

## 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](mailto: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.

The work being performed by the CAISO's group of consultants is important work which should lead to an understanding of the extent of benefits of further regional integration. The study effort has a commendable start but BAMx encourages the CAISO to allow for more stakeholder input than that which is accommodated by the current plan. BAMx believes the Legislature envisioned a robust analysis that assumes a variety of scenarios that are well vetted in a public forum during their development.

BAMx particularly supports what we understand is a study methodology that assumes that transmission is only needed to connect new renewable projects to their nearest load center and that more transmission would be identified as necessary only if it is economically justified through congestion analysis. In California parlance, rather than FCDS all the way to California, energy only type of deliverability would be assumed unless it is economically justified to build more transmission. Hopefully, this will lead to a less expansive set of needed new transmission projects which would place less, though

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<sup>1</sup> BAMx consists of Alameda Municipal Power, City of Palo Alto Utilities, Port of Oakland and City of Santa Clara, Silicon Valley Power.

*Clean Energy and Pollution Reduction Act Senate Bill 350 Study  
Scope, Assumptions and Methodology*

still potentially substantial, pressure on the already high transmission rates (TAC rates) in California. Notwithstanding our early perception of a favorable initial direction for the assessment of the need for new electric transmission in the studies and the initial stakeholder meeting, the SB350 study process needs a study plan that tests the robustness of any conclusions to a proper range of input assumptions. For example, some critical assumptions (such as the ability to export excess energy without regionalization) are proposed to be tested over a wide range of values. However, other critical assumptions are not (such as the ability to import renewable energy over the existing interties). Furthermore, stakeholders need both additional information about the foundation for the assumptions proposed for the studies and more engagement as the analysis progresses and before conclusions are formulated.

**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:

**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?**

Comment:

While BAMx generally supports the methodology of studying a range of portfolios, the specific resources selected in each portfolio are the result of numerous input assumptions, some of which were briefly discussed at the stakeholder meeting and others which were not. Therefore, it is premature to reach conclusions as to the reasonableness of the portfolios until the input assumptions are better understood. The following comments identify some of the areas where more information on the input assumptions is needed and additional investigation is necessary.

To understand the impact of various assumptions, it would be helpful to identify which assumptions result in binding constraints and how might the results differ if a critical binding constraint was relaxed.

**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?**

Comment: BAMx believes additional information beyond the brief presentations made on February 8 is needed before we can respond to this question. And it is unclear how the assumptions made for the RESOLVE model will or will not differ from those used for the RPS model, which continues to go through substantial changes with extensive stakeholder effort. A detailed explanation of how the RESOLVE model and the RPS model may differ, as well as a detailed explanation for those differences for both in state and OOS selection of resources, are needed.

The presentation identified that 500 MW of geothermal and 500 MW of pumped storage were forced into the portfolios for portfolio diversity. More information is needed to understand assumptions and its economic consequences. For example, how were these levels determined? How does this assumption alter the balance of the portfolios and what is the net economic cost of this diversity? What related transmission costs may be driven by these assumptions (such as major lines to support geothermal exports from IID)?

Also as described below in response to Question 4, rather than a single quantity of renewable resources that can be imported over existing transmission, assessing a range of values could better capture future uncertainty as to how much can be accommodated by existing transmission.

**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?**

**Comment:**

It was identified in the stakeholder meeting that 3000 MW of external medium-quality wind and solar resources would be available over the existing transmission system at the proximity to the existing delivery points into California. BAMx supports assuming that the existing transmission system is capable of importing renewable resources, but we believe additional investigation as to the amount that can be accommodated on existing transmission needs more study. While the quantity does not appear unreasonable, additional study should indicate that higher levels can be accommodated over time as coal-based generation from the Southwest into California on the WECC system decreases in the future. It is also not clear whether the characterization of these resources as “medium-quality” is limited to wind or includes both wind and solar. Solar resources imported from the Southwest would be expected to be of similar or higher quality as California-based solar resources.

It was also indicated that out-of-state resources delivered to California on the existing transmission system would incur the applicable wheeling and loss charges. Did the application of such charges impact the portfolio selection? If so, more information is needed on the selection of such charges. For example, we have recently seen PPAs awarded to substantial amounts of out-of-state solar that are interconnecting in ways that avoid wheeling charges (e.g., by connecting to the Palo Verde Hub stations or VEA).

For the high-quality out-of-state wind class, such resources were burdened in the RESOLVE model with a total transmission cost of \$1.5 billion for 3,000 MW of wind (1,500 MW in Wyoming and and 1,500 MW in New Mexico). This was described as an estimate of the transmission cost to integrate the resources in the local market. This is a major cost assumption for which there was no detailed explanation provided.

As indicated above, we support what we believe is an intention to study the constraints and production cost impacts associated with new renewable injections using a production simulation model and assuming further transmission upgrades only if economically justified.

BAMx strongly supports the approach of not assuming that new physical transmission to California is necessary to integrate these remote resources unless economically justified. However, we are concerned that the cost to locally integrate such resources is understated in the RESOLVE model. In its 2015 IRP, PacifiCorp assumes that

Gateway Segment D is necessary to integrate 525 MW of Wyoming wind into its eastern system (sensitivity case S-07) and Gateway Segments D, E and F are necessary for 959 MW of wind (sensitivity case S-08). The facilities associated with these scenarios alone could cost over \$4 billion, exceeding the assumed \$1.5 billion for less than 1/3 of the assumed new wind generation. More detail is needed on the cost assumed to deliver remote resources within the WECC to local load centers.

As for New Mexico, a map of the wind resource potential ([http://apps2.eere.energy.gov/wind/windexchange/wind\\_resource\\_maps.asp?stateab=nm](http://apps2.eere.energy.gov/wind/windexchange/wind_resource_maps.asp?stateab=nm)) shows the greatest potential is in the central-eastern and far Northeastern part of the state. Similar to Wyoming, these areas do not have an extensive existing electric transmission infrastructure. Several hundred miles of 345 kV transmission lines could potentially be necessary to locally integrate an additional 1,500 MW of wind.

Given the lack of infrastructure in the wind resources areas in both Wyoming and New Mexico areas necessary to integrate 3,000 MW of additional generation, it seems likely that the cost to integrate 3,000 MW of Wyoming and New Mexico wind will be significantly greater than the \$1.5 billion estimate used in the RESOLVE model.

**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?**

Comment:

BAMx is concerned that the same political issues that have resulted in the existing limitations on the use of out-of-state RECs will exist in both the Business As Usual Procurement and WECC Procurement cases. That is, it does not appear to be reasonable to assume that the limitations will not continue, or could not be removed, absent integration. This is an important assumption whose effect on the benefits of regionalization needs to be studied through the study of various scenarios.

**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?**

Comment:

BAMx supports investigation of three alternative export limits under Business As Usual Procurement; ranging from 2,000 MW to 8,000 MW. However, the lower boundary to the export range (2,000 MW) was identified as being based upon maximum historic flow patterns. This does not appear to be a reasonable assumption for the future, as greater amounts of exports are likely to occur under Business As Usual with increasing renewables penetration in California along with a corresponding reduction in prices. These will incentivize external entities to procure California’s excess energy in both the

CAISO Day Ahead Market and the EIM. BAMx is concerned about the weight that this lower bound may receive in the analysis; causing an undue attribution of the ability to export larger quantities of excess power to regionalization.

**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:

Brattle identified a number of areas where analyses will be made to identify the benefits of regionalization. These include de-pancaking of transmission rates, day-ahead market/unit commitment, integrated ancillary service market, integrated resource adequacy, and reduced renewable procurement costs (both in quantity and price). Other areas, such as the incremental benefit over the EIM to the real-time market and the potential for reduced flexible resource procurement will be investigated more qualitatively. However, as many of these benefits are potentially regional, it is not clear how such benefits will be allocated between California and external entities, especially in Scenario 3 where the entire United States portion of the Western Interconnection is assumed to participate in a regional ISO.

**This analysis also focuses entirely on benefits and does not address whether there will be additional costs that will be born by California associated with regionalization.** The analysis should include a separate section on any such costs, including TAC costs, increases in the GMC (for example, if regional operation offices be required), loss of transmission revenues associated with exports, etc.

**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:

We are concerned about the inclusion of the Southwest, especially New Mexico, in the regional market analysis. While PacifiCorp has expressed interest in joining the CAISO and other Balancing Areas are participating in the EIM, New Mexico has not. Therefore,

BAMx is concerned about heavy reliance on New Mexico wind resources in all the Scenarios and, especially, Scenario 3. This inclusion casts much greater uncertainty over the potential to actually realize the benefits to be identified in the study. Reasonable assumptions of scenarios with less than full WECC participation should be studied. One scenario should be assume only PacifiCorp joins. Scenarios of greater participation should also be studied such as a variation of Scenarios 2 and 3 where the geographic footprint is more aligned with the current EIM entities.

**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:

**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:

As the specific transmission projects needed to implement each scenario are not defined, it would appear to be difficult to properly assess the environmental impacts. Such impacts could be important in the viability of transmission links, especially through those states that neither have an RPS program benefiting from remote resources nor are the source of such resources.

**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:
<b>17. Other</b>
Comment: