

Stakeholder Comments Template

Submitted by	Company	Date Submitted
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California’s Office of Ratepayer Advocates (ORA) provides the following comments on the Senate Bill (SB) 350 studies as presented at the May 24 and 25, 2016 stakeholder meetings. The presentations at the stakeholder meeting and subsequent follow up data made available on June 3 and June 10, 2016 provide a wealth of information for considering the benefits of a regional ISO. ORA’s comments recommend clarifying some of the study results and including additional analysis in a few key areas so that the final published SB 350 studies reflect the most comprehensive information available to evaluate the benefits of a regional ISO.

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?

Slide 8 of the Brattle slides summarizes “Annual California Ratepayer Benefits” and provides a concise summary of the cumulative economic impacts on California. As the sensitivity analyses show,¹ there is a range of uncertainty around these cumulative economic benefits. ORA recommends that the SB 350 studies provide a summary of the benefits of Scenario 2 and Scenario 3 and present the benefits within a range of values that reflects all the sensitivities and analysis prepared as part of the SB 350 studies. This information would help stakeholders better understand the uncertainty associated with the analysis and the range of potential benefits, depending on which sensitivity or scenario most accurately predicts the future.

**2. Please organize comments on the study on the following topic areas:
a. The 50% renewable portfolios in 2030**

Impact of the Bilateral Export Trading Limit on the Portfolios

ORA supports the use of the higher bilateral export trading limit reflected in Sensitivity 1b.² The 2,000 MW bilateral export trading limit of Scenario 1a³ reflects historical maximum exports, but does not account for the impact of low/negative market prices projected in the future. Scenarios 2⁴ and 3⁵ assume an 8,000 MW export limit on the existing transmission

¹ Energy+Environmental Analysis, Slide 54.

² 2030 without regionalization, 8,000 MW bilateral export trading limit. (Brattle Slide 24).

³ 2030 without regionalization, 2,000 MW bilateral export trading limit. (Brattle Slide 24).

⁴ 2030 with regionalization under current renewable procurement practices (Brattle Slide 24).

⁵ 2030 with regionalization with greater regional procurement (Brattle Slide 24).

infrastructure. Comparing Scenario 3 only to Scenario 1a implies that higher exports are not possible without regionalization, even though the same existing CAISO infrastructure is in place with and without regionalization. Such a comparison assigns the benefits of greater export limits to regionalization, but does not demonstrate that higher exports are not possible absent regionalization. It appears reasonable to expect that even with the existing market structure, neighboring balancing authorities would enter into transactions to purchase negatively priced energy in excess of the historical limit of 2000 MW. Earlier in the SB 350 study process, an export limit at the midpoint of this range, 5,000 MW was considered,⁶ yet the study results presented on May 24-25 did not include this midpoint range.

ORA recommends that the SB 350 studies either explain why increased exports are unlikely without regionalization or compare the benefits of regionalization to both Scenario 1a and Sensitivity 1b, and express potential benefits as ranges. The data necessary for such a presentation are included in the public Excel workbook titled “Brattle SB 350 Study_06-10-2016 data release (summary of ratepayer impact)_PUBLIC.xlsx”

Impact of Negative Pricing on the Portfolios

It is important to model the potentially significant impact that zero/negative pricing would have on producer and consumer behavior (assuming the price signals are passed through to consumers). Slide 39 of the Energy+Environmental Analysis presentation identifies areas where consumers could react directly to pricing signals, time-of-use (TOU) rates and electric vehicle charging across all the scenarios. Q&A #2 of the “SB 350 Stakeholder Question Responses 160610” posted on the public area of the website provides more detail regarding the load shifting assumptions associated with TOU rates. While this model captures some changes in the future load profile, it is insensitive to the potential magnitude of price decreases. ORA recommends that the SB 350 studies model the potential for change in load profile as a function of prices, including the potential change in usage patterns if customers are exposed to negative prices. While ORA is not aware of detailed studies that examine consumer response to energy offered at negative pricing, it is reasonable to assume that customers would respond favorably to purchasing energy at low or no cost. It would be helpful to understand the potential for market prices to self-correct some of the over-generation issues if Sensitivity C (High Flexible Load Deployment) with Scenario 1B as the base is included in the presented material.

Energy+Environmental Analysis Slide 52 states that the Base Case assumes no negative pricing, and that negative \$40/MWh was a sensitivity case, but the graphic suggests that Scenario 1a had a marginal RPS compliance cost of negative \$40/MWh in 2030, while the cost was negative \$20/MWh in Scenario 2 and negative \$5/MWh in Scenario 3. The SB 350 studies should explain the basis for the marginal RPS compliance costs for all scenarios, including responses to the following questions:

⁶ Draft Renewable Portfolios for CAISO SB 350 Study, slide 33, CAISO Public Workshop, February 8, 2016.

Was the basis for assuming a negative \$40/MWh price for Scenario 1a vs. negative \$5/MWh price for Scenario 3 linked to the assumed 8,000 MW of export capability in Scenario 3 vs. 2,000 MW in Scenario 1a?

- Did the price assumption change for other sensitivity scenarios that would have an impact on the amount of net excess generation (e.g., High flexible loads, High Coordination under bilateral markets)?

Impact of Transmission Cost on the Portfolios

The experience in California is that the actual cost of transmission projects generally exceed the costs estimated during planning stages. For example, the *Transmission Cost Inputs* tab of the “E3_Renewable Portfolios for CAISO SB 350 Study - Inputs and Results” posted on the public area (or domain) indicates that a proxy for transmission cost to access Wyoming wind are the costs of the Gateway project (\$252 million per year for 2,875 MW) reported in Regional Coordination in the West: Benefits of PacifiCorp and California ISO Integration. However, the original source, presumably the PacifiCorp Integrated Resource Plan (IRP) was not cited. The SB 350 studies should clarify whether the reasonableness of Gateway Segments (D, E & F) capital costs was analyzed using publicly available per unit cost estimates.⁷ It would be useful to consider how the impact of a potential increase in capital costs would alter the benefits of in-state resource portfolios and the overall benefits of regionalization. It also would be useful to include a sensitivity to understand the portfolio impacts if the transmission costs for the Wyoming and New Mexico wind are significantly higher than estimated in order to better illustrate the impact of transmission costs on Scenario 2 versus Scenario 3.

Capacity Benefits

The SB 350 studies should use realistic assumptions about the price of capacity in 2030. The California Public Utilities Commission’s 2014 long-term procurement planning proceeding (LTPP) does not identify need for system capacity before 2034, which is the first year when the PRM drops below 15%.⁸ Therefore, a capacity price of \$35/kW-year for 2012-2016 (average of 2012–2016 Resource Adequacy contract prices)⁹ is a more appropriate value for

⁷ For example, see Black & Veatch Transmission Line Capital Cost Calculator for Capital Costs for Transmission and Substations: Recommendations for WECC Transmission Expansion Planning (https://www.wecc.biz/Reliability/2014_TEPPC_Transmission_CapCost_Report_B+V.pdf)

⁸ **Source:** Planning Assumptions Update and Scenarios for use in the CPUC Rulemaking R.13-12-010 (The 2014 Long-Term Procurement Plan Proceeding), and the CAISO 2015-16 Transmission Planning Process. Also, see the Scenario Tool Excel Workbook version 5 dated October 15, 2015 available at <http://www.cpuc.ca.gov/General.aspx?id=6617> This model includes a sensitivity that assumes that Diablo Canyon retires by 2023, in which case the planning reserve margin will drop below 115% in 2029. Although the impact of PG&E’s decision to retire Diablo Canyon will require continued evaluation, additional procurement may be authorized to replace some of the Diablo Canyon capacity prior to 2028.

⁹The CPUC RPS Calculator Version 6.2 uses a capacity price of \$33/kW-Yr in nominal dollars. See System_Capacity tab of the CPUC RPS Calculator Version 6.2 (Final) located at http://www.cpuc.ca.gov/RPS_Calculator/.

CAISO entities in year 2030 than the assumed \$75/kW-year. The SB 350 studies should clarify whether the transmission upgrades identified in the table “2030 Load Diversity Benefit an Annual capacity Cost Savings” (Brattle Slide 101) reflect increased transmission capacity between the CAISO and PacifiCorp to transfer capacity.

2.b. The assumed regional market footprint in 2020 and 2030

Scenarios 2 and 3 assume that the entire Western Electricity Coordinating Council (WECC), except for the federal power marketing agencies Bonneville Power Authority (BPA) and the Western Area Power Authority (WAPA) have joined the regional ISO by 2030. This scenario is a bookend that may not happen by 2030. For example, the CAISO has been in existence since 1998 and yet not all of California balancing authorities have sought to join the CAISO. ORA recommends that the CAISO model a scenario in which fewer balancing authorities join; for example, a scenario that includes only current participants in the EIM.¹⁰ This scenario would allow stakeholders to consider the benefits of a regional ISO under less optimistic assumptions about the footprint. Consideration of the benefits of a regional ISO with a smaller footprint in 2030 is also more consistent with the statement on Brattle Slides 8 and 107 that conservative assumptions were used to estimate the benefits to California ratepayers.

2.c. The electricity system (production simulation) modeling

Energy Imbalance Market (EIM) Benefits

The SB 350 studies should explain how the production cost modeling methodology was used to reflect the EIM benefits in Scenario 1a and Sensitivity 1b, while reflecting only the incremental day ahead unit commitment benefits in Scenarios 2 & 3, as described on Slide 26. Specifically, it is unclear how the production simulation results were parsed to avoid potential double counting. If regionalization would reduce the EIM benefits by selecting a more economically efficient day ahead unit commitment, should those reduced EIM benefits be shown as a cost of regionalization?

Nuclear Generation Assumptions

Diablo Canyon was assumed to retire in 2025 (Energy+Environmental Analysis Slide 74). Additionally, Exelon recently announced the early retirement of the Clinton and Quad Cities nuclear plants due to market conditions.¹¹ The SB 350 studies should show directionally, how the similar retirement of, or sale of California’s interests in, Palo Verde would impact the results.

Breakdown of Production Cost Benefits

To better illustrate the benefits attributed to “Production, Purchase & Sales Costs (TEAM)”

¹⁰ For example, the Imperial Irrigation District indicated that it has no interest in joining an expanded CAISO.

¹¹ <http://www.exeloncorp.com/newsroom/exelon-statement-on-early-retirement-of-clinton-and-quad-cities-nuclear-facilities>

(Brattle Slides 93 and 94), the SB 350 studies should separate the production cost benefits into categories such as:

1. Optimized joint unit commitment and dispatch,
2. Reducing/removing hurdles,
3. Sharing (and joint dispatch of) resources
4. Higher ability to (re)export excess renewable generation, and
5. Other categories of benefits.

Modeling of Operating Reserves

One of the benefits identified is the reduced need for operating reserves in addition to the reduction in operating reserves that results from load diversity. The SB 350 studies should explain how the additional reduction in operating reserves was calculated. For example, was an Expected Loss of Load assessment performed for each scenario to determine whether the need for operating reserve declines? What is the total value assigned to such a reduction in operating reserves in each scenario? The SB 350 studies should also explain in more detail how renewables were modeled as providing operating reserves (Energy+Environmental Analysis Slide 39).

Modeling of Greenhouse Gas (GHG) emissions

ORA recommends that the SB 350 studies clarify whether the scenarios labelled “2020 current practice” and “2030 current practice” incorporate any Cap and Trade regulations in the modeling assumptions and, if applicable, list the regulations that were modeled and explain the methodology. ORA also recommends that the SB 350 studies clarify how the GHG emissions of imports to California and exports from California were modeled, including the assumptions that were used. Finally, ORA recommends that the SB 350 studies clarify whether modeling assumptions regarding GHG emissions distinguished between imports and exports from renewable generation versus fossil fuel generation.

2.d. The reliability benefits and integration of renewable energy resources

Timing of the Regionalization Benefits

Based on the summary on Brattle Slide 8, the near term benefits to California appear largely comprised of allocating the Grid Management Charge over a larger customer base. The 2030 case projects annual California ratepayer benefits that exceed \$1.5 billion/year in 2030. The 55% RPS sensitivity suggests that there will be accelerating benefits in annual renewable investment cost savings as the level of renewables is increased. The assumption of linear growth in benefits between 2020 and 2030 does not appear to reflect these data points. It would be helpful if the SB 350 studies included an estimate, using the base assumptions, of the RPS portfolio percentage at which the regionalization benefits would become more significant, say 1% of sales?

2.e. The economic analysis
BEAR consultants stated that the benefit costs presented are the gross benefits. It would be helpful if the 350 studies explained which costs are netted from the benefits and which are not, and for the CAISO to present the net benefits of their studies.
2.f. The environmental and environmental justice analysis
ORA has no comments on this topic at this time.
3. Other