



Incorrect Inclusion of Base Energy Transfers in Greenhouse Gas Attributions

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Market Analysis

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Agenda

Time:	Topic:	Presenter:
5 min	Welcome/introductions	Brenda Corona
25 min	Summary Background Description of market issue Market impacts Remedial actions	Kevin Head
30 min	Q&A	All

Summary

- CAISO identified an issue with the Western Energy Imbalance Market (WEIM) real time transfers spanning from Apr 2021 to Jan 2022
- CAISO real-time market (RTM) incorrectly attributed base energy transfers to WEIM participating resources serving demand in California (CA)
- Market Issues Bulletin is published [here](#)
- Estimated settlement impact is approximately \$11 million
- CAISO has fixed the software issue prospectively
- After evaluating several options, CAISO proposes to not pursue any remedial actions for the period impacted

Background

- WEIM real time market calculates optimal energy transfers between balancing authority areas (BAAs) relative to the base energy transfers
- If WEIM optimization results in a net WEIM import transfer into CA, the RTM attributes the transfer to individual WEIM participating resources based on voluntarily submitted greenhouse gas (GHG) bids
- RTM GHG attribution means the resource is considered to have served demand in CA
- WEIM Participating Resource Scheduling Coordinators use RTM GHG attributions to report electricity imports into CA to the California Air Resources Board

Background (cont.)

- While WEIM calculates optimal transfers, it also allows for BAA-to-BAA transfers that are not optimized
- Transfers that are not optimized between WEIM BAAs are submitted as base schedules and are also known as “base energy transfers”
- Base energy transfers typically are scheduled in the day-ahead timeframe and are considered fixed hourly schedules between WEIM BAAs
- Base energy transfers should not be considered in the calculation of the total MW eligible for GHG attribution through the WEIM

Market Issue

- After a market participant observed high settlement uplift amounts, the CAISO identified an issue with WEIM results that affected the accuracy of the net WEIM import transfers into California
- From Apr 1, 2021 until Jan 27, 2022, RTM incorrectly included approximately 1.1 million MWh of base energy transfers associated with LADWP's BAA in the total MWh eligible for GHG attribution
- Incorrect quantity of eligible transfers resulted in inaccurate GHG attributions to WEIM participating resources

Impact Assessment

- Driven by inaccurate GHG attributions, the market issue had several impacts on:
 - Marginal GHG clearing prices and LMPs
 - Energy settlement and GHG obligation settlement
- It also resulted in approximately \$11 million of a neutrality issue in the System Real Time Imbalance Energy Offset account due to the discrepancy between:
 - the GHG obligation quantities from the market and
 - the GHG obligation quantities calculated in settlements based on imbalance transfers in real-time

CAISO allocated amounts in the offset account to all WEIM BAAs, including CAISO, based on each BAA's pro rata share of total Measured Demand

BAA Name*	Estimated impact of allocation of offset account (\$)
WEIM 1	47,161
WEIM 2	160,806
WEIM 3	189,500
WEIM 4	283,304
WEIM 5	302,842
WEIM 6	340,367
WEIM 7	398,042
WEIM 8	456,525
WEIM 9	485,621
WEIM 10	565,102
WEIM 11	641,719
WEIM 12	714,304
WEIM 13	780,410
WEIM 14	847,723
WEIM 15	1,125,012
WEIM 16	3,478,232
Total	10,816,670

* Actual BAA names obscured for confidentiality reasons

Proposed Action

- CAISO considered several alternatives to address the market issue:
 - 1) Market rerun
 - 2) Revise GHG bid-stack to find appropriate GHG attribution and marginal price
 - 3) Pro-rata GHG reduction
 - 4) Status quo (do nothing)

Proposed Action (cont.)

1) Market rerun

- Re-run the real-time markets for every interval between Apr 1, 2021 and Jan 27, 2022

Advantages	Disadvantages
<ul style="list-style-type: none">- Results in most accurate settlement based on correct LMP, GHG marginal price, and GHG attributions	<ul style="list-style-type: none">- Market reruns will result in dispatches that are inconsistent with meter data, resulting in payments/charges that cannot be validated by market participants- Prohibitively high administrative burden- Market software has undergone several updates since Apr 2021 which may create discrepancies

Proposed Action (cont.)

- 2) Revise GHG bid-stack to find appropriate GHG attribution and GHG marginal price
 - Recreate GHG bid stack and determine clearing price and attributions based on correct total eligible MW

Advantages	Disadvantages
<ul style="list-style-type: none">- Effects an accurate GHG obligation settlement and resolving the neutrality issues that has caused ~\$11M cost shifting	<ul style="list-style-type: none">- Would not resettle LMPs for resources that were determined to serve load outside of California- Tariff requires the CAISO to settle and report GHG attributions based on the output of the market, thus this approach is not consistent with current tariff rules- High administrative burden

Proposed Action (cont.)

3) Pro-rata GHG attribution reduction

- Apply pro-rata reduction of GHG attributions to WEIM participating resources by removing LADWP base energy transfers in import direction

Advantages	Disadvantages
<ul style="list-style-type: none">- Relatively easy to implement once the CAISO establishes how to perform the pro-rata reduction	<ul style="list-style-type: none">- Would not modify GHG marginal price or resettle LMPs- Less accurate GHG attributions than option (2)- Tariff requires the CAISO to settle and report GHG attributions based on the output of the market, thus this approach is not consistent with current tariff rules

Proposed Action (cont.)

4) Status quo (do nothing)

- Do not resettle GHG payments or neutrality amounts nor correct any GHG attributions or prices

Advantages	Disadvantages
<ul style="list-style-type: none">- Wide distribution of impacts makes unwinding of impacts extremely difficult (compared to previous cases where impacts were concentrated)	<ul style="list-style-type: none">- Would not modify GHG marginal price or resettle LMPs- Would not recalculate GHG attributions

Conclusion

- After considering the proposed remedial actions, CAISO is proposing to maintain the status quo by not pursuing any changes beyond fixing the defect that caused the issue to arise
- This proposal best balances the current tariff provisions while minimizing potential confusion about settlement payments and the administrative burden

Questions and Answers

- Questions?