

**SouthWestern Power Group and Pattern Development
Joint Comments on 2017-2018 Transmission Planning Process Study Plan
And
Request for Economic Planning Study**

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March 14, 2017

SouthWestern Power Group and Pattern Development (“joint commenters”) appreciate the opportunity to provide comments on the CAISO 2017 – 2018 Transmission Planning Process Study Plan.

Comment Summary

The joint commenters ask the CAISO to consider expanding the scope of their economic study process within the 2017 – 2018 TPP in order to align the CAISO with federal energy timelines. It is rare that the CAISO has had to coordinate with federal schedules; however, the joint commenters’ note that there is a window of opportunity that is closing on wind resources delivered to CAISO via new, high voltage transmission lines due to the expiration of Federal Production Tax Credits (PTCs). Prices for wind energy delivered to California from these transmission lines are likely to increase by 2-3x after this window closes. Therefore, the joint commenters seek an economic study that would fairly assess whether there are economic benefits, separate from policy benefits, from regional wind projects.

The CAISO’s transmission planning process (TPP) Economic Planning Study has historically focused on using the Transmission Economic Assessment Methodology (TEAM) production simulation as the main tool to identify potential congestion and propose mitigation plans. In order to provide stakeholders with a complete view of ratepayer benefits, the joint commenters ask the CAISO to use the CAISO’s TEAM to go beyond only identifying in-state congestion and mitigation solutions for it. For any given study case, the TEAM identifies gross consumer costs, congestion rents, surplus loss revenues and producer surplus accruing to CAISO consumers. Comparing these results across study cases containing different mixes/locations of renewable resources and associated transmission additions, would provide information that will help stakeholders identify the lowest cost means for achieving the California’s 50% renewable energy requirement. In addition, comparing the capital costs of New Mexico wind to the capital costs of developing an equivalent amount (on an energy basis) of other renewable energy sources such as solar PV, will demonstrate that New Mexico wind will provide consumers substantial economic savings that go beyond the benefits captured by the TEAM production simulation.

To date the CAISO has relied exclusively on renewable resource portfolios developed by the CPUC through use of the RPS Calculator model. The RPS Calculator model is currently being replaced by a Resolve model in the IRP process and will not provide results in time to be used in the CAISO’s 2017-2018 study. The lag between the state’s 50% RPS requirement and the CPUC’s continuation of submitting 33% RPS requirement into the CAISO’s TPP process, will potentially cost California ratepayers

hundreds of millions annually by effectively paying 2-3X more in higher costs for renewable energy if that energy is not contracted for by Load Serving Entities (LSE) while the current Federal PTC is in place.

There is nothing within the TEAM, or in the CAISO's agreement with the CPUC, that precludes the CAISO from assessing renewable portfolios and transmission projects under a 50% RPS scenario with different assumptions than those provided by the CPUC. By considering out-of-state renewable resources, the CAISO will be in a position to make the most economic transmission decisions for consumers. The CAISO's study plan should indicate that the CAISO will accept stakeholder input on whether there are renewable resource portfolios, other than those supplied by the CPUC, that would achieve a 50% renewable energy requirement at a lower overall cost to consumers.

Production Tax Credit Expiration

For a limited time, the Federal wind PTC offers a significant discount on wind energy for California customers. Based on a full 100% PTC value, wind projects with high-capacity factors are presently achieving busbar pricing at or below \$20/MWh. But the PTC is undergoing a permanent federal phase out, and after the year 2020 achievable busbar prices for the same projects will be increased by roughly 2-3x this busbar price level.

The near term opportunity for effectively "half or third price wind" is important to CAISO ratepayers and multiple credible studies by E3, NREL and others have identified an economic integration need for regional wind in the California energy portfolio by 2030.

Such studies have found that even accounting for the cost of new transmission, high capacity factor wind outside of California creates a net savings to California customers, because the wind generation balances the steep curve of domestic solar, reducing the impact of the evening ramp, minimizing solar curtailment, and significantly reducing the need for high-cost gas-fired flexible resource adequacy (Flex RA).

This integration value of wind has been identified as superior to other congestion mitigation measures studied, including energy storage. By one estimate, the cost of transmission and associated wind integration savings can create a net value for California customers of *over \$1 billion per year*.¹ That benefit would be even greater when factoring in the 100% PTC. Therefore, it is critical for California ratepayers that these potential economic savings be examined in this TPP cycle.

The permanent PTC phase out began with a 2016 deadline to pre-qualify projects for 100% PTC value through a process known as "safe harbor." Wind energy development companies have used "safe harbor" to pre-qualify tens of thousands of MW of potential projects across the United States. IRS guidelines allow for a four year window until 2020 during which such projects may be placed into commercial operation, or else the pre-qualification expires. No other projects going forward will have access to full value PTC prices. But in order for Californians to access this final tranche of PTC wind, developers and off-takers will need to make financial decisions and execute contracts well before the

¹ http://lowcarbongrid2030.org/wp-content/uploads/2016/PDFs/160523_The-Value-Of-Regional-Wind.pdf

2020 cutoff, and in reality contracts will need to be signed in the next 12-18 months. As such, this TPP is one of the last opportunities to identify the economic value of transmission-enabled-wind energy in time for Californians to benefit from the full PTC value of the PTC.

And if California does indeed require some influx of wind to reliably meet its GHG reduction and RPS requirements, it would be a detriment to California customers if they are denied the economic opportunity to at least assess the potential savings of acting affirmatively to benefit from a significant federal tax discount in the form of the PTC. The proposed TEAM assessment, below, would be a prudent analysis given the urgency of the PTC opportunity. Even in the context of other regulatory proceedings which may address regional transmission needs, if a TPP TEAM assessment identifies an economic need that can be addressed by transmission to enable PTC wind, it would constitute a cost-effective “no regrets” path forward for Californians.

Economic Study Methodology

Given the PTC timing and need to expedite planning to capture federal funding benefits, the joint commenters ask the CAISO to consider expanding their typical economic study methodology into other areas described by the 2004 TEAM manual in order to evaluate the economic viability of different proposed upgrades. Specifically, the joint commenters ask that the CAISO apply TEAM to study the benefit of regional renewable resources. Specifically, evaluate the replacement costs of curtailed renewable energy and associated transmission, as it relates to both the fixed and variable costs of production for each theoretical resource mix that is applied to the analysis. The joint commenters believe this is in line with the TEAM stated principles:

We believe it best to plan the transmission grid taking into account the profitability of generation additions in various locations. In this way, the transmission planner influences generation decision making, rather than accounting for it after the fact. The best means to account for the plans of a host of private investment decisions is to model the profitability of the generation decision in the transmission framework. We use a “what if” framework for our standard decision analysis. As an example, if the CAISO were to build a transmission line, what would be the most likely resulting outcomes in the profitability of private generation decisions? Comparing this to a case where we did not build the line, how different would the profitability of generation investment differ? We then optimize generation additions for with and without upgrade cases. The difference in costs between the two scenarios, including both the fixed and variable costs of the new resources, will be the value of the upgrade. (pg. ES-11)

The joint commenters request that the CAISO use the best data available to model economic projects and not solely rely on the CPUC 33% Assumptions and Scenarios document. The CAISO is aware of the state’s 50% RPS requirement and has already done its own analysis -- via the 50% RPS Special Study -- to assess moving toward this goal. However, this study was not done for the purpose of authorizing transmission and instead was informational-only. Further, given the recent announcement that the Navajo Generating Stations will cease operation of its 2,250 megawatt base load coal plant operations in 2019 or earlier, it is evident that the assumptions on available system inertia that were used in the 50%

RPS Special Study should be re-examined. And as the CAISO is aware, it is practically impossible to reliably determine whether the adequacy of the existing transmission system's collective contract paths in the Desert Southwest are adequate to provide delivery of at least 1,500 megawatts of New Mexico high capacity wind energy to California without the need for new transmission infrastructure to do so

As stated previously with the coming replacement of the RPS Calculator with the Resolve model for the IRP process, and pending elimination of Federal PTCs for wind energy in 2020, it becomes increasingly urgent to ensure Californians are able to capture the maximum benefit of those tax credits. The joint commenters believe that all studies would benefit from updated assumptions that are more closely aligned with commercial realities, particularly related to the need for wind energy geographical diversity in order to meet the 50% RPS requirement and the economic benefit of out of state wind energy delivered via new, high voltage transmission in the current TPP cycle.

Request for Economic Planning Study

Pursuant to section 24.3.4.1 of the CAISO tariff, the joint commenters request the CAISO study the addition of 1500 megawatts of New Mexico wind energy and associated transmission delivering wind energy into the metro-Phoenix area as a part of a larger study evaluating the economic benefits of regional renewable resources. San Diego Gas and Electric has conducted similar modeling of New Mexico wind with associated transmission and, compared to developing an equivalent amount of solar PV energy, and has identified the significant economic value to customers mentioned above. The modeling corroborates the cost savings to customers of building new transmission to enable high-capacity-factor wind energy otherwise unavailable to the CAISO, which serves integration needs by reducing the impact of the solar ramp, minimizing curtailment, and reducing the need for gas-fired Flex RA. San Diego Gas and Electric is willing to share its analysis with the CAISO should the TPP decide to use the TEAM to assess an economic need which could be addressed with new transmission.

The San Diego Gas and Electric modeling identifies economic savings to consumers derived from the proposed SunZia Southwest Transmission Project (SunZia) transmission line. SunZia is a 515-mile, 500kV proposed transmission facility that will deliver primarily wind energy from central New Mexico to markets in California and Arizona. SunZia comprises two single-circuit lines and related substations. SunZia's eastern terminus will be near Corona, NM and its western terminus will be at the Pinal Central substation in the metro Phoenix area. SunZia's first line will be an AC facility and will deliver up to 1,500 megawatts to the CAISO scheduling point at the Palo Verde Nuclear Power Project hub, with firm transmission rights on the existing metro-Phoenix transmission system.

SunZia awarded Pattern Energy up to 1,500 megawatts of transmission capacity as its anchor tenant in August 2016. Pattern is developing 1,500 megawatts of wind generation that will interconnect to SunZia's first line at Corona. Pattern has done necessary work to safe harbor these 1,500 MW of wind energy allowing the SunZia East substation. SunZia will start construction in 2018 and commence commercial operation at the end of 2020, commensurate with the commercial operation of Pattern's 1,500 megawatts of wind energy projects. Pattern expects to sell a majority of its wind energy to customers in California with a minority being sold to Arizona customers. While SunZia interconnects

with the existing transmission system in Arizona (and is a bi-directional AC facility), SunZia will depend almost entirely on Pattern's associated wind generation and vice versa.

SunZia expects to provide the following benefits to the CAISO and California ratepayers:

1. Production cost benefits (savings) for California customers based on New Mexico wind energy replacing an equivalent amount of solar energy.
2. Contribution to Flex RA from New Mexico wind energy by providing morning down-ramp and late afternoon/early evening up-ramp renewable energy resources.
3. Potential contribution to Flex RA from flexible gas-fired generation in Arizona and/or New Mexico that can readily interconnect with SunZia.
4. RA benefits (relative to other wind sources) from high-capacity factor New Mexico wind (i.e., location-specific RA).
5. Ability to export excess California solar energy to eastern Arizona and New Mexico.
6. Opportunity to facilitate expansion of CAISO footprint to New Mexico.
7. Contribution to achieving CA RPS and GHG goals because New Mexico wind is complimentary to California solar from different time-of-day and seasonal production profiles.

Thank you for consideration of these comments and our request for an economic planning study.

Please contact **David Getts**, SWPG, at dgetts@southwesternpower.com or **Kellie Metcalf** at kellie.metcalf@patternenergy.com to discuss these comments and economic study request; or **Jan Strack**, San Diego Gas and Electric, at JStrack@semprautilities.com to discuss the SDG&E analysis.