

Stakeholder Comments Template

Submitted by	Company	Date Submitted
Jenifer Hedrick Paul Nelson Eric Little	Southern California Edison	June 22, 2016

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.

SCE appreciates the efforts made by the CAISO and the consultants to perform a study on the benefits of CAISO expansion as required by SB 350. SCE has prepared a set of comments as provided in the template below.

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:

- i. Please provide an appendix with a complete set of definitions of terms and acronyms in the final report.
- ii. Further elaboration on the specific values and methodology assumed in de-pancaking and cost shifting from revenue recovery from power transfers in Scenarios 1a and 1b vs assignment of transmission costs to load that are assumed in Scenarios 2 and 3 is important for a complete understanding of the reduced benefits of Scenarios 1b vs 2 or 3. While de-pancaking of rates can result in lower dispatch costs, the report is unclear on the changes of who pays for the existing transmission revenue requirements. The loss of wheeling revenues then must be reallocated to someone else. The report should add clarity on the impacts to transmission cost recovery and specifically how existing revenue requirements are accounted.
- iii. The slides on CO2 emissions (slide 10 summary of results) need to be clear that it is electricity generation sector emissions not total CO2 emissions. It should be noted in the final report that any increase in CA electric sector CO2 emissions in cap and trade must be offset by a reduction in another sector, therefore total CO2 emissions in CA may not increase and cap and trade revenues charged to CO2 emitters such as electric customers may change due to price of CO2 impacts.

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:

a. The 50% renewable portfolios in 2030

50% RPS portfolios appear consistent with RPS calculator except for forcing a total of 1000MW of non-economic storage (500 MW) and geothermal (500 MW) for “diversity.” Diversity should be explicitly valued or these resources should be removed from the bases case. It is our understanding that these resources impart a net cost of approximately \$200m annually.

b. The assumed regional market footprint in 2020 and 2030

The footprint should also be subject to sensitivity analysis since it is likely that significant reductions in the benefits of Scenarios 2 and 3 will occur with a reduced footprint.

- Specifically, the study assumes all non-federal entities in the United States WECC region join the ISO. The results therefore represent a geographic, load and financial maximum of the benefits estimated. Depending on the checkerboard of entities that join or don't join, benefits will be impacted by pancaking tariffs and difficulty in permitting transmission projects. Changes in membership or roll-in of membership will reduce benefits estimates.
- Also, the study assumes all California public owned utilities (POUs) choose to participate while neither of the two largest in CA currently choose to participate. Costs for new transmission in the WECC in Scenario 3 would change if fewer participants join than assumed in the study, resulting in increased costs to participating entities. Future additions in both Scenarios 2 and 3 would fall across fewer entities.

c. The electricity system (production simulation) modeling

In order to determine the benefits that are directly related to CAISO regional expansion, it would be clearer to use a base case that includes future state assumptions that are reasonably expected to manifest whether or not regional expansion occurs. Accordingly, the following sensitivities should be incorporated into a base case assumption:

- Increased exports of 8000 MW in Scenario 1B
 - High amounts energy efficiency (EE)
 - High rooftop PV growth
 - Low cost of solar PV
 - Removal of non-economically selected geothermal and pumped storage resources. (Refer to comment under 50% renewables above.)
- i. Scenario 1b should be used as the base case rather than Scenario 1a. Scenario 1a limits the amount of exports to 2000 MW vs. 8000 MW in Scenario 1b. The benefit created by additional exports is independent of regional expansion. Since exports can and should be pursued independent of regional expansion, then it would be clearer not to mix the benefit of exports with the benefit of regional expansion.

- ii. The high EE values identified in the sensitively study on slide 56 are currently a requirement in SB350. Since increased EE will occur in California independent of regional expansion, it would be clearer not to mix the benefit of EE with the benefit of regional expansion. In other words, not including high EE and the corresponding reduction in load in the base case elevates the regional expansion benefit and is not consistent with SB 350.
- iii. Increase in rooftop PV is expected to continue due to declining costs of solar PV and public policy to encourage distributed solar PV. (Slide 62) Consequently, it seems reasonable to build this in to the base case of the expansion scenarios.
- iv. The sensitivity of lower solar PV costs should be included in the base case because it is realistic to expect the cost of solar to continue a downward trajectory and therefore the selection of solar PV as a cost effective renewable resource will continue to go up.

In addition, Scenario 2 should be used as the comparative end state in 2030. Scenario 2 avoids assumptions made regarding RPS out-of-state build.

Comparing Scenario 1b with 2, adding high amounts energy efficiency (EE), high rooftop PV growth, low cost of solar PV and elimination of non-economic geothermal and pumped storage yields benefit results based on realistic, and conservative assumptions consistent with California requirements.

While there is insufficient information to perform a rigorous assessment of the benefits of this combination, and the interaction between benefits is unknown between sensitivity runs, early assessment benefit based on available information suggest that the procurement cost benefits could be roughly $\frac{1}{2}$ of those used as the base case comparison of Scenarios 1a vs. 3. In turn, TEAM benefits could also be expected to see a reduction, which we have assumed to be proportionate to procurement cost benefit reductions.

From this perspective, the benefit of expansion is expected to be approximately \$500m/year based on the modeled assumptions and applied sensitivities. This would be reduced further with reduction of the expansion footprint.

e. The economic analysis

It is not clear that others in the WECC would fail to benefit from transmission expansion to access high quality wind resources. Therefore, it is not clear why only CA would pay for all of the transmission costs. It would be reasonable for CA to only pay for the costs associated with its portion of the benefit, which is required per FERC guidelines on cost allocation. In addition, it is important to be

clear that the benefit values from this study are potential conceptual values under optimum circumstances, and cannot be used to justify allocating the costs of any out of state transmission to California.

5000 MW of out-of-state wind was added to Scenarios 2 and 3 which creates an uneven playing field and over-estimates WECC emission benefits, especially in Scenario 3 where CA paid for additional transmission. We recommend removing the 5000 MW of wind from the analysis.

Some of the assumptions used in the study are not conservative. EE values used in all scenarios are lower than the requirements of SB350 which in turn increase the calculated regional expansion benefit but are not consistent with existing CA law. Also, EIM currently provides some of the economic dispatch benefits that are being credited in the study.

a. Other

Comment:

- i. The downside and costs of expansion have not been evaluated. All aspects of the expansion including the downside and costs of this effort should be considered. It appears that unquantified benefit information is shown without providing the corresponding risk information.

For example, there would be an expectation of 'merger' or start-up costs that have not been quantified and included in the studies. Perhaps the initial start-up costs of CAISO could be used as a baseline. Also, how will integration of the existing Balancing Authorities be conducted? Will the multitude of processes and procedures between entities be standardized? What will be the costs (monetary and non-monetary) associated with integration?

In addition, what complications could occur if a patchwork of Balancing Authorities in the WECC chooses to participate and a remaining patchwork chooses not to participate? Would this create an ongoing complexity that could significantly add to costs and/or risks to the WECC?

For completeness, more effort and time should be made to better understand the logistical problems that could develop. Once a decision is made to regionally expand into the WECC it would be difficult to un-do, therefore taking the time needed to perform in depth and well vetted scenarios and outcomes is prudent.

- ii. Scenario 1b identifies that it would be beneficial to have the ability to export sooner rather than later and independent of CAISO regional expansion. To that end, developing the necessary agreements and system upgrades to allow exporting could be a near term priority for California. The ability to export as shown in Scenario 1b provides a good case to work toward having export capability available and ready to execute sooner than 2030. It is suggested that this capability be developed and ready as early as 2020 in order to mitigate the over-generation predicted to occur in that timeframe

- iii. The regional expansion studies have been performed from a California specific view. While this is important, it will also be necessary to understand the complete picture of the impact to all the non-federal entities affected in the WECC. Will there be a downside to other participating or not participating non-federal entities?