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Comments of TransWest Express LLC on
California ISO 2012/2013 Transmission Planning Process
Resource Portfolios
And
TransWest Express LLC Study Request

Introduction

TransWest Express LLC (TransWest) is the developer of the TransWest Express Project (TWE Project), a regional 730 mile 3,000 MW, 600 kV direct current (DC) electric transmission system that has been designed to provide needed transmission capacity between the Intermountain and Desert Southwest regions, including California.

TransWest appreciates the opportunity to comment on the resource portfolios submitted to the California Independent System Operator (CAISO) by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) on March 23, 2012 and discussed at the April 2, 2012 stakeholder meeting (CPUC/CEC Portfolios). On March 13, 2012, TransWest submitted comments (TransWest March 13 Comments) on the draft 2012/2013 Transmission Planning Process (TPP) Unified Planning Assumptions and Study Plan. Those comments, in part, addressed concerns with the portfolio selection process which are reiterated below.

In addition to comments about the scenarios, TransWest requested the CAISO to include within its 2012/2013 TPP a study of the impacts of an interconnection of an additional 3,000 MW of transmission capacity into the Eldorado Valley substations consistent with the cost-effective remote resource scenarios identified in the Western Electricity Coordinating Council (WECC) 10-Year Regional Transmission Plan. In response to this request the CAISO responded on March 30, 2012 (CAISO March 30 Responses) that the CAISO recommends 'to align with the CPUC developed renewable portfolios that are based on a comprehensive analysis in consideration of overall cost and environmental impact.'[1] TransWest has identified several inconsistencies within the CPUC's analysis used to develop their suggested portfolios as outlined below. Based on findings from other regional planning initiatives and the inconsistencies within the CPUC analysis, TransWest requests the CAISO to consider an additional scenario within its 2012/2013 TPP.

[1] Response No. 75 on page 71 of CAISO March 30 Responses.

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CAISO should consider a broad range of scenarios.

TransWest respects the roles played by the CPUC and CEC in implementing California energy policies, especially the Renewable Portfolio Standard (RPS). However, it must be noted up front that there is nothing in the CAISO Open Access Transmission Tariff (OATT) or in the May 2010 Memorandum of Understanding between the CPUC and the CAISO that suggests that CAISO cannot consider portfolios or scenarios proposed by other stakeholders. Nor do the March 12 or March 23 letters transmitting the portfolios from the CPUC and CEC request that CAISO limit itself to considering only these portfolios.

Meaningful stakeholder involvement is essential to fulfilling FERC's policy objectives for robust transmission planning. WECC and the California Transmission Planning Group (CTPG) have both been responsive to stakeholder requests to study a wide range of scenarios.

Each year WECC solicits study requests from a broad range of stakeholders and prioritizes these requests into an annual study program. In this process, substantial weight is given to requests submitted by state regulators and energy offices through the State and Provincial Steering Committee (SPSC). But, scenarios proposed by other stakeholders are also considered and many of these scenarios have been included as evidenced by the results reported in the WECC 10-Year Regional Transmission Plan.

In the development of the 2011 Final Statewide Transmission Plan, CTPG began with portfolios provided by CPUC. Then, in response to requests from CTPG members and stakeholders, a number of additional scenarios were studied. The result was a Statewide Transmission Plan that provided useful insights about a range of possible futures.

Adding additional scenarios to the CAISO study plan will provide useful information to policy makers, market participants, and resource procurement decision makers by expanding upon the important work performed by WECC in the September 2011, WECC 10-Year Regional Transmission Plan and by the CTPG in the February 2012, CTPG 2011 Final Statewide Transmission Plan. Within both of these Plans, the potential benefits associated with transmission expansion of the regional system to the CAISO interconnection point and other systems at the Eldorado Valley in southeastern Nevada have been examined. However, as the CAISO has identified within its CAISO March 30 Responses, there is still additional analysis required on this option.[2] With the current limited number of CPUC/CEC Portfolios, some potentially attractive resource options will be unexplored. This has the effect of limiting the options available to Load Serving Entities (LSEs) and reducing competition among generation developers to serve the needs of California consumers at the lowest possible cost.

[2] Responses No.s 26 and 74 on pages 31-32 and 70, respectively, of CAISO March 30 Responses.

Reliance on the RPS Calculator is not a substitute for critical thinking.

The RPS Calculator developed by the CPUC and used to select the CPUC/CEC Portfolios is a useful but complex tool. This tool can be used to evaluate a large number of resources and to test the effect of the weights assigned to different factors such as cost, environmental, commercial interest and permitting. However, it is incumbent upon CAISO, CPUC, CEC and stakeholders not to get mesmerized by the granularity of the RPS Calculator's output and lose sight of critical economic and policy considerations.

The input assumptions used within the RPS Calculator are critical. As one example, changing the assumed capital costs for solar PV projects dramatically impacts the resources selected for the portfolios. This is demonstrated by the differences in the portfolios submitted by the CPUC/CEC on March 12 and March 23. The March 23 portfolios included an assumed 30% reduction in solar PV capital costs. This one change results in the addition of 4,500 MW of Large Scale Solar PV and the subtraction of 3,500 MW of Wind from the March 12th version of the Cost-Constrained Portfolio.

The CAISO should review the rationale the CPUC/CEC used in having three of the four scenarios developed by only changing the weighting of a few factors. It is not clear why these alternative views on weighting specific factors are an appropriate framework to develop alternative scenarios. Each of the alternative scenarios should represent distinct alternative approaches and not provide a false sense of choice between an 'environment-constrained' or 'commercial-constrained' option when in fact cost, environment and commercial regulations all need to be balanced appropriately in all alternative scenarios. The High DG scenario represents a useful and clear alternative from the other scenarios that is focused on an alternative approach. TransWest suggests that other alternative approaches, such as providing access to cost-effective resources through transmission development, should be given priority by the CAISO.

The RPS Calculator has been used to develop portfolios that just meet the Net Short. This approach will result in a CAISO transmission plan that assumes 100% successful development of the identified resources in the precise distribution among CREZs as assumed in the CPUC/CEC Portfolios. This is simply an unrealistic expectation. CAISO should be identifying transmission needed for resources beyond the Net Short to increase the likelihood of transmission being developed in a timely fashion as actual procurement deviates from the identified resources selected by the RPS Calculator.

CAISO's current approach to planning is based on avoiding potentially "stranded" transmission investments without any consideration to the value that a more robust transmission system provides by enabling competition among generators to serve consumers at the lowest cost. This concept of looking beyond the Net Short is especially useful because the supply curves produced by the RPS Calculator are relatively flat in and around the area where the Net Short is currently serving as an inappropriate cutoff point.

The RPS Calculator includes assumptions about new transmission needed for various resources. However, the Net Short is made up predominantly of resources assumed to need no new

transmission. While this assumption may be accurate for any single resource, the addition of multiple resources within an area may actually require more transmission capacity than the simple sum of the transmission required for each resource. This phenomenon can be seen within the various Cluster studies performed by the CAISO. Therefore, it is critically important that the CAISO re-evaluate the portfolios if the TPP indicates that transmission expansion is needed for the resources assumed in each Portfolio. Although the need for this feedback loop between the TPP and the RPS Calculator seems clear, it does not appear to be explicitly incorporated in the current TPP.

The RPS Calculator can and should be used to estimate the aggregate cost to serve the Net Short under the various alternative Scenarios. This information is useful in evaluating the tradeoff between costs and other policy considerations that characterize the Scenarios developed by the CPUC/CEC. For example, there is an added cost to serve the Net Short in all of the CPUC/CEC Portfolios, compared to a portfolio selected to simply meet the Net Short at lowest net cost. These added costs are:

Cost-Constrained Scenario: $139 million/year[3]
Commercial Interest Scenarios: $694 million/year
Environmental Scenario: $879 million/year
High DG Scenario: $1.03 billion/year

In addition to these differences between the CPUC Scenarios, the assumptions made about the 'discounted core' also have a substantial cost impact. The Discounted Core assumption in the CPUC/CEC Portfolios increases net costs by $513 million/year in the Cost-Constrained Portfolio.

These tradeoffs between the cost of the various scenarios and the impacts of certain assumptions used within the CPUC's analysis are not readily available within the data transmitted to the CAISO by the CPUC/CEC. TransWest calculated these costs by running each portfolio through the latest version of the RPS Calculator. TransWest suggests that the CAISO use a cost metric that captures the aggregate cost of the various scenarios to use as a benchmark within its analysis of needed transmission to meet the 33% RPS. While transmission infrastructure investments are expensive, the differences in aggregate costs between the CPUC/CEC Scenarios far exceed the per year financing costs of many large transmission infrastructure investments.

The RPS Calculator assumptions should be modified.

The WECC 10-Year Regional Transmission Plan includes extensive information on renewable energy technology costs, resource potential and on regional transmission projects that were shown to be cost-effective. The CAISO should ensure that it reconciles the data used to develop scenarios for its TPP with the data used for the WECC regional planning processes. The regional project data is

[3] The 'Cost-Constrained' Portfolio includes a 30% weighting for non-cost factors that increase the calculated cost for the scenario by $139 million/year.

publically available however the CPUC has not taken the important step to coordinate the information used within the regional planning effort.

The CPUC staff upon request provided TransWest reference materials in support of the reduction in the assumed solar PV costs. TransWest has reviewed this material and has not been able to find sufficient support for the assumed solar PV cost used to develop the CPUC/CEC Portfolios. TransWest requests the CAISO to review this reference material with the CPUC and the CEC and determine if a range of solar PV capital cost assumptions, and potentially other key cost drivers, should be used in analyzing portfolios for various scenarios. TransWest notes that California stakeholders appropriately suggested the use of such sensitivity analysis around transmission costs and capacity factors within the WECC 10-Year Regional Transmission Plan work. The inclusion of sensitivity analysis improved the quality of the WECC analysis and should be considered by the CAISO and the CPUC within its analysis.

The RPS Calculator allows the user to select between AC or DC transmission technology for accessing the cost-effective remote wind resources in Montana, New Mexico and Wyoming. This is a useful feature and can be used to demonstrate the superior economics of DC transmission for moving large amounts of energy over long distances. As such, the RPS Calculator should be configured so that the DC transmission options are the default settings for these remote areas.

The RPS Calculator assumes a 1,030 mile transmission line length for accessing Wyoming resources. The TWE Project is well along in its siting and permitting processes with a current estimated length of 730 miles to reach its planned terminus in southeastern Nevada's Eldorado Valley. Based on WECC and CTPG studies there is no basis at this time to assume that additional transmission is needed between the Eldorado Valley and California load centers. TransWest has asked CAISO to study whether additional transmission is needed to accept energy delivered over the TWE Project (see below). Until such a study is completed, the RPS Calculator should be modified to assume a 730 mile line length for Wyoming transmission with resulting reductions in transmission costs and losses.

The RPS Calculator assumes a 40.67% capacity factor for Wyoming wind. This capacity factor appears to be an average value for Wyoming's vast wind resources. Given the size and quality of the Wyoming wind resource, it is likely that above-average resources will be prioritized for development. In recognition of the vast amount of high quality resources in Wyoming, the WECC analysis included a range of capacity factors between 47% and 39% for Wyoming wind resources.

The RPS Calculator gives the worst possible Permitting Score (100) to all out-of-state resources. This appears to be the result of a simple assumption by the CPUC, without consideration of several viable data sources. The TWE Project has successfully completed its major permitting applications and the lead agencies are well along in their environmental analyses. The TWE Project has been selected as one of the seven pilot projects being facilitated by the Federal Rapid Response Team for Transmission (RRTT). The TWE Project represents the one RRTT project with a CAISO termination. (Information on the TWE Project and other regional transmission projects can be found

at the WECC Project portal at:
http://www.wecc.biz/Planning/TransmissionExpansion/Map/Pages/default.aspx)

Permitting for a number of wind projects in Wyoming is also underway. There are three Wyoming wind projects, totaling over 3,400 MW, that have been selected by the Bureau of Land Management (BLM) as 2012 Priority Projects. All of these projects have successfully filed applications and are awaiting Final NEPA documents. These three Wyoming wind projects represent almost half of the 7,000 MW included within the 2012 Priority Projects and with Wyoming's 40%+ capacity factors, these projects represent over half of the energy resources being prioritized by the BLM. (References to these projects can be found at:
http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/2012_priority_projects.html)
The RPS Calculator should be modified to use a Permitting Score of no more than 50 for Wyoming wind resources delivered over the TWE Project.

The RPS Calculator assumes a 2020 on-line date for Wyoming wind resources. The TWE Project is currently planning to go in service in late 2015 or early 2016 and substantial Wyoming wind resources can be developed even sooner. Although the Timing Score was not used in preparing the CPUC/CEC Portfolios, the RPS Calculator should be modified to show that Wyoming wind resources delivered over the TWE Project can be available to California consumers by 2016.

Some of these modeling issues have been previously communicated informally to CPUC staff. TransWest is now formally requesting these changes so that Wyoming wind resources and the TWE Project are fairly represented in the version of the RPS Calculator used for the TPP. Each of these changes may make only a relatively modest difference. However, in total, these changes reduce the delivered Net Cost for Wyoming wind resources as defined in the RPS Calculator by more than $50/MWh and change Wyoming wind resources position in the RPS Calculator's supply curve by more than 100,000 GWh in the Cost-Constrained Portfolio.

TransWest Study Request

The TransWest March 13 Comments requested the addition of a specific study as follows:

> CAISO should add a scenario with 3,000 MW of wind resources delivered by an HVDC line into southeastern Nevada replacing an equivalent amount of energy from the lowest ranking resources in the CPUC's base 33% RPS portfolio. The objective of the study would be to assess the ability of the existing California transmission network to accommodate delivery of these imported resources along with RA deliverability.[4]

[4] Within the CAISO March 30 Response No.75 on page 71, CAISO provided a reference to a technical analysis of the ISO GIP Cluster 4 Study for the technical impact of 3,000 MW injection to southeastern Nevada. TransWest notes that the referenced study may be of some use however it is not a substitute for the type of study requested by TransWest. The referenced GIP study report is not available in full to the public. In addition, it represents a cluster of generation requests that may overstate the need for transmission beyond the scenario requested by TransWest within its study request. The TWE Project is being developed as a

This study should be conducted under both the Policy Driven and the Economic elements of the TPP.

There is substantial activity underway by TransWest and others to develop transmission and generation projects to deliver energy into southeastern Nevada to meet California RPS requirements. Inclusion of a portfolio representing this development activity would provide useful information to policy makers, market participants, and resource procurement decision makers.

Scenarios with substantial imports from the Eldorado Valley were considered by WECC and CTPG. The rationale for including this scenario in the CAISO TPP would be similar to the logic for including the High DG scenario submitted by CPUC/CEC and the Central California Study described during the February 28 stakeholder meeting. None of these scenarios was selected by the direct application of the RPS Calculator, but each of them represents a plausible alternative future whose transmission requirements should be investigated by CAISO as part of the 2012-2013 TPP.

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regional transmission asset and therefore a generation interconnection request to the CAISO will not be made for the TWE Project.