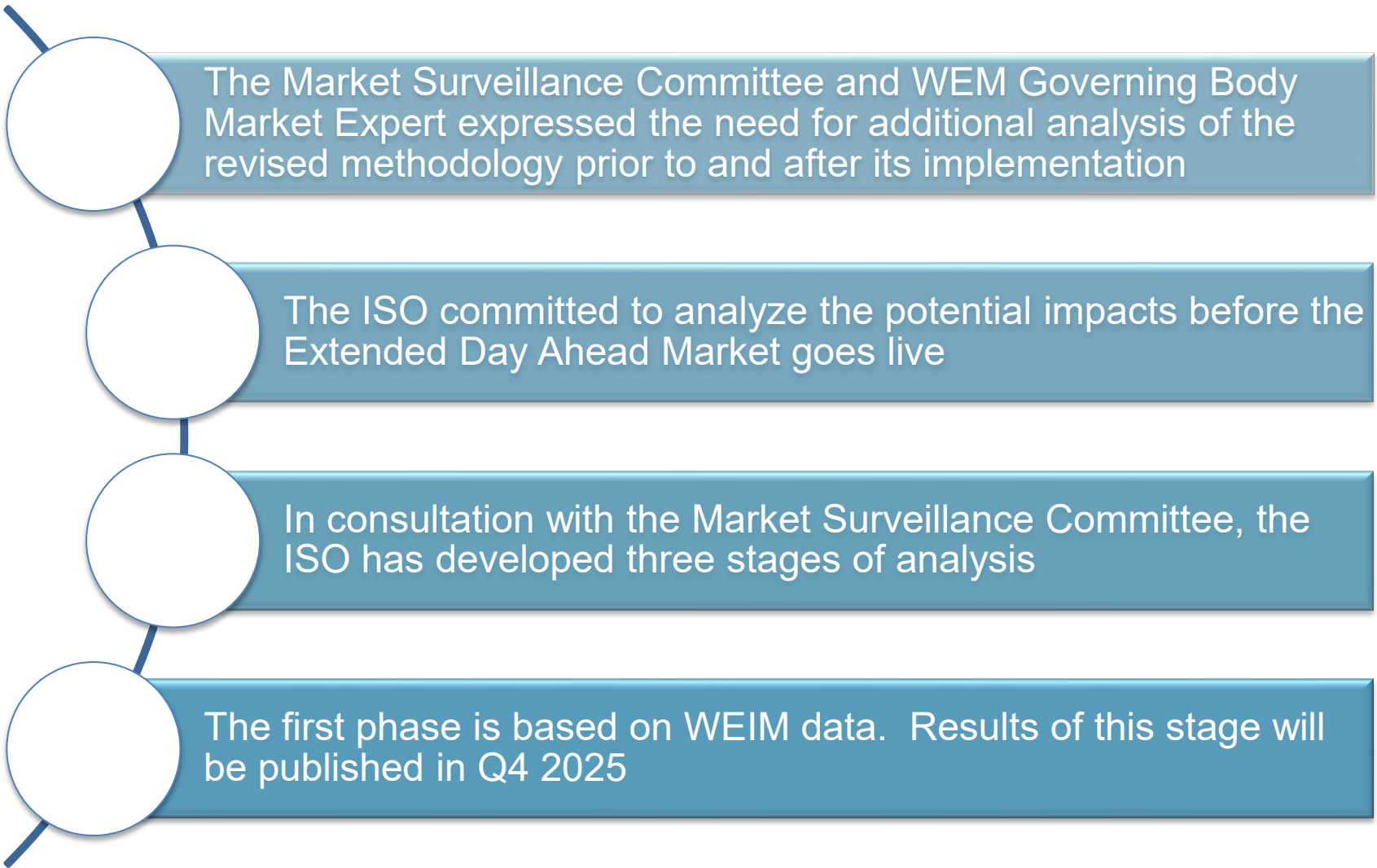


Transactions with counter-flows reduce congestion rents

* Conversely, transactions in the California ISO area can exacerbate or relieve congestion in PAC area constraints

This analysis focuses on congestion from transmission constraints; it does not include congestion from transfers

The revision of the allocation methodology raised concerns about incentives created and the potential impacts



The Market Surveillance Committee and WEM Governing Body Market Expert expressed the need for additional analysis of the revised methodology prior to and after its implementation

The ISO committed to analyze the potential impacts before the Extended Day Ahead Market goes live

In consultation with the Market Surveillance Committee, the ISO has developed three stages of analysis

The first phase is based on WEIM data. Results of this stage will be published in Q4 2025

In addition to continuous monitoring and analysis of EDAM after go-live, there are two analysis stages prior to EDAM go-live

First stage – Pre go-live

- Analysis of congestion based on historical data of the Western Energy Imbalance Market
- Provides context and understanding of the congestion conditions inherent to the market footprint

Second stage – Pre go-live

- Analysis of incentives of CRA revised policy and congestion impacts using market simulations of EDAM
- Estimates potential impact of the revised policy

Third stage – Post go-live

- Analysis of CRA based on actual EDAM operational data after go-live
- Monitor and report on the impact of the revised policy

Findings of first stage of analysis regarding parallel flow impacts based on January 2024 to August 2025 WEIM results

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

- On average, 145 congested constraints are in the California ISO area; this represents about 96 percent of all constraints
- About 21 percent of all constraints located in the ISO area are affected by parallel flows generated by transactions between PacifiCorp east and west 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 6 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 PacifiCorp areas constraints

- On average, five constraints are congested in PacifiCorp areas
- These constraints are congested as much as 30 percent of the time
- The impact of parallel flows on these constraints due to California ISO transaction is less than 0.5 percent contribution

Additional observations based on WEIM results from January 2024 to August 2025

Congestion across all areas is concentrated during solar hours and increases during evening peak hours in the summer months

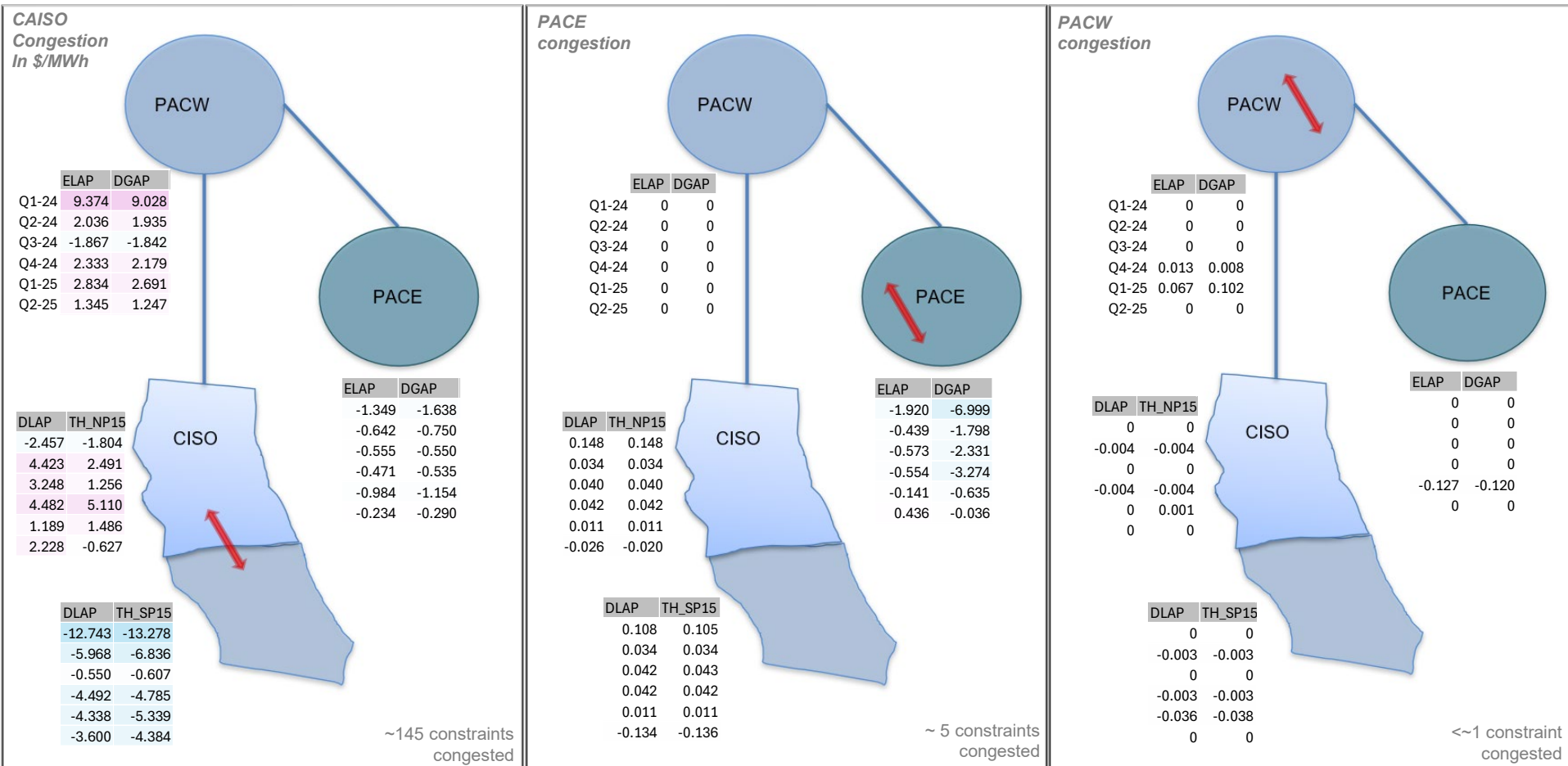
Although there is a relatively high number of constraints congested (150 constraint on average) the frequency of congestion is low

Congestion sourced in PacifiCorp areas has minimal impact on prices relative to congestion sourced in the California ISO area

Source of congestion	Congestion price impact (\$/MWh)			
	PG&E	SCE	PACW	PACW
CISO			-0.70	2.67
PACW	0.042	0.02		
PACW	0.00	-0.01	-0.02	

Appendix

Congestion sourced in PAC areas is *de minimis* relative to congestion sourced from the California ISO area

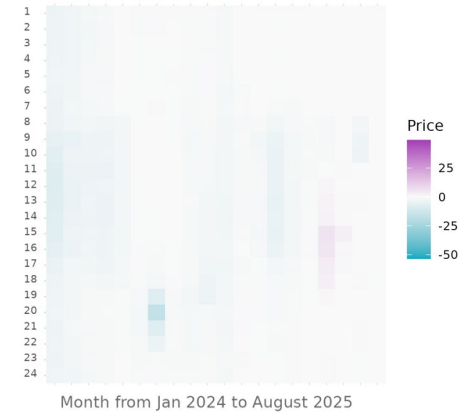
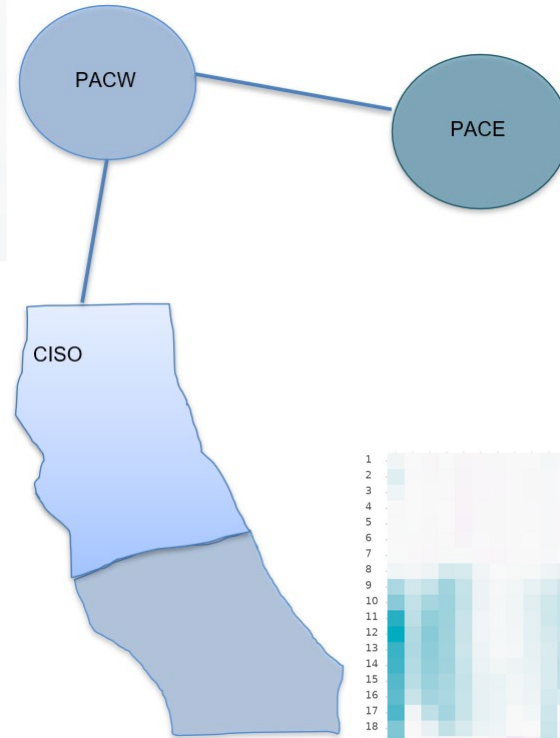
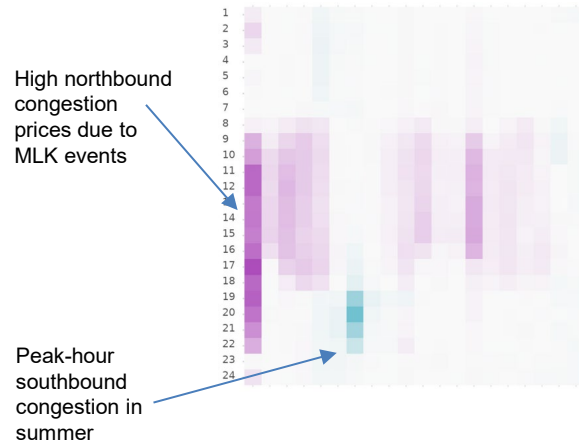


Congestion in CAISO tends to increase prices in PACW while modestly reducing prices in PACE

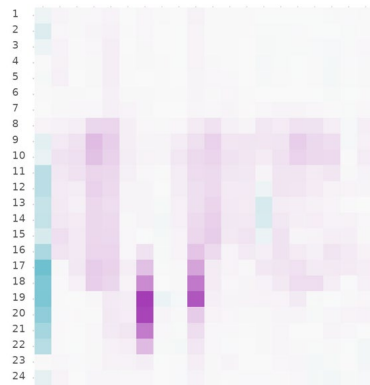
Congestion in PACE tends to marginally increase prices in CAISO and has no effect on PACW prices

Congestion in PACW has negligible impact on both CAISO and PACE prices

Congestion is concentrated in peak solar hours



Although with similar daily/seasonal patterns, PACE sees less impact from CAISO congestion



Southbound congestion creating price separation within CAISO mainly during solar and peak hours



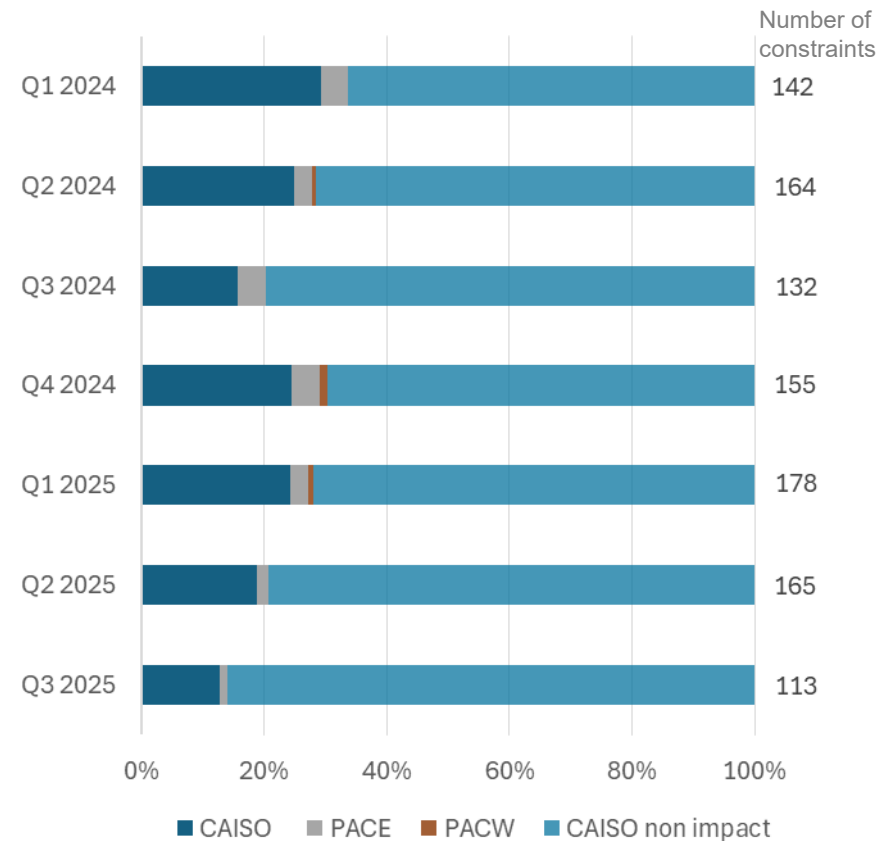
Low congestion on PACE is due to low flow contribution and not due to offsetting effects among constraints

The extent of impact of transactions in PacifiCorp over constraints in the California ISO area can be sizable

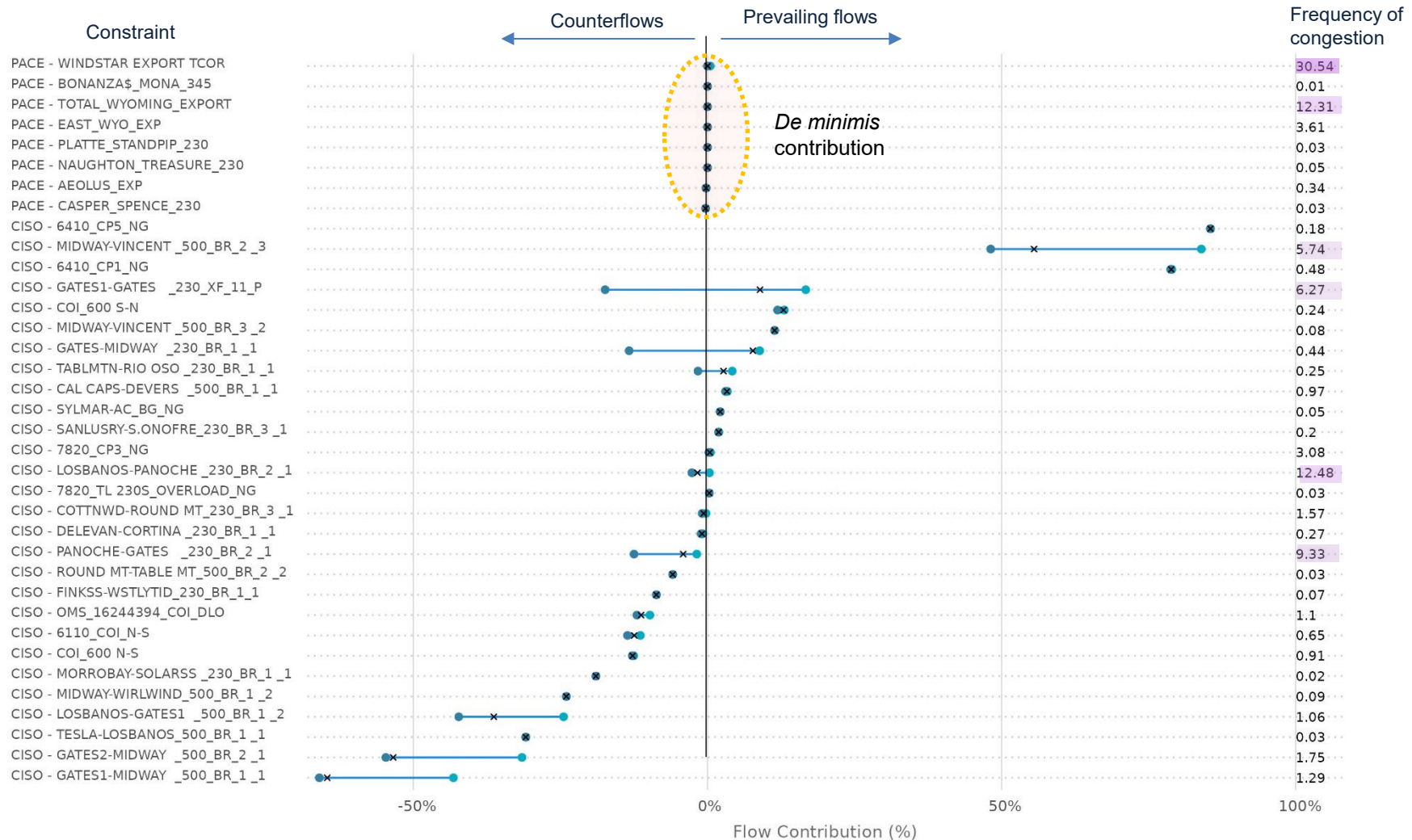
From the set of all impacted constraints by PacifiCorp or ISO transactions, on average:

- 21.5 percent are on ISO area
- 3.2 percent are in PACE area
- 0.4 percent are in PACW area
- 75 percent are in the California ISO area but are not impacted by PAC transactions

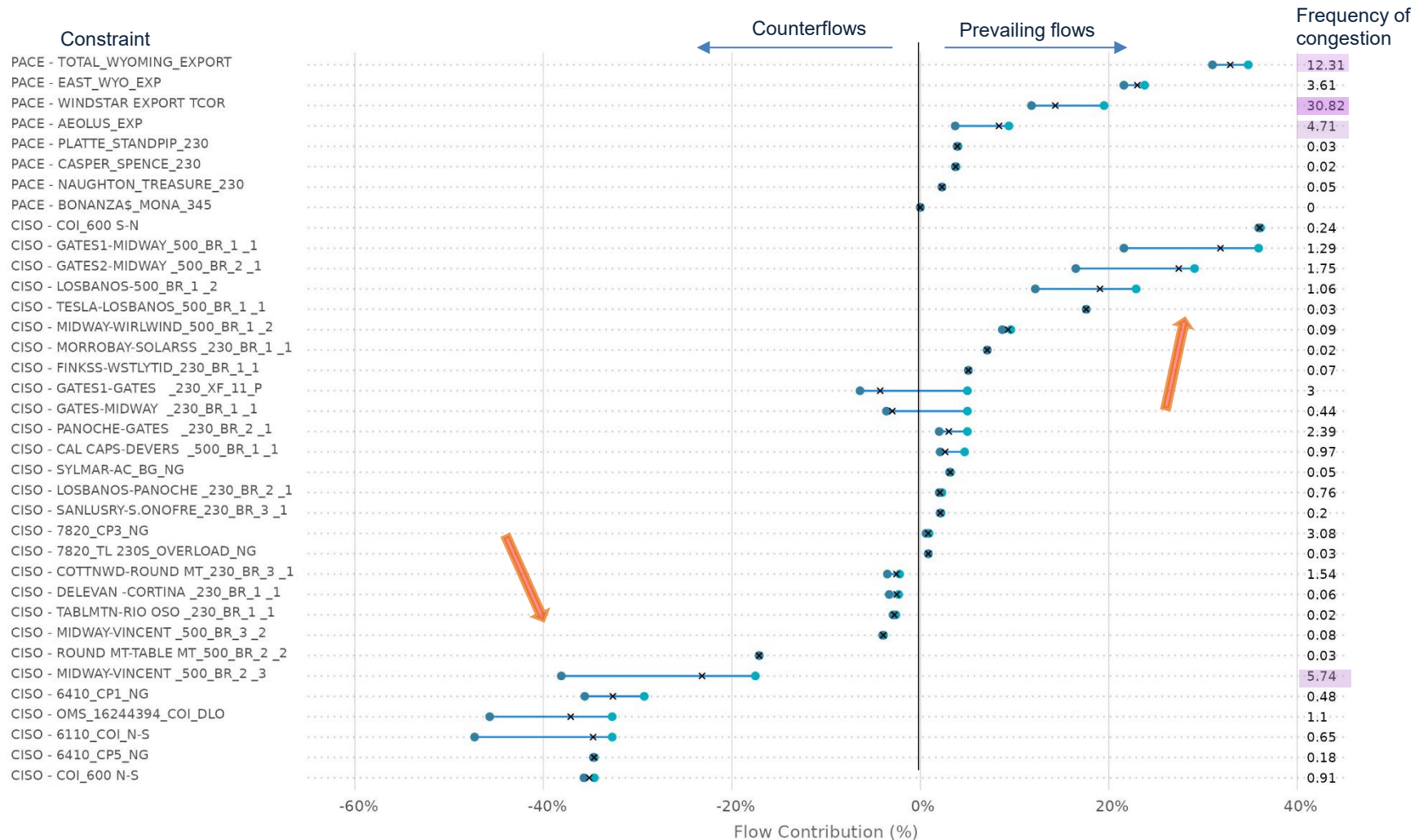
Share in percent of constraints with an impact by area



Transactions within the ISO area have *de minimis* contributions in constraints in either PACE or PACW areas. Sample Q3-2024

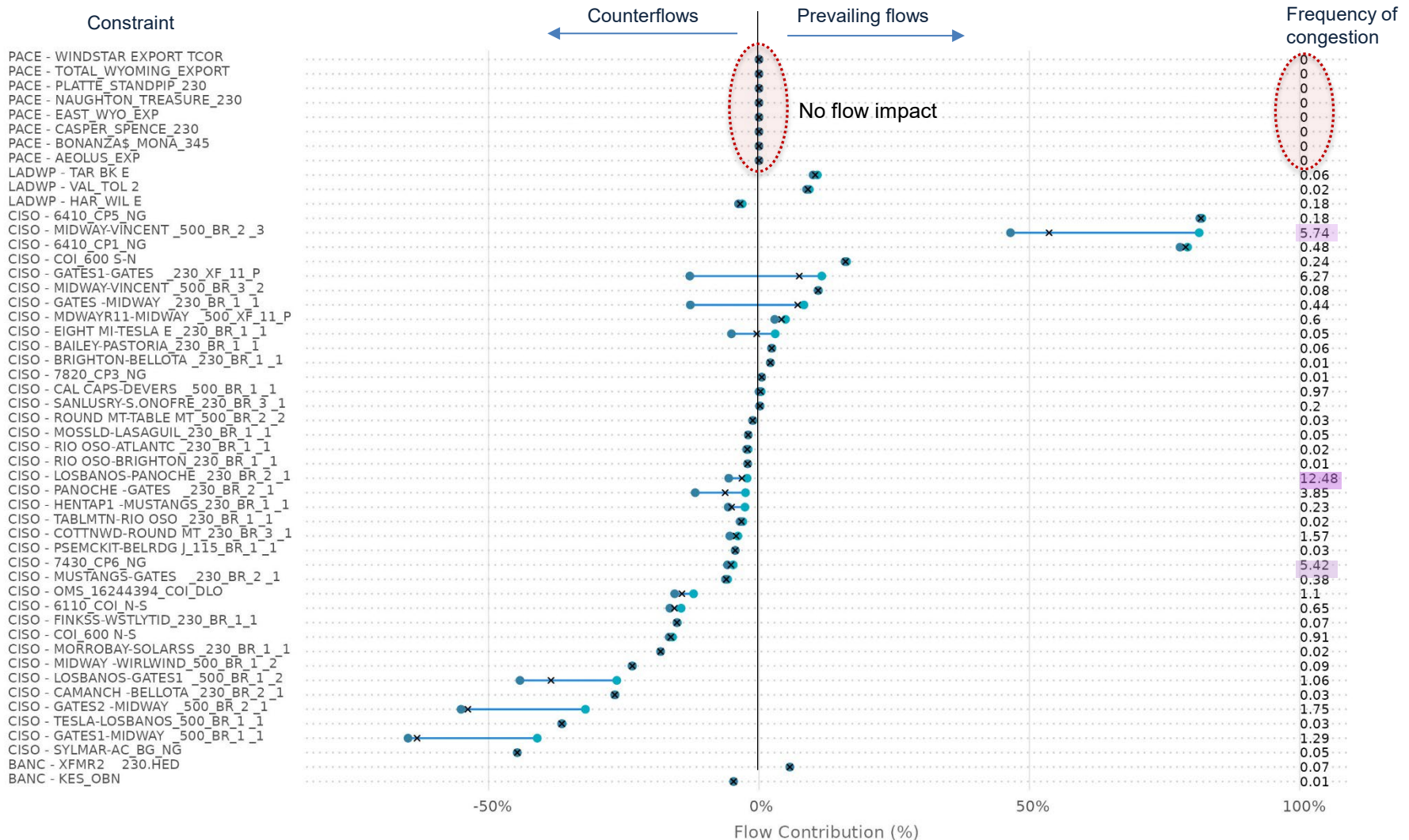


Transactions from PACE area to PACW area will have high flow contributions to a handful set of constraints in the ISO area*



* For simplicity, one can assume the impact of transactions in the opposite direction -from PACW to PACE- will have the opposite direction of flow contribution Page 13

More granular transactions to pass through the ISO area still show *de minimis* impact on PacifiCorp flows



* For reference this measures flow impacts for transactions between BANC and LADWP areas