

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 Study initiative posted on February 4, 2016.

Please submit comments to regionalintegration@caiso.com by close of business
February 19, 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 initiative proposal.

1. Do you think the proposed study framework meets the intent of the studies required by SB350? If no, what additional study areas do you believe need to be included and why?

Comment: In general, the themes proposed for areas of study and modeling match intent of SB 350. However, the three cases proposed for testing ratepayer impacts could be improved with additional cases modeled to reflect a more realistic scenario for ISO expansion in the Western Interconnection. AWEA understands the CAISO's desire not to attempt to guess what regional expansion would look like in the future. However, modeling a scenario where the entire WECC becomes part of the expanded ISO is not very realistic at this point in time, as such an expansion is not likely to happen in the near future. By only studying "full WECC expansion cases" the SB350 studies will, on their face, be subject to substantial scrutiny and may be deemed to be unrealistic and unreliable in analyzing impacts to California ratepayers. To address this concern and ensure that the SB350 study process is informative and useful, additional

cases are required.

Ideally, the proposed “full WECC expansion cases” would still be performed, but additional cases could be modeled to reflect smaller scale regional expansion. To date, PacifiCorp is the only entity that has publicly expressed a desire to consider joining the CAISO. Therefore, the obvious “small scale expansion case” would be regional integration of the CAISO and PacifiCorp. Not only would this scenario be useful for the SB350 process, but the studies would be informative for many other CAISO and PacifiCorp initiatives.

It would also be useful to evaluate a study case where regional expansion is equal to the current committed CAISO EIM footprint: PacifiCorp, NV Energy, Arizona Public Service, Portland General Electric, and Puget Sound Energy. That could be expanded to include Idaho Power should they formally commit to joining the EIM.

Without studying one or more cases where regional expansion occurs on a smaller scale than WECC-wide, AWEA is concerned the entire SB350 study effort may be rendered ineffective and criticized as overstating potential benefits.

<p>2. Five separate 50% renewable portfolios are being proposed for 2030 as plausible scenarios for the purpose of assessing the potential benefits of a regional market. Are these portfolios reasonable for that purpose, and if no, why?</p>
<p> </p>
<p>3. To develop the five renewable portfolios the RESOLVE model makes a number of assumptions resulting in a mix of renewable and integration resources for the scenario analysis (rooftop solar, storage, retirements, out of state resources etc.) Do you think the assumptions associated with developing the renewable portfolios are plausible? If no, why not?</p>
<p>Comment:</p>
<p>4. The renewable portfolio analysis assumes certain costs and locations for the various renewable technologies. Do you think the assumptions are reasonable? If no, why not?</p>
<p>Comment: AWEA suggests that the most recent NREL forecasts for wind and solar costs be considered for use in the SB350 study process. Additional detailed cost information can be found at the following link, specifically under the Annual Technology Baseline Spreadsheet: http://www.nrel.gov/analysis/data_tech_baseline.html</p>
<p>5. The renewable portfolio analysis makes assumptions about the availability and quantity of out-of-state renewable energy credits (“RECs”) to California. Do you think the assumptions are plausible? If no, why not?</p>
<p>Comment:</p>
<p>6. The renewable portfolio analysis makes assumptions about the ability to export surplus generation out of California (i.e., net-export assumptions). Do you think these assumptions are reasonable? If no, why not?</p>
<p>Comment: The current assumptions appear to overstate the ability of California to export surplus generation in a BAU case. A comparison needs to be made regarding system operations under a BAU future and one in which trading is expedited by a regional market.</p>

BAU bilateral markets will not support the level of solar exports that a regional market would because:

- (1) Bilateral markets always leave unused transmission capacity on the table compared with regional markets. It has proven impossible to fully utilize the existing transmission system operated by 38 separate Balancing Area Authorities.
- (2) Bilateral markets effectively limit trading partners to neighboring utilities. Past efforts to create fast bilateral markets (e.g., ITAP) that enable trading across multiple utilities have failed. While there are examples of trading across multiple utilities in the current bilateral market, they are not thought to be of sufficient scale to contradict the notion that bilateral trades can occur at levels that are large enough to matter for purposes of this analysis.
- (3) It will be much more difficult to implement new methodologies that result in higher real-time path ratings (e.g., FASTC) in the BAU case compared with regional markets where a single BAA manages the transmission system. This is because deployment of such new technologies will be easier to achieve when there is one entity operating the system compared with the 38 BAAs currently operating the system.

The study should assume lower transfer limits in the BAU cases and/or higher transfer limits in the regional operations cases.

The study should explain whether the inefficiencies inherent in the BAU case will require the construction of new transmission to reach the assumed solar export levels.

Revised transfer limits that reflect lower transmission utilization in the BAU cases than in the regional market cases should be modeled for both California exports and California imports.

The study should explain why making the most effective use of existing transmission won't be sufficient before assuming that new transmission is required.

- 7. Does Brattle's approach for analysis of potential impact on California ratepayers omit any category of potential impact that should be included? If so, what else should be included?**

Comment:

- 8. Are the methodology and assumptions to estimate the potential impact on California ratepayers reasonable? If not, please explain.**

Comment:

9. The regional market benefits will be assessed based assuming a regional market footprint comprised of the U.S. portion of the Western Interconnection. Do you believe this is a reasonable assumption for the purpose of this study? If not, please explain.

Comment: A scenario where the entire WECC becomes part of the expanded ISO is not reasonable, as such an expansion is not likely to happen in the near future. Even if every IOU were interested in joining the expanded ISO, many public power entities would be unlikely to join, as is the case inside of California. That said, this is an interesting case to run to understand the impacts of full regional integration.

By only studying “full WECC expansion cases” the SB350 studies will, on their face, be subject to substantial scrutiny and may be deemed to be unrealistic and unreliable in analyzing impacts to California ratepayers. To address this concern and ensure that the SB350 study process is informative and useful, additional cases are required. In question #1 AWEA recommended studying two different expansion cases:

1. Only the CAISO and PacifiCorp
2. CAISO plus the current committed EIM footprint (PacifiCorp, NV Energy, Arizona Public Service, Portland General Electric, and Puget Sound Energy)

Without studying one or more cases where regional expansion occurs on a smaller scale than WECC-wide, AWEA is concerned the entire SB350 study effort may be rendered ineffective and criticized as overstating potential benefits.

10. For the purpose of the production cost simulations, Brattle proposes to use CEC carbon price forecasts for California and TEPPC policy cases to reflect carbon policy implementation in rest of WECC. Is this a reasonable approach? If not, please explain.

Comment: Brattle should carefully consider using carbon cost price forecasts in non-California states. Although Clean Power Plan compliance may result in carbon costs in various states, implementing TEPPC policy case carbon price forecasts might overstate future CO2 costs in the rest of WECC. Assuming high carbon prices in the rest of WECC may tend to overstate the carbon reductions that would occur, which could be used to criticize the study results when they are complete.

Furthermore, additional detail should be provided on what “TEPPC policy cases” are proposed for use and what carbon price assumptions are embedded within those cases.

11. BEAR will be using existing economic data, and generation and transmission data from E3, the CAISO, and Brattle. These data are currently being developed. Are there specific topics that you want to be sure to be addressed regarding these data?

Comment:

12. The economic analysis will focus on the electricity, transportation, and technology sectors to develop the economic estimates of employment, gross state product, personal income, enterprise income, and state tax revenue. These results will be further disaggregated by sector, occupation, and household income decile. Do you think these sectors are the appropriate ones on which to focus the job and economic impact analysis? If no, why?

Comment:

13. Under the proposed study framework, both economic and environmental impacts of disadvantaged communities will be studied. Based on the study overview do you think this satisfies the requirements of SB350?

Comment:

14. The BEAR model will evaluate direct, indirect, and induced impacts to income and jobs, including those in disadvantaged communities. Do you think additional economic analysis is required? If yes, what additional analysis is needed and why?

Comment:

15. The environmental analysis will evaluate impacts to California and the west in five areas – air quality, GHG, land, biological, and water supply. Do you think additional environmental analysis is required? If yes, what additional analysis is needed and why?

Comment:

16. The environmental analysis presentation identified a number of potential indicators for the various impacts. Are the indicators sufficient? If no, what additional indicators would you suggest?

Comment:

17. Other

Comment: