

Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide written comments on the Clean Energy and Pollution Reduction Act Senate Bill 350 (SB350) Study initiative posted on April 25, 2016.

Please submit comments to regionalintegration@caiso.com by close of business
June 22, 2016

Materials related to this study are available on the ISO website at:

<http://www.caiso.com/informed/Pages/RegionalEnergyMarket/BenefitsofaRegionalEnergyMarket.aspx>

Please use the following template to comment on the key topics addressed in the workshop.

1. Are any of the study results presented at the stakeholder workshop unclear, or in need of additional explanation in the study's final report?

Comment:

Brattle and E3 should thoroughly list and explain all assumptions and modeling techniques that result in a conservative (i.e., less than likely) benefits estimate

During the May 24th stakeholder meeting, Brattle and E3 pointed out multiple assumptions and structures inherent in the modeling approach that lead to conservative estimates of the benefits associated with regional integration. For instance, E3 pointed out that it has *not* allowed RESOLVE to enter into negative pricing territory in the modeling runs. E3 also noted that its modeling approach *does* allow renewable resources to provide reserves, which allows the model to turn off all thermal generation in the state of California. Both of these assumptions clearly result in reduced, and thus understated, benefits when a regional market is studied. In addition, Brattle discussed modeling techniques, including the use of a production cost model, that inherently assumes the “Current Practice” is more efficient than it is likely to be. For instance, production cost models assume that within individual BAAs, dispatch happens as efficiently as possible, which is highly unlikely to occur in a BAA that does not use security constrained economic dispatch. Furthermore, by using a production cost model to mimic the “Current Scenario,” the model assumes that, once hurdle rates are applied, inter-BAA dispatch happens as efficiently as possible. This is highly unlikely to occur via the West’s current bilateral trading markets. Therefore, the use of a production cost model to estimate energy dispatch under the “Current Scenario” will inherently assume that the “Current Practice” is more efficient than it actually is, which minimizes the benefits that are shown when the Current Practice is compared to an expanded market scenario. These are just a few of the examples of why assumptions and modeling structures will tend to underestimate benefits of a regional market.

While these examples are very helpful, it would be incredibly valuable for stakeholders to have a list of these assumptions compiled. AWEA and Interwest recommend that, as part of the final report, Brattle and E3 highlight (in a single, succinct list) the conservative assumptions that were used in the analysis and the modeling techniques that lead to conservative benefit estimates. This will help the ISO and its stakeholders put the results into perspective (especially since some stakeholders appeared to be skeptical that the assumptions are actually conservative). AWEA and Interwest believe that once stakeholders see, in one place, a compilation of the assumptions and modeling techniques that underestimate benefits of regional integration, they will more readily understand that the estimates provided by E3 and Brattle are, in fact, conservative in nature.

- 2. Please organize comments on the study on the following topic areas:**
- a. The 50% renewable portfolios in 2030**
 - b. The assumed regional market footprint in 2020 and 2030**
 - c. The electricity system (production simulation) modeling**
 - d. The reliability benefits and integration of renewable energy resources**
 - e. The economic analysis**
 - f. The environmental and environmental justice analysis**

Comment:

c. The electricity system (production simulation) modeling
GHG Emissions Factor for Imports into California

The results of the SB350 studies show substantial GHG reductions in the 2030 cases. This result seems consistent with the multiple benefits and efficiencies of a larger market including the sharing of balancing reserves and more access to low-cost wind power and other renewable energy resources. Regional expansion of the ISO will result in significant GHG reductions as the implementation of the ISO's market will help improve the ability for California's excess generation to be utilized, rather than curtailed. It will also help enable the integration of greater amounts of renewable resources across the Western Interconnection through more efficient dispatch and better visualization of the electric grid which will, in turn, enable integrating higher penetrations of renewable generation.

The very minimal increase in GHG emissions in the 2020 case, where PacifiCorp is the only additional entrant to the ISO, is likely inaccurate. It is likely a result of the modeling construct required to attempt to replicate the impacts of AB32. Unfortunately, production cost models are not able to accurately model the impacts of California's AB32 and the resulting emissions allowance prices. The models do not allow the users to specifically identify electricity that is imported into California and impute a GHG emissions price on that resource based on its actual GHG emissions factor. However, this is precisely what AB32 is designed to do, to the extent possible, in the current bilateral market. And, for energy imported into California, it is what AB32 will be able to do in an even more accurate fashion with the better information obtained through a larger regional market footprint. Indeed, this is precisely what has happened in the real-time Energy Imbalance Market (EIM) when a GHG price adder was put in place for energy imported to California through the EIM. As actual results have shown, imported coal into California is nearly zero percent of EIM imports.¹

However, the production cost model is not able to mimic the structure that would presumably be in place in an expanded ISO. Because actual resource emissions

¹ See the CAISO's presentation from the April 2016 CREPC meeting. Available here: http://westernenergyboard.org/wp-content/uploads/2016/04/04-26-16_CREPC_WIRAB_crowley_EIM_update.pdf

factors cannot be used in the production cost model, another method has traditionally be used to try to capture the impacts of AB 32. The method that has been used involves adding a “standard” emissions cost to electricity that is imported into California. The “standard” emissions cost is based on an assumed emission rate for imports and an assumed GHG emissions price, and is implemented in the model in the form of a hurdle rate. Brattle has, quite reasonably, used the emissions factor of a combined cycle natural gas facility in developing the “standard” emissions costs used in the analysis. While this approach is reasonable as a placeholder, it likely overstates emissions and likely contributes to the increase in GHG emissions in 2020. For example, because the emissions factor of a combined-cycle natural gas facility is likely much lower than the actual emissions factor from PacifiCorp’s generation in 2020, the model may be dispatching more coal than would actually happen if resources’ actual emissions factors were used in the model.

To help address this modeling issue, AWEA and Interwest recommend that Brattle consider imputing a GHG emission factor equal to the system average emission factor in the West (or in PacifiCorp) in both the 2020 and 2030 analyses. In the absence of a modeling technique that is capable of imputing the exact GHG emissions cost each unit would actually incur, using the system average emissions factor for imports into California may help more accurately demonstrate the benefits of a cleaner grid outside of California by reducing the imputed GHG emissions as the Western grid becomes cleaner.

3. Other

Comment: