

## 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.

**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: No. As described below, the proposed framework (1) includes all of the western US rather than just PacifiCorp; (2) incorrectly characterizes the application of Product Content Categories in Scenario 2; (3) incorrectly assumes build out of Wyoming and New Mexico wind resources in Scenario 3 but not Scenarios 1 or 2; (3) greatly overestimates the amount of new solar resources that would be built in California in Scenario 3; (4) greatly overstates current prices for solar energy in California; (5) incorrectly assumes that the 30% federal Investment Tax Credit ends in 2016; and (6) fails to include implementation of the many measures already planned to reduce any potential over-generation. Each of these errors tends to (1) overstate the benefits of regionalization and (2) understate the ability of a wider day-ahead market coupled with retaining the footprint of PCC 1 to capture any benefits of regionalization. Unless these errors are corrected, the studies would not meet the intent of SB 350 to have objective studies and would have to be redone.

**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: The proposed scenarios are not reasonable.

1. Scenario 2 should retain the current footprint of PCC 1. The E3 presentation describes Scenario 2 as “Regional market operations with BAU renewable energy procurement policies.” (E3 slide 8) “BAU” *should* mean that the current footprint for the direct connection prong of PCC 1 would remain where it is today. However, during the stakeholder meeting, it was stated that Scenario 2 would represent the situation where “policymakers wanted a preference for California procurement.” This statement is baffling.

The California Legislature has 3 times passed RPS bills that expressly enact this preference. First, in 2009, the Legislature passed SB 14, which established the current requirements ensuring that 75% of renewable procurement would have its first point of interconnection with the PTOs, most of which are physically located in California, or the energy would be scheduled into California without substituting electricity from another source. That bill was vetoed by Governor Schwarzenegger. In his veto message he specifically cited the Legislature’s California preference as the reason for his veto, saying that the bill was “limiting the importation of cost-effective renewable energy from other states in the West.” ([http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb\\_0001-0050/sb\\_14\\_vt\\_20091012.html](http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0001-0050/sb_14_vt_20091012.html))

Undeterred, in March 2011 the Legislature passed SBx1 2 which had essentially the same Product Content Category requirements as SB 14. Governor Brown signed the bill in April 2011.

In 2015, despite vigorous attempts to weaken the PCC requirements, the Legislature *again* adopted the existing PCC requirements without change, and Governor Brown signed SB 350.

If that weren’t enough to make crystal clear the official determination of California policymakers, on February 4, 2016, the leadership of the Senate and Assembly along with the chairs of the relevant committees sent a letter to Governor Brown expressing their priorities for any changes to the CAISO. That Legislative Letter stated, “[i]ncremental RPS procurement within a new regional grid should continue to displace in-state fossil generation, **should not weaken the current RPS product content requirements** that require energy deliveries into California ....” It also stated that [a]ny regionalization proposal **should not** undermine [electrifying transportation] either by **resulting in new renewable generation built far from California** with no

transmission capacity to deliver to California electric vehicles or by exporting most of that power to PC customers.” Finally, the letter stated that [a]ny regionalization proposal should guarantee that an expanded regional grid operator will continue the path California has charted to reduce ... localized air ... pollution, particularly in California nonattainment areas and in disadvantaged communities, by **delivering renewable energy to California load centers** and displacing fossil fuel generation in those areas.”

It would greatly disrespect the repeated, unwavering determination of California policymakers to fail to analyze a Scenario 2 that did not meet these criteria. **Scenario 2 should assume that the footprint of PCC 1 remains exactly as it is today. No other formulation can satisfy the determination of California policymakers as expressed three times in legislation and most recently in the February 4 letter to the Governor.**

2. As currently defined Scenario 3 is misleading and useless.

E3 describes Scenario 3 as modeling operations in 4 western zones as a single entity. (E3 slide 14) This Scenario is worse than inaccurate. It is misleading and ultimately useless. The only proposal currently on the table is PacifiCorp joining the CAISO as a PTO. Yet the CAISO would model 1/3 of the United States as a single RTO. There is no possibility of this happening. Here are just 3 of many reasons: BPA is unlikely to ever join the CAISO, LADWP has actively resisted joining the CAISO for 20 years, longer than the CAISO has even existed, and IID is actively resistant to joining the CAISO. The only purpose for such an obviously wrong Scenario is to artificially inflate the purported benefits of expanding the CAISO. There is no legitimate purpose for such a scenario.

Moreover, because Scenario 3 would effectively make the Product Content Categories meaningless, Scenario 3 is flatly inconsistent with current law, thrice passed by the Legislature and twice enacted into law, and inconsistent with the portions of Legislative Letter quoted above.

Scenario 3 should be abandoned, or if not abandoned, Scenario 3 should evaluate the actual pending proposal – PacifiCorp joining the CAISO as a PTO while making the Product Content Categories meaningless.

In addition, if Scenario 3 is retained with regionalization limited to the current CAISO plus PacifiCorp, then the same should be true for Scenario 2. Scenarios 2 and 3 currently share the attribute of U.S. WECC-wide regionalization, while differing in their treatment of PCC requirements. They should continue to treat regionalization the same, which means that they should both limit regionalization modeling to the current CAISO plus PacifiCorp, the actual pending proposal.

**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: The portfolio mix has serious errors.

First, it assumes that high quality wind from Wyoming and New Mexico would be developed only in Scenario 3. (E3 slide 21) This assumption misunderstands the current needs of California Load Serving Entities. None of the California IOUs have enough need in PCC 1 to justify purchasing 2-3000 MW of wind energy – the amount needed to justify long distance transmission to California. While they might have had sufficient need several years ago, they have procured so much renewable energy that they no longer have enough need. No other LSEs (CCAs, ESPs or POU) are large enough to make such an enormous purchase in PCC 1. Consequently, these Wyoming and New Mexico wind resources will only be purchased by California entities as PCC 2 or PCC 3. While the RESOLVE model would pick Wyoming and New Mexico wind over smaller California projects, actual California LSEs with actual RPS obligations would not.

However, because the IOUs' procurement to date has been almost exclusively PCC 1, and because other LSEs (CCAs, ESPs and POU) typically use all of their PCC 2 and PCC 3 allowance, there is ample ability to purchase these wind resources as PCC 2 or PCC 3. Since these are paper transactions that do not involve delivering real time renewable energy to California, they do not depend on the CAISO or any other transmission entity. They either make sense as paper transactions or not, depending on the price. Most importantly, they do **NOT** depend on any regionalization proposal. Accordingly, development should be assumed for every scenario or none.

If the CAISO still believes that adding PacifiCorp to the CAISO as a PTO somehow facilitates the paper transaction, then developing these wind resources is equally likely in each of Scenarios 2 and 3, and should appear equally in both.

Second, the portfolios do not recognize the great efforts already underway by California to address potential over-generation. In particular, while the model includes growth of BEVs, it does not adequately recognize current or future programs that will shape the EV deployment. Specifically, the CPUC has already approved pilot programs for SCE and SDG&E to deploy EV charging infrastructure that integrate EV charging with electric system needs. Charging will be encouraged during times of high solar output and discouraged during times with high ramping up needs. This was a key feature of both programs and was explicitly discussed in both decisions and by the CPUC Commissioners when approving the programs. The analogous PG&E application should also be approved this year, resulting in significant steps to, as

Commission Florio stated, “make electric vehicles part of the solution rather than part of the problem.” Similarly, President Picker has stated in strong terms to the CAISO that it should stop looking at over-generation as a problem and start looking at it as an opportunity for lots of low cost EV charging.

In addition, SB 350 contains significant new provisions that will increase transportation electrification and continue down this path. The Legislature found that this low cost generation should be used to fuel EVs at a price “less costly than gasoline” (Pub. Util. Code § 740.12(a)(1)(H)), and “should assist in grid management, integrating generation from eligible renewable energy resources, and reducing fuel costs for vehicle drivers who charge in a manner consistent with electrical grid conditions” (Pub. Util. Code § 740.12(a)(1)(G)). The modeling and assumptions do not reflect this direction by the Legislature or Commission.

The modeling and assumptions also do not reflect the direction in the Legislative Letter, which states that the analysis should “consider actions the state is already taking to address renewable intermittency and over-generation through ... flexible electric vehicle charging, customer load shifting, time-variant retail rate designs ....”

Therefore, (1) the mix of renewable and integration resources should be modified to accurately reflect the plans have EV charging assist in grid management while providing electricity as a fuel option less costly than gasoline, and (2) load shapes should be adjusted to reflect the expected effect of time-variant retail rate designs as well as load management programs designed to ameliorate potential over-generation.

Third, the portfolios were selected to meet California loads based on the CEC’s adopted 2013 IEPR forecast. But that forecast has been superseded by the 2015 IEPR which has more rooftop solar and lower retail loads than the 2013 IEPR. The result of those lower loads is that the RPS procurement required to meet the 50% RPS standard will be lower, and thus presumably the cost of compliance will also be lower. The SB 350 study should not use an out-of-date forecast.

**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: The analysis contains at least three errors.

First, the cost of solar shown on E3’s slide 26 is much too high. While the prices for recent PPAs signed by the IOUs are confidential, it is widely known in the industry that those prices are substantially less than \$60/MWh. The City of Palo Alto POU recently signed a solar PV PPA priced at \$36.76/MWh for 25 years.

<https://www.cityofpaloalto.org/civicax/filebank/documents/50532>

We understand that there is a desire to use the CPUC Renewable Calculator as a consistent source of information, using prices more than 25% too high is not justified.

Second, E3 slide 35 shows 4,362 MW (12,752 GWh on slide 36) for solar generation within the current CAISO boundaries in Scenario 3. Based on our experience with actual procurement decisions, this projection is clearly erroneous. Under Scenario 3, the requirements to purchase PCC 1 energy could be satisfied with solar generation whose first point of interconnection is, for example, in Utah. The price for Utah solar generation will be less expensive because land costs, permitting costs and labor costs would all be less than in California. As a result, there will always be a Utah solar project that is cheaper than the lowest priced California solar project. The Utah project would be selected every time. Thus, real life experience shows that the 4,362 MW (12,752 GWh) numbers should be closer to zero.

Third, E3 slide 28 shows the assumption that the Federal ITC is reduced to 10% in 2017. This is no longer true. The provisions of current law should be used.

**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:

The supply of unbundled RECs is effectively unlimited. About 70% of new behind-the-meter solar being is leased to customers with the vendor retaining the REC. The CEC projection being used projects 14,600 MW of total behind-the-meter solar generation, of which more than 10,000 MW is yet to be built. This will make unbundled RECs from at least 7,000 MW of new generation available. In addition, existing QFs in states like Utah have unbundled RECs available in large quantities. Thus, there is an effectively unlimited supply of unbundled RECs available in all 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: The range of assumptions, from 2,000 MW to 8,000 MW, is large enough to span the range of likely outcomes.

<p><b>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?</b></p>
<p>Comment:</p>
<p><b>8. Are the methodology and assumptions to estimate the potential impact on California ratepayers reasonable? If not, please explain.</b></p>
<p>Comment:</p>
<p><b>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.</b></p>
<p>Comment: No. The studies should evaluate the actual current proposal: PacifiCorp becomes a PTO. See response to question 2.</p>
<p><b>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.</b></p>
<p>Comment:</p>
<p><b>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?</b></p>
<p>Comment:</p>

**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: The study should evaluate the economic benefits of the current programs implemented by the International Brotherhood and Electrical Workers union and the Ironworkers union to recruit people from local communities to work constructing new PV generation. These programs are currently putting many people to work, some of whom do not have a high school diploma. Some of these people are then able to enter into California certified apprentice training programs and begin a path toward a stable middle class career. Apprentice training programs provide critical skills that can be utilized in all types of construction, thus providing lifetime income and enlarging California's skilled workforce and human capital. Both the individual and the California economy benefit. These benefits are particularly important in disadvantaged communities such as those in the Central Valley where it is otherwise difficult to break the cycle of poverty.

As we understand the study plan, these benefits would be overlooked in the high level analysis that effectively says that if electric rates are lower over a long enough time, the increased income will increase jobs. This sort of study would not capture the effects on disadvantaged communities required by SB 350.

**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: See comment on question 13.

**15. The environmental analysis will evaluate impacts to California and the west in five areas – air quality, GHG, land, biological, and water supply.**



<p><b>Do you think additional environmental analysis is required? If yes, what additional analysis is needed and why?</b></p>
<p>Comment:</p>
<p><b>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?</b></p>
<p>Comment: As I mentioned in the February 8 workshop, air quality impacts should be aggregated by air basin, since this is the level at which compliance with federal and state ambient air quality standards is measured.</p>
<p><b>17. Other</b></p>
<p>Comment: Several times during the workshop, the consultants noted that their ability to fully analyze the many issues was constrained by the schedule. This constraint is entirely artificial. SB 350 provided that the Governor did not have to submit the studies to the Legislature until December 31, 2017. The CAISO should not degrade the quality of the studies to meet an artificial, self-imposed deadline.</p>