Stakeholder Comments
Report on Proposed EIM GHG Enhancements

Submitted by	Company	Date Submitted
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SCE appreciates the opportunity to provide comments on the California Independent System Operator's (CAISO) Energy Imbalance Market (EIM) Greenhouse Gas (GHG) Enhancement Accuracy Report Material, presented on Dec 4, 2017[1]. SCE supports the EIM, and any associated improvements that further increase the benefits of the EIM. SCE reiterates its position that, if and when a solution is needed[2], inter-temporal netting should be considered as part of the solution. Such netting would recognize the significant investment that California has made in renewable resources within the state that when exported tend to reduce emissions outside of the state.

Below SCE offers the detailed comments regarding the three options listed by the CAISO[3]. In summary, among the three options, SCE supports Option 1 (i.e., use counterfactual with no change to the optimization). As demonstrated by both the CAISO simulation and the Brattle simulation, under the two-pass approach, the total atmospheric GHG emissions for both ISO and EIM area combined would only reduce by less than 0.1%, a magnitude of which is better addressed outside the CAISO market, given the material risks associated with the alternative approaches. The cure (of options 2&3) may be worse than the disease (secondary dispatch), and SCE recommends continuing option 1 with eventual recognition of inter-temporal netting.

1. **Option 2 (the two-pass approach), and its variations, can lead to pervasive bidding incentive issue as identified by the CAISO and the stakeholders.**

As identified by the CAISO[4], the Market Surveillance Committee (MSC)[5], industry experts[6], and other stakeholders, Option 2 can lead to pervasive bidding incentive issue. In particular, this option provides resources incentives to change their bids to capture carbon profits, in a way that can undermine the purpose of having the first pass.

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[1] CAISO Presentation, http://www.caiso.com/Documents/ISOPresentation-Report-Proposed0EIMGreenhouseGasEnhancements.pdf. Brattle Group presentation, http://www.caiso.com/Documents/BattleGroupPresentation-ModelingDispatchApproachesAccounting-GHGEmissions-EIMTransfers-ServeISOLoad.pdf.

[2] In particular, the CAISO and the California Air Resources Board (ARB) should monitor and study the GHG impact related to secondary effects within a larger EIM footprint before adopting any solution. Based on the study, the CAISO, ARB, and stakeholders can decide whether a solution is needed.

[3] CAISO Presentation, pp. 18-21.
The three options are 1) No change to optimization and use counterfactual to retire allowances for residual emissions, 2) two pass optimization & its variations, and 3) a hurdle rate approach.

[4] CAISO Presentation, p. 16-17.

[5] CAISO Discussion at MSC, Sep 8, 2017, http://www.caiso.com/Documents/Discussion_EIMGreenhouseGasAttributionEnhancements.pdf

[6] E.g., William W. Hogan, Sep 28, 2017, https://sites.hks.harvard.edu/fs/whogan/Hogan_EIM_092817.pdf

The CAISO has identified two possible variations of this approach: a) Use Default Energy Bids (DEBs) to determine a reference level, and b) Use base schedules/self-schedules to determine a reference level. Using DEBs, instead of bids, would likely result in a completely different dispatch, the problem of which can only grow as the EIM region expands[7]. Thus Option 2 with DEBs can introduce additional inaccuracy due to different sets of energy bids between the two passes, aside from the emission issue. The other variation, i.e., using base schedules/self-schedules, would suffer the same, if not more problematic, bidding incentive issue, since resources could submit base schedules/self-schedules in a way that can totally undermine the purpose of having the first pass under this approach.

2. **Option 3 (hurdle rate approach) would put an emission rate on clean resources, inconsistent with clean energy polices.**

There has been numerous discussions[8] on the approach of introducing a hurdle rate within the optimization. It is SCE's understanding that the majority of the stakeholders are opposed to this category of options, for several reasons.[9] These include, but are not limited to, creating a barrier for clean power to serve California, potential discrimination to clean resources, and thereof, potential violation of commerce law, the potential for shifting "leakage" to day-ahead or bilateral trading, the potential for under collecting and/or over collecting funds for allowances associated with the hurdle rate, distortion on resource competition, and cost increase to California ratepayers. In addition, it's unclear how an emission hurdle rate can be accurately predefined, or accurately calculated within the tight market runtime of the fifteen-minute and five-minute markets. Finally, the CAISO has concluded that this option is not an optimal long term solution[10].

3. **Given the issues with Options 2 & 3, SCE supports Option 1, i.e., use counterfactual to retire allowances with no change to the optimization.**

The interim solution, as currently designed and consistent with Option 1, addresses the CARB's concern on "secondary dispatch". This option doesn't distort the CAISO market and there is no prevailing reason to change this design.[11]

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[7] As the EIM region expands, when more and more DEBs, instead of bids, are used in a market run, there will be more and more inconsistencies in the market solution (price, congestion pattern, flow, unit commitment, etc.).
[8] CAISO Oct 13, 2016 Workshop, Regional Integration – California GHG Initiative – Second Update, pp. 27-41. http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf.
CAISO Dec 1, 2016 Straw Proposal, pp. 14-18. Available at http://www.caiso.com/Documents/Agenda-Presentation-RegionalIntegration-EIMGreenhouseGasCompliance-Dec1_2016.pdf
[9] See numerous stakeholder comments under this initiative, submitted around Oct 28, 2016.
[10] CAISO Straw Proposal, p. 15, this option is "not an optimal long term solution".
[11] Unless, of course, when the inter-temporal netting is indeed considered.

Both the CAISO simulation[12] and the Brattle simulation[13] show that, the two pass approach, even with the bidding incentive issue aside, would only reduce the total atmospheric GHG emissions for both ISO and EIM area combined by less than 0.1% compared to the current approach. This demonstrates that the potential impact of "secondary dispatch" on the total atmospheric GHG emissions for both ISO and EIM area combined is at a magnitude that is better handled outside the CAISO market, given that the risk of potential impacts to the CAISO market under the alternative approaches (Options 2&3) can well exceed the potential benefit.

[12] CAISO Presentation, p. 13, "The total atmospheric GHG emissions for both ISO and EIM area combined reduced by about 0.07% for the 2 pass results as compared to current approach".

[13] Brattle Presentation, p. 9, the total emission is 138.2 mmton under the current approach (EIM 1-Step) and 138.1 mmton under the two-pass approach (EIM 2-Step). This is equivalent to 0.07% of reduction (138.1/138.2 = 0.9993, 1-0.9993 = 0.07%).