California ISO | WESTERN ENERGY MARKETS

Regional Issues Forum

Review of January 2024 MLK Event and Myth Busting

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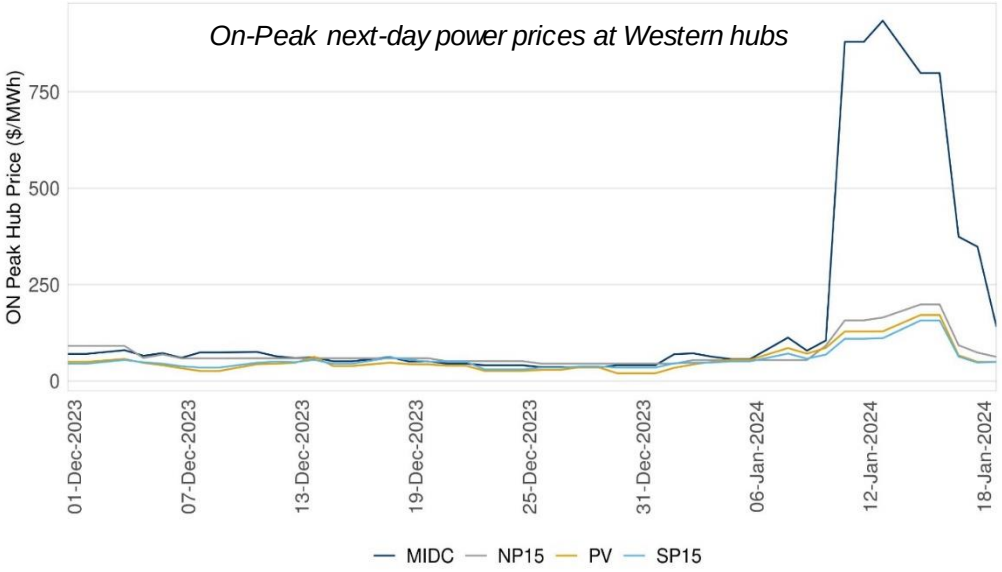
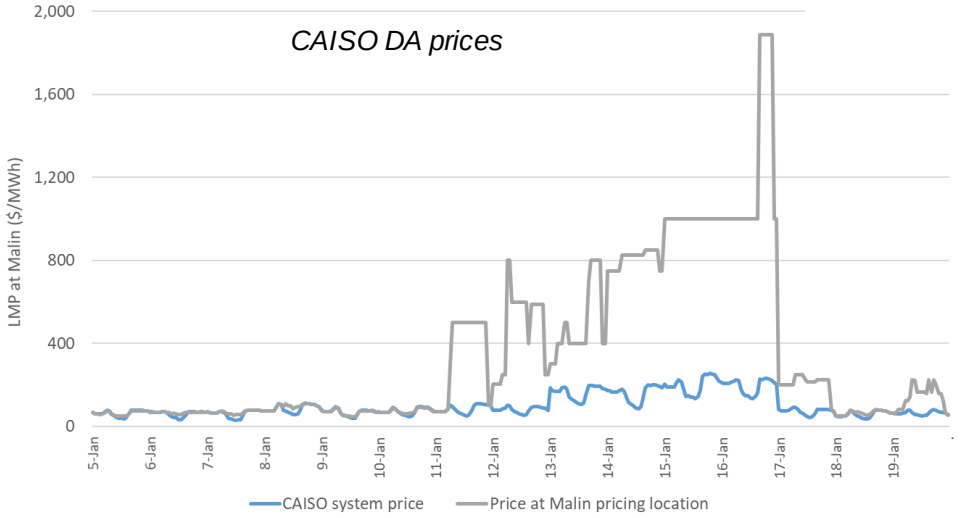
Severe winter weather, record-setting cold in the Pacific Northwest experienced during the Martin Luther King weekend

Grid conditions were strained, five balancing authority areas called energy emergency alerts

Bilateral prices reflected regional conditions with high prices in the Pacific Northwest





The ISO prices also showed regional price separations with higher prices in the pacific northwest

Fact: Both BPA and the ISO are COI path operators and manage COI limits under a coordinated agreement

Myth: The ISO unilaterally decides on Malin limits to influence congestion

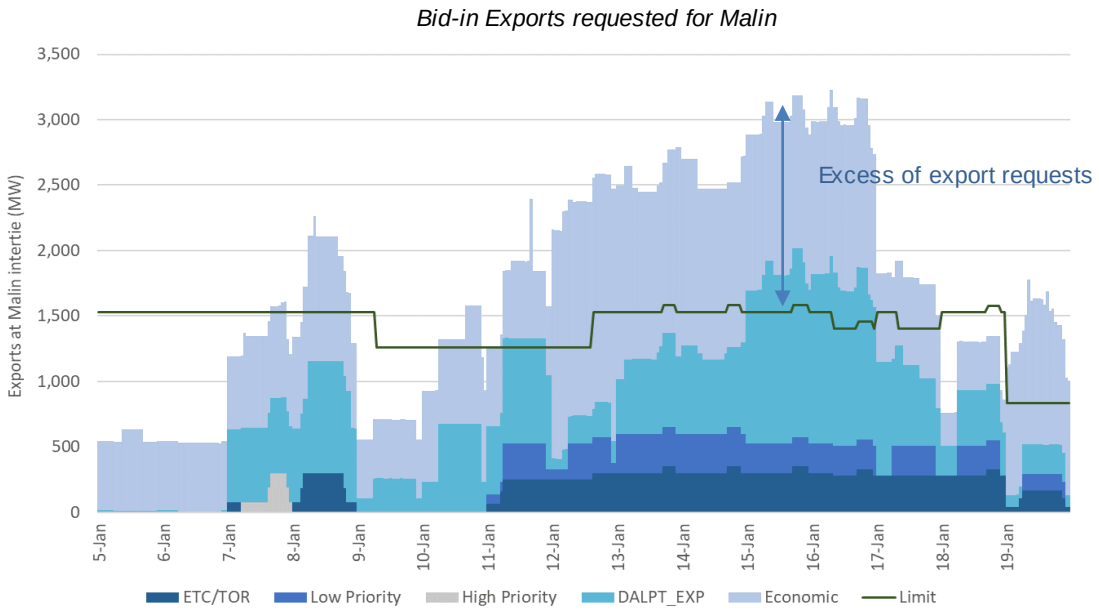
- Under a coordinated agreement with BPA, either path operator will use the most limiting constraint
- The ISO is the only existing day-ahead market in the West and is used for congestion management within the ISO footprint
- The ISO reflects COI limitations in its market to ensure schedules across Malin does not exceed the WECC approved path rating

The ISO and BPA, as Path Operators, have convened the COI and NWACI Transmission owners. The group reaffirmed to continue with the existing coordination to avoid any BAs on either side of the intertie schedules more than what the BAs and TOPs on either side can support

Fact: There was day-ahead congestion simply because the volume of exports requested for the Northwest exceeded the full Malin capability

Myth: The ISO directly influenced day-ahead congestion on Malin

- The exports requested at Malin were twice as much as the full Malin capacity
- Through the day ahead market, the ISO positioned internal supply economically to support exports to the Northwest
- The ISO market cleared exports fully utilizing the available transmission capacity on Malin

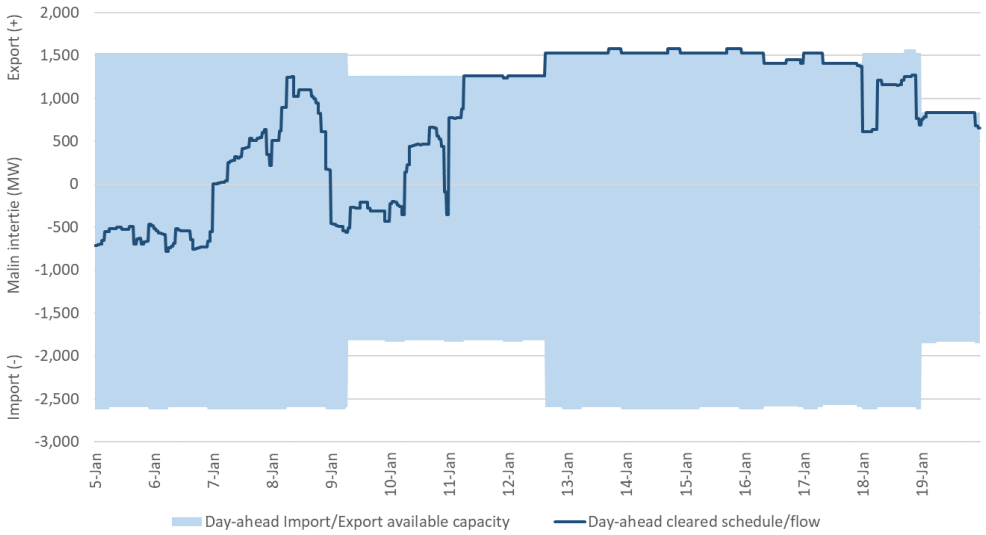


Fact: The COI capability was available and used in the day-ahead market for the share operated by the ISO

Myth: The ISO limited the COI flow to influence congestion

- During MLK weekend, the Malin transfer capability was fully available
- The ISO share of COI path rating was enforced in the market to ensure that schedules across Malin do not exceed the WECC-approved Path rating
- No exports could flow on the Nevada-Oregon Border (NOB) intertie due to a forced outage in the non-ISO controlled AC element in California

Day-ahead capacity available and flows on Malin intertie

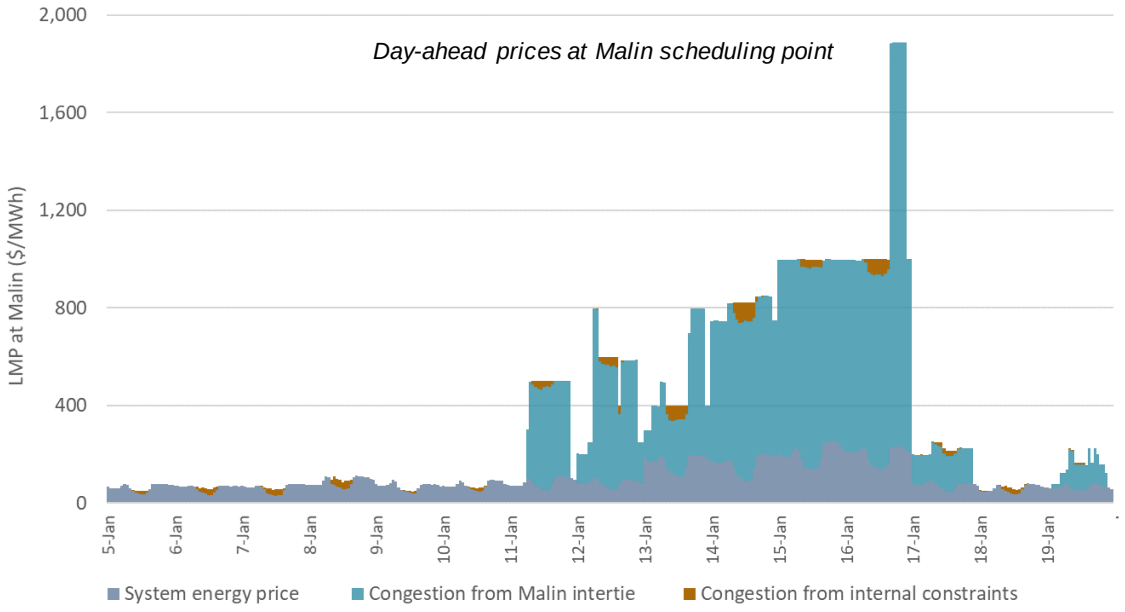


In the real-time market, weather-related transmission forced outages issued by BPA in the Pacific Northwest caused export reductions to the Malin intertie. These did not impact day-ahead flows and congestion

Fact: Congestion prices on Malin were set by exports bids, which reflected the price exports were willing to pay to flow

Myth: The ISO charged excessive prices to exports flowing to the Northwest

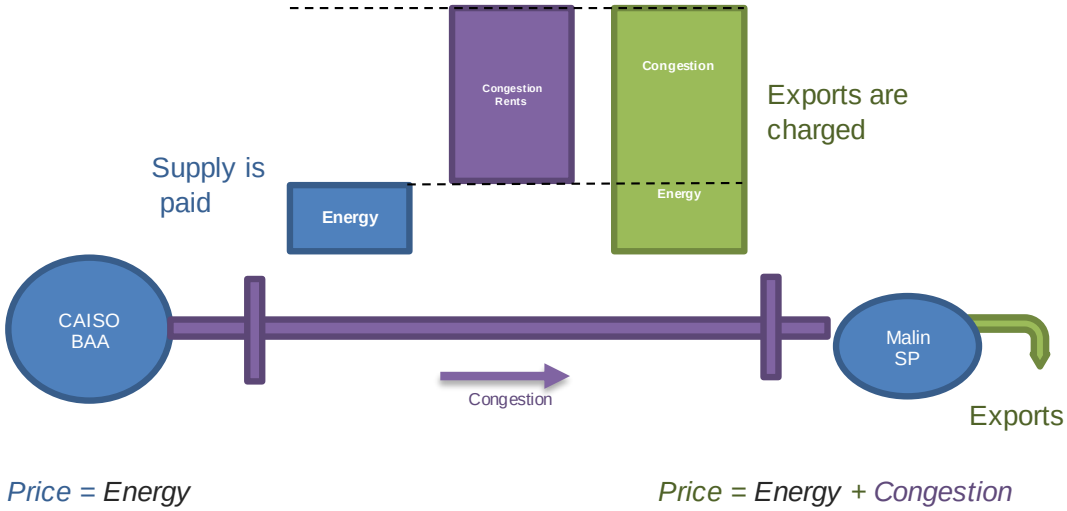
- Exports got charged the price at Malin scheduling point, which reflected congestion on the path
- Exports set the price and got awarded based on the price they were willing to pay as expressed by their bids
- Self-schedule for exports reflected a will to pay any price to flow



Fact: Day-ahead congestion is sourced only from redispatch of participating resources in the ISO market, including exports

Myth: Parties outside the ISO market have a right to day-ahead congestion

- In today's ISO day-ahead market, only ISO internal resources and intertie generic bids participate and are dispatched to manage congestion
- ISO day ahead market has no access to resources outside its footprint (*e.g.* north of Malin) to redispatch and alleviate congestion on ISO constraints
- Only ISO market participants are exposed to congestion based on the locational price they pay

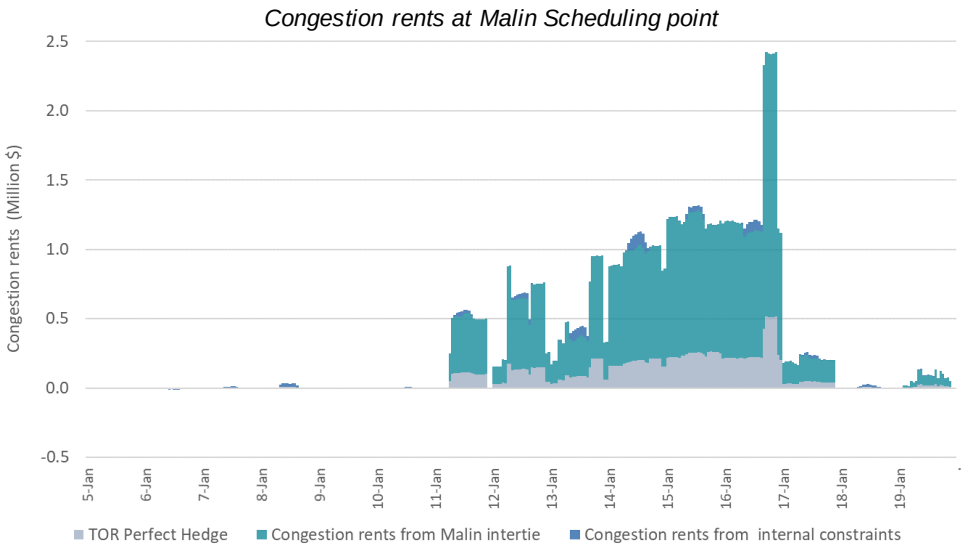


Under a common day ahead market (i.e. EDAM) where the market has access to resources on both sides of Malin, congestion would redispatch resources north of Malin too and the area where the constraint occurs would collect 100% of the congestion

Fact: Congestion on Malin is only collected for the capacity made available to the market, lower than the full capability

Myth: CAISO collected congestion rents on all Malin capability

- The ISO operates 2/3 of COI capability; only that portion will be managed in the ISO market with Malin intertie
- From the ISO share, holders of rights did not use or release over 800 MW. This capacity was not available to the market and did not accrue congestion rents
- During the MLK events, there were long-term transmission ownership rights exercised on Malin intertie:
  - These rights were naturally hedged from $25 million of Malin congestion
  - These dollars are not congestion rents collected by CAISO



For the period of January 11 thorugh19, congestion rents were about $100 million. This is the congestion cost charged to exports at Malin.

Fact: Congestion rents are allocated to Congestion Revenue Rights (CRRs); any surplus is allocated demand and exports

Myth: CAISO kept all $100 million of day-ahead congestion collected on Malin

- CRRs are a standard market feature of nodal markets, and they are ubiquitous in other organized ISOs/RTOs in the US
- ISO market facilitates acquisition and trading of CRRs through
  - Annual and monthly allocation process for load serving entities in ISO footprint, as well as for load serving entities outside the ISO area (OBAALSE)
  - Annual and monthly auctions, which is open to any entity seeking to acquire CRRs to manage their risk profile
    - Typically, power marketers for example secure CRRs through auction
    - Load serving entities outside the ISO area can participate in CRR auctions to acquire CRRs

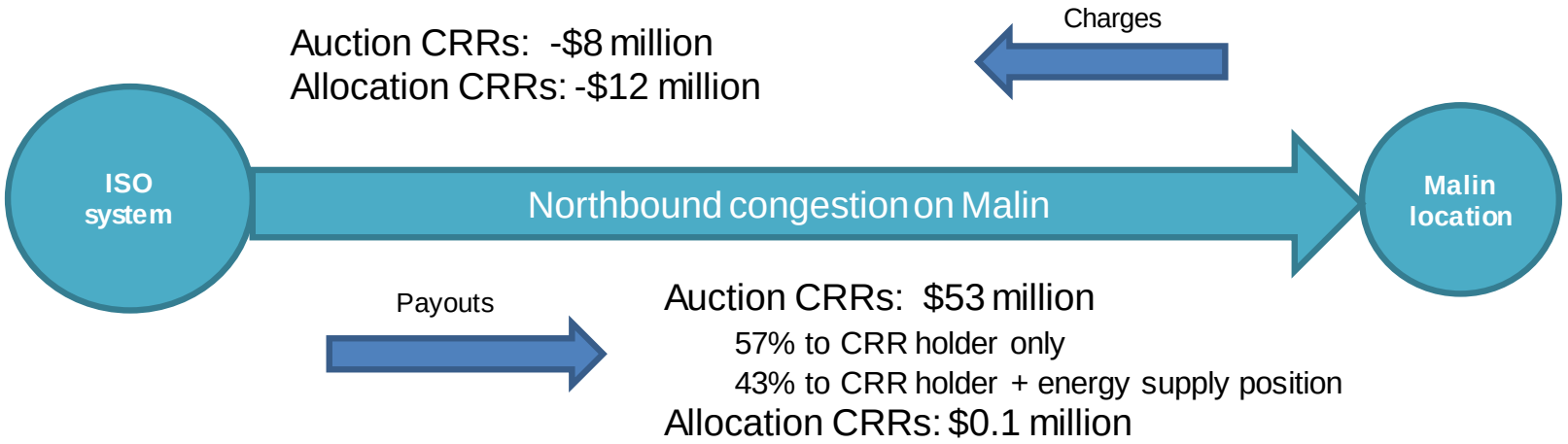
For January, market participants, including those with exports, actively rebalanced their CRR portfolios to hedge Malin congestion

The CRR released for Malin intertie did not fully exhaust the intertie capacity available

Volume of CRRs sourcing and sinking at Malin in Jan 2024

	Southbound		Northbound	
CRR type	**Off peak**	**On Peak**	**Off peak**	**On Peak**
Existing rights	1,200	1,200	919	919
Allocation	159	389	8	3
Auction Buy	55	159	146	943
Auction sell	-70	-160	-59	-30

In January there were CRRs both sourcing and sinking at Malin



Since Malin capacity was not fully exhausted in the CRR release, there is surplus of congestion rents ($50+ million) that were allocated to measured demand (ISO load + exports)