



Comments of Pacific Gas and Electric Company on the Regional Integration California Greenhouse Gas Compliance Stakeholder Technical Workshop

| Submitted by | Company | Date Submitted |
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Introduction

Pacific Gas and Electric Company (PG&E) was pleased to participate in an October 13, 2016 stakeholder workshop as part of the California Independent System Operator (CAISO) Regional Integration California Greenhouse Gas (GHG) Compliance initiative. PG&E encourages the CAISO to continue facilitating such workshops, which provide valuable opportunities to convene stakeholder perspectives around highly complex issues. PG&E also commends the CAISO for its ongoing collaboration with the California Air Resources Board (CARB), which informed the workshop and will continue to guide the development of GHG accounting methods in the EIM and a multi-state balancing authority area.

Comments

PG&E joins the CAISO, CARB, and many other stakeholders in seeking to understand the overall impact of the EIM on GHG emissions. One piece of the EIM emissions puzzle is secondary dispatch, and PG&E urges the CAISO and CARB to work with stakeholders to develop a clear and complete picture of this issue. PG&E is hesitant to endorse a solution prior to more fully understanding the secondary dispatch emissions problem. The suitability of a solution will depend on the magnitude of the problem weighed against the solution’s cost and potential to drive unintended consequences. Clarity around the problem is essential in order to design a solution that achieves secondary emissions goals while maintaining market, societal, emissions reduction, and other policy objectives. Secondary dispatch is a complex issue, and PG&E looks forward to addressing it through ongoing collaboration with the CAISO, as well as CARB and other stakeholders.

Prior to discussing specific options, PG&E notes that a precise definition of emissions from secondary dispatch is needed in order to develop any suitable approach.

Developing an accurate approach to capturing secondary emissions requires a precise definition of what dispatch actions will be defined as secondary dispatch, and the circumstances under



which emissions caused by secondary dispatch would require the surrender of CARB allowances. Criteria and considerations for designing and evaluating potential solutions will depend on the definitions adopted by CARB and the CAISO.

In its most recent presentation to stakeholders, CARB stated that, “Secondary dispatch illustrates the potential backfill effect of higher emitting resources to serve EIM load when the optimization attributes lower emitting resources to serve California load.”¹ The CARB presentation further notes that secondary dispatch is neither defined in the EIM tariff nor observable by market participants.² Further defining secondary dispatch and the circumstances in which such emissions should be captured is an essential prerequisite to understanding the scope and magnitude of the issue, and designing a reasonable and implementable approach to addressing it.

In addition to providing clear definitions, the CAISO should also consider implications of any proposed secondary dispatch solution on the EIM.

The CAISO stakeholder workshop focused on approaches to accounting for secondary dispatch emissions in the EIM, with the understanding that an adopted approach would need to be scalable in a multi-state balancing authority. PG&E appreciates that, ultimately, the method selected to capture secondary emissions will have to balance the goals of accuracy and precision with the realities of technical limitations and the need to reliably operate the grid. The CAISO and CARB must also evaluate whether the proposed solution is likely to advance the overall emissions reduction goals of the EIM and, in the future, a multi-state balancing authority area.

PG&E is a proud supporter of California emissions reduction goals, and views the EIM as an important tool for reducing GHG emissions. The EIM market helps avoid renewables curtailment in CAISO, provides a larger market for California-generated clean energy, and can provide clean energy to displace emitting resources in and outside of California. As such, PG&E is particularly concerned about the CAISO striking a suitable balance between appropriately accounting for GHG emissions resulting from serving California load and maintaining a robust EIM. Any approach to capturing secondary emissions must preserve price signals and resulting dispatch orders that encourage participation in the EIM market.

CAISO has demonstrated that EIM dispatch lowered overall EIM emissions, and used increased export of California-generated renewable energy to displace high-emitting resources outside of California, such as coal-fired plants.³ California contributes to emissions reduction across the

¹ <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf>, slide 5

² <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf>, slide 5

³ https://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.pdf



EIM footprint, and so an evaluation of California emissions impact should consider those reductions alongside any emissions caused by serving California load. Increasing import costs for California without recognizing the emissions benefits of California exports may diminish the benefits to California of EIM participation and raise questions about the value of a multi-state balancing authority area. A solution to address secondary emissions should not jeopardize achievement of full societal, market, and emissions benefits of a multi-state construct.

At this time, PG&E is unable to support all of the conclusions reached by the CAISO during the stakeholder workshop.

The CAISO presented three options during the stakeholder workshop, and suggested that only one, Option 3⁴, is currently feasible.

- PG&E is not convinced that Option 1⁵, which considers net emissions over a defined period of time, could not serve as a basis for an acceptable solution. Capturing the value of clean energy imports and exports from and to California is a worthwhile exercise for determining the contribution of EIM to emissions reduction.
- PG&E agrees with the CAISO that Option 2 should not be considered, as it is not currently feasible to implement.
- PG&E finds that Option 3, a hurdle rate, is more feasible than Option 2, but introduces risks that must be weighed carefully against the presumed benefits in developing a method to calculate the hurdle rate.

Regardless of the approach ultimately adopted, the CAISO will need to allocate the compliance obligation from secondary dispatch. The selected solution must appropriately assign the compliance obligation and cost burden for those emissions, and ensure that cost allocation does not disrupt the EIM's economic dispatch of energy resources.

Option 1

EIM actions may cause increased emissions from secondary dispatch in EIM Entities to support imports into California in some periods, while reducing emissions in EIM Entities during other periods by exporting clean power to displace emitting generation. The proposed Option 1 would determine net emissions across a defined period of time and, if emissions were found to be greater than those captured by EIM resource attribution, CARB instruments would be retired.

⁴ See slides related to Option 3 in stakeholder workshop presentation <http://www.aiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.

⁵ See slides related to Option 1 in stakeholder workshop presentation <http://www.aiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.



At this time, CAISO staff is not considering an Option 1 approach. PG&E believes that further exploration of secondary emissions occurring in EIM, over a longer period of time than is currently available, is warranted. Studying the emissions from secondary dispatch caused by imports into California as well as emissions reductions resulting from export of clean energy from California will provide CARB and other stakeholders with additional data to determine the scope of the secondary emissions issue and whether netting might be appropriate to consider in a solution. In a six month analysis, CAISO showed that EIM dispatch lowered overall emissions in the EIM footprint. Looking at the findings from a longer period of time will provide more data on how secondary dispatch emissions might be addressed appropriately and with minimal disruption to the market.

Option 1 is an out-of-market solution. The additional emissions not considered by EIM would be calculated after the market has run and any costs for emissions would not be considered in the EIM. PG&E does caution that an out-of-market solution carries risk of being uneconomic and inefficient depending upon the costs of the out-of-market actions. A solution based on Option 1 should not be adopted without first evaluating the magnitude of net secondary emissions observed over the course of at least a year. Findings from this initial study period will help to determine whether the secondary dispatch solution lends itself better to a market design change (which also carries costs and risk) or another approach.

Option 2

PG&E shares the CAISO concern that running a dispatch to find optimal base schedules, followed by running the EIM market in real-time, may not be technically possible.⁶ PG&E is also concerned that developing an optimization model that limits import from a resource to its incremental dispatch, may involve formulation changes that could greatly increase computational requirements. PG&E joins the CAISO in concluding that such a computationally-intensive mechanism requires further study, and that attempting to adopt such an approach in the real time market today would create risks for market operations and reliable dispatch.

Option 3

Given the complexity of the problem, technical limitations, and outstanding questions, PG&E recognizes that a hurdle rate may suffice as a reasonable approximation of the emissions impacts of secondary dispatch. The hurdle rate would have to reflect market conditions, and not be an administrative rate set far in advance of the EIM. Without a defined hurdle rate, or process for determining one, PG&E is not yet able to offer a more thorough evaluation.

⁶ See slides related to Option 2 in stakeholder workshop presentation <http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.