Discussion on EIM greenhouse gas attribution enhancements

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Observations of current EIM dispatch optimization

- Least cost dispatch can have effect of sending low GHG gas emitting resources to ISO, while not accounting for "secondary" dispatch of other resources backfilling to serve external demand
  - ARB is implementing bridge solution to temporarily account for these additional emissions.

- Least cost dispatch can result in avoided curtailment of ISO renewables by displacing emitting resources to serve external demand in EIM

ISO is working with ARB to address concern with whether current GHG attribution sufficiently captures the atmospheric effects of EIM least cost dispatch to serve ISO load.

Atmospheric effect is not always apparent when GHG attributed to a base schedule

- If the attributed resource would have generated in the absence of serving ISO demand, then another resource's emissions may be higher

- But, if the attributed resource would **not** have generated in the absence of serving ISO demand, then the resource's incremental emissions correctly reflect atmospheric effect

GHG enhancement is to perform two step process to more accurately determine GHG attribution for EIM transfers to serve ISO load

1. Optimize schedules without EIM transfers to ISO to establish reference point to measure upward dispatch capability of EIM participating resources

2. Optimize schedule allowing EIM transfers to ISO while limiting the GHG bid quantity to the remaining upward dispatch capability quantified in step 1

First pass is valuable even if we do not change optimization

- Base schedules are not optimized within an EIM BAA and are not optimized across EIM BAAs
- Need a reference level from an optimized solution
- First pass results can be compared to actual attribution to calculate emissions from secondary dispatch

How could the two step process change bidding incentives for non-emitting resources?

- EIM participating resource may attempt to bid energy so as not to clear in the first pass, so that it can be attributed in second pass
- If gas is marginal GHG resource, the non-emitting resource is paid the GHG price, but does not need surrender compliance instruments
- Earns a higher profit than if attributed to serve non-ISO load in first pass

How could the two step process change bidding incentives for non-emitting resources?

- In real-time, hourly bids are submitted at T-75 and used for all FMM and RTD intervals
  - Does this mitigate the EIM bidding incentive in practice?
  - What if the cost of GHG compliance instruments increase?

- Can the two pass approach be extended to the day-ahead market and bidding incentive mitigate in practice?
  - More predictable prices and submit hourly bid for each hour