

Pacific Gas and Electric Company Stakeholder Comments

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?**

PG&E believes that the proposed study framework generally meets the intent of the required studies. Below, PG&E suggests some enhancements to the framework to further enhance the accuracy of the study results.

1. *Reliability benefits:* The study should add a reliability analysis to compare the relative loss of load probability (LOLP) contribution of each area to WECC’s overall reliability in a WECC-wide regional market. Sensitivities around these input assumptions will be helpful to produce a range of reliability benefits.
2. *Operating cost savings:* The study should compare the variable energy and ancillary service costs of each area within WECC before and after the expansion or formation of the regional market (i.e., compare the cost from individual vs. combined commitment and dispatch).
3. *RPS cost savings:* PG&E believes that Scenario 2 (i.e., regional market operations with business-as-usual scenario and renewable procurement restricted largely to in-state resources) needs to align better with the recent PacifiCorp integration studies which estimate a cost savings from

<p>integration resulting from out-of-state renewable generation.</p> <p>4. <i>Other assumptions:</i> Although SB 350 does not prescribe input assumptions for the CAISO studies, PG&E recommends that studies use at least one scenario with assumptions that include the key elements of the legislation such as 50% RPS and significant increases in energy efficiency savings to the extent that they are cost-effective and feasible, which are aimed at reducing CO2 emissions to contribute to achieving the state’s 40% of 1990 level CO2 emissions. Also, the current study assumptions rely on 2013 IEPR load assumptions, which were presented at the February 8th meeting. PG&E recommends that the study assumptions rely on the 2015 CEC IEPR load assumptions. See PG&E’s response to question 3. If the 2015 CEC IEPR assumptions cannot be used, PG&E recommends at a minimum including sensitivities that increase the energy efficiency savings relative to the 2013 IEPR Mid AEE scenario. Finally, PG&E has not yet decided on Diablo Canyon Power Plant (Diablo Canyon); therefore, PG&E recommends that Diablo Canyon should be considered as operational for some of the proposed scenarios.</p>
<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>See PG&E’s response to question 1, RPS cost savings.</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>To the extent that the renewable portfolios rely on any information derived from the 2013 IEPR, this data should be updated with the publically available 2015 CEC IEPR data.</p> <p>The assumed distributed generation forecast of 14.6 GW by 2030 should be updated to include potential distributed generation increases from the extension of the Net Energy Metering tariff at the retail rate.</p> <p>Any pricing information derived from the Federal Investment Tax Credit for solar and Production Tax Credit for wind should be updated to the recent legislative extensions for both programs.</p> <p>PG&E suggests that the CAISO clarify why the draft scenarios assume 500 MW of new geothermal or 500 MW of new pumped storage. Since the RESOLVE model optimizes energy storage for renewable integration at least-cost, it would be unnecessary for example to include pumped hydro storage in all the scenarios.</p> <p>Additionally, see PG&E’s response to question 1, RPS cost savings for RPS related assumptions; and other assumptions regarding the presumed retirement of Diablo Canyon.</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>See PG&E’s response to question 1, RPS cost savings.</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?
PG&E would like to better understand the assumption of 5 GW of out-of-state resources in Scenarios 1 and 2. As appropriate, estimates of out-of-state resources should be updated with version 6.2 of the RPS Calculator when it is released in early 2016. The forthcoming RPS Calculator update contains the updated 2015 CEC IEPR load forecast and other key updates that should be incorporated into the SB 350 study assumptions. E3 should use the portfolios as developed by the RPS Calculator’s least-cost best-fit approach to portfolio development.
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?
PG&E supports the proposal to evaluate the effect of different net export assumptions.
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?
At this time, PG&E has no comment in response to the question.
8. Are the methodology and assumptions to estimate the potential impact on California ratepayers reasonable? If not, please explain.
See PG&E’s response to question 1, proposed framework.
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.
The proposed approach assuming a U.S. WECC-wide footprint would show a potential benefit estimate provided it is supplemented with some allocation of benefits among regions.
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.
PG&E would appreciate greater detail regarding the California carbon price assumptions. Which CEC carbon price forecasts are being proposed? How does Brattle characterize what the carbon prices are meant to represent, i.e. are they compliant with the current 2020 goals from ARB’s Cap and Trade program or with the Governor’s statewide 2030 goals?
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?
At this time, PG&E has no comment in response to this question.
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,

<p>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?</p>
<p>At this time, PG&E has no comment in response to the question.</p>
<p>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?</p>
<p>At this time, PG&E has no comment in response to the question.</p>
<p>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?</p>
<p>At this time, PG&E has no comment in response to the question.</p>
<p>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?</p>
<p>At this time, PG&E has no comment in response to the question.</p>
<p>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?</p>
<p>At this time, PG&E has no comment in response to the question.</p>
<p>17. Other</p>
<p>As a generally applicable recommendation, PG&E suggests that the SB 350 studies rely on the most recent available data sources. During the study assumptions and methodologies presentations on February 8th, it was stated that many of the inputs for the various studies had been obtained several months prior to the meeting date. Nevertheless, there will be increased value of the SB 350 studies results to the extent that they are based on the best available information.</p> <p>At this time, PG&E has no further comments.</p>