

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 (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.

TransWest Express LLC (“TransWest”) appreciates the opportunity to provide comments to the California Independent System Operator (“CAISO”) as it pursues the study initiative required by Senate Bill 350 (“SB 350”) to analyze the benefits a regional energy market could provide to California. TransWest and its affiliate, the Power Company of Wyoming, are developing regional transmission and renewable energy projects designed to provide net benefits to the western region by linking western energy markets and load centers to low cost renewable wind resources in Wyoming.

TransWest supports the development of a regional energy market, subject to a series of important steps including the CAISO’s study initiative. The existing energy market structures are fractured, inefficient, and lead to higher overall costs throughout the western region. Development of a regional energy market, beyond the Energy Imbalance Market (“EIM”), should lead to overall net benefits, and the CAISO’s study initiative should be able to demonstrate these savings in a clear and objective manner.

While the preliminary results that the CAISO presented in May show benefits to California consumers, the environment, and the economy as a whole, TransWest believes that the CAISO’s analysis still needs to be refined. In particular, the data and analytical framework that the CAISO used to analyze renewable resource and transmission alternatives are significantly flawed in numerous instances, which could result in an overstatement of the benefits of a regional energy market. The CAISO has explained throughout the study period that it is using conservative assumptions to ensure benefits are not overstated. However, this bias towards conservative assumptions is not clearly evident in the preliminary results because the underlying data the CAISO presented appears to be highly subjective, of uncertain origin, and inconsistently applied within the analysis. To help support the CAISO’s efforts to realize a more efficient regional market, TransWest provides these comments in an attempt to improve the analysis and supplement the regional market information.

In addition to providing a process for the development of a regional energy market, SB 350 requires a 50% renewables portfolio standard (“RPS”) by 2030, and establishes interim goals of a 40% RPS by 2024 and a 45% RPS by 2027. Regardless of the outcome of the regional energy market initiative, California’s load serving entities (“LSEs”) will still need to meet SB 350’s RPS mandates. Consequently, the CAISO must rely on the existing processes to facilitate compliance with SB 350 while at the same time exploring how regionalization of the markets could potentially impact the LSEs’ RPS compliance plans. Reaching the initial 40% RPS goal by 2024 may require transmission investment to best position the CAISO and market to both comply with SB 350 and potentially increase the regional market benefits by increasing the transmission capacity between the California and Rocky Mountain regions.

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:

The CAISO's presentation of the preliminary results suggests that the change in the export constraint from 2,000 megawatts ("MW") to 8,000 MW is a material assumption for the base case, particularly for the incremental benefits associated with Scenario 2. Slide 109 from the May 24, 2016 presentation shows that this change in assumption contributes \$240M to the overall benefits in 2030. In the case of Scenario 2, this amounts to a 30% increase in benefits when compared to the 1B Sensitivity in which the assumption is relaxed to 8,000 MW. Given that this significant difference in benefits is tied to a single assumption, the CAISO should more clearly explain: (a) why this 1B Sensitivity is not the base case itself; and (b) what are the market-related issues that make the comparison with the 2,000 MW constraint relevant.

The presentation of results for the 2020 timeframe should provide additional explanation on the Grid Management Charge ("GMC") reduction and the assumed benefits for California consumers. In general, the overall benefits for California and PacifiCorp consumers are relatively modest in 2020. These modest benefits are most likely due to the benefits already realized by the EIM as well as the lack of physical transmission capacity between the PacifiCorp and CAISO systems. The preliminary results show that 70% of the California benefits are a reduction in the GMC charges to California. It isn't clear that this reduction in California savings would be absorbed by PacifiCorp customers because PacifiCorp's resulting savings net of the GMC (\$38M) will be smaller than the \$49M assumed GMC to PacifiCorp in the preliminary results.

Ultimately, a CAISO and PacifiCorp regional market expansion should unlock benefits that exceed the GMC charge, however the amount of physical transmission capacity between existing balancing areas would need to be expanded to leverage the benefits of day ahead dispatch and reserve sharing. There is currently only about 1,000 MW of physical capacity between the 55,000 MW CAISO system and the 10,000 MW PacifiCorp system. The study assumes this same constraint in 2020. Sensitivity studies with higher levels of transmission system capacity between the two systems would most likely show that savings for both systems increase as transmission system capacity increases. However, given the 2020 transmission constraint in the CAISO's current study, the California savings in 2020 may be overstated because it assumes that PacifiCorp would fund GMC charges that would be greater than the non-GMC savings it realizes.

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:

TransWest has focused its review on the E3's renewable energy resource and transmission analyses. As a result, the majority of TransWest's comments pertain to sub-questions a. and d. above.

It is very difficult to verify the source and validity of the underlying resource and transmission data that E3 used in its analysis. It appears that E3 developed this data, but it did not provide sufficient references to allow stakeholders to independently verify the data. It is concerning that E3's resource data doesn't reconcile with information the utilities provided to the CPUC for procurement in 2015 or data used in the current version of the CPUC's RPS Calculator. For instance, while the levelized cost of electricity ("LCOE") values appear to reconcile with some of the reported current market prices for PPAs, LCOE values do not typically correspond to the \$/MWh prices in power purchase agreements ("PPA"). There are many factors, including Resource Adequacy multipliers, time-of-use multipliers, escalation factors and differences in term, which are factored in PPA prices and that differ from the assumptions in the LCOE calculations referred to in E3's results. These LCOE values are quite low compared to the information the utilities have reported to the CPUC on their recent costs to procure renewable resources. Using lower values for all resources may not introduce a bias to the comparative results, however it does put into question the basic understanding of the underlying data in the analysis.

It is also difficult to verify the transmission data used in E3's analysis, including the available transmission capacity in 2030, the costs for potential future projects, and the policy/market transmission planning assumptions. As a result, stakeholders cannot confirm whether E3's assumptions are consistent with the CAISO's stated policy to rely on conservative assumptions. For instance, E3 has included an assumed level of existing transmission capacity that can be used to provide resources into the California market in 2030 for incremental resources beyond the 33% level in all the Scenarios. E3 characterized this assumption as conservative because, regardless of whether the capacity was truly available or not, the overstatement of available transmission would be included in all the cases and therefore the low cost resources available outside of California would be lower all three cases. This assumption and treatment appeared biased to understating the benefits of regionalization until the detailed benefit calculations showed significant dollars associated with the elimination of transmission

wheeling charges from the base case to the regional case. Although not specifically called out in the May 24, 2016 presentation materials, during the presentation E3 estimated that this benefit would be between \$200 - 230M in 2030.

\$200-230M in transmission benefits is quite substantial, and a significant component of the overall benefit figures presented. However, these benefits are only available if the existing transmission assumed is in fact available in 2030. To the extent these assumptions over-state the available transmission, the benefits to California ratepayers would not be realized. But, as explained above, E3 and the CAISO have not provided any information in support of the assumption that there is non-CAISO system capacity from these various areas that will be available in 2030. TransWest notes the recent success of several regional project developers to utilize transmission capacity in New Mexico. There has also been existing capacity used to provide access to resources in the Northwest. TransWest understands the existing transmission capacity assumed in the study is in addition to these NM and northwest transmission resources and in addition to the significant transmission capacity the CAISO is building into Arizona and Nevada with the Colorado River – Delaney 500 kV Project and the Eldorado - Harry Allen 500 kV Project. Overall the assumed level of available transmission capacity in 2030 is quite high and questionable.

Assuming the available transmission capacity assumptions are accurate, these California consumer benefits are actually a cost shift between California consumers and regional consumers that would have lower transmission costs if the wheeling revenues in the base case were realized. While it may be possible for California to realize this cost shift as “benefit,” there may be a required cost balancing within the Transmission Access Charge Options or elsewhere to ensure these cost and transmission capacity shifts between stakeholders is fair and sustainable.

The cost data for transmission projects provided on Slide 81 is also difficult to independently verify. The reference that E3 provided for the Gateway Projects is the earlier study E3 performed for PacifiCorp and the CAISO in the preliminary benefits study from October 2015. TransWest suggest the CAISO use data from the Northern Tier Transmission Group (“NTTG”) 2014-2015 Regional Transmission Plan, which was issued in December 2015. The estimated capital cost for the Gateway Project, identified as the Alternative Project in the NTTG plan, is \$2.74B¹. It isn’t clear why the per unit annualized cost for the Gateway Project would be less than the SunZia project plus the additional capacity investment for the “Pinal Valley to Palo Verde” transmission element. It also isn’t clear why this additional investment is included to access New Mexico resources when additional capacity is not included to access the Wyoming resources, particularly because the addition of physical transmission

¹ NTTG 2014-2015 Regional Transmission Plan, Northern Tier Transmission Group, December 31, 2015, page 23. http://www.nttg.biz/site/index.php?option=com_docman&view=download&alias=2595-nttg-2014-2015-regional-transmission-plan-final-12-30-2015&category_slug=2014-2015-regional-transmission-plan-final&Itemid=31

capacity between the existing CAISO system and PacifiCorp would provide additional benefits in the form of production cost and reserve sharing benefits.

Lastly, the E3 analysis coupled with the Brattle analysis seems to double count the cost of complying with the base case. First, the portfolio is overbuilt to account for curtailment. Second, the analysis includes a sensitivity that the purchasers of these additional renewable resources, presumably the LSEs on the behalf of consumers, would also be willing to pay other entities additional money (in the form of negative prices) to ensure the Renewable Energy Credits are produced. TransWest understands that negative pricing is a sensitivity that further increases the benefits within the preliminary results. The CAISO should revisit the assumptions on overbuilding coupled with negative pricing of resources that would otherwise be curtailed.

3. Other

Comment: