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October 6, 2017

Comments of TransWest Express LLC on
September 22, 2017
Interregional Transmission Project Evaluation and
50% RPS Out-of-State Portfolio Assessment

TransWest Express LLC (TransWest) appreciates the opportunity to comment on the preliminary Interregional Transmission Project Evaluation and 50% RPS Out-of-State Portfolio Assessment. The California Independent System Operator (ISO) planning staff has done some very good work over the last few months with this study. However, TransWest remains concerned that the pace of progress and lack of a road map is continuing to place the ISO at risk of not being able to fully support California's Public Policy objectives.

The PCM and Power Flow stability preliminary results presented provide very little meaningful information to help inform the relative "effectiveness" of the potential solutions analyzed. While the study work itself is impressive, the results have little to no meaning in informing the relative value of the projects. The curtailment results don't indicate significant difference between the projects and is marred by the ISO's modeling assumption that they should apply a 1,500 MW TransWest Express Project (when a 2,000 MW option is available) to accommodate a 2,000 MW Wyoming resource addition to serve California. In pragmatic terms, a 1,500 MW project could only deliver 1,500 MW of Product Content Category 1 resources so the actual curtailment (or non-procurement) would be much more significant than the figures described by the ISO.

The ISO also conducted extensive Power Flow and Stability analysis and found little to no difference between the projects. This should be expected as these studies test minimal reliability performance and all of the projects analyzed have been designed with the same reliability criteria. Further, most of these projects have undergone extensive WECC Path Rating analysis to test the same reliability performance. These Path Rating analyses are provided to Project

Review Groups made up of planners from all the potentially affected utilities. The ISO should at a minimum review and provide summary information from these Path Rating Reviews for these projects. Other additional and relevant information such as total cost, total miles of new construction and planned in-service dates are missing from this informational study.

TransWest agrees that these four “attributes” listed on slide 43 of the presentation do require further consideration in the Special Study. TransWest identified several of these attributes within its comments to the ISO on their proposed Study Plan on March 3, 2017. The March 2017 comments are attached to these comments for reference.

With respect to “transmission procurement” attribute, TransWest’s Key Assumption and Sensitivity No. 4, “Project Participation” addresses two of the options outlined by the ISO namely whether the projects should be considered “Interregional Transmission Projects” or “Regional Projects”. the ISO Tariff requires that the ISO’s participation in the Interregional Planning Coordination process is informed by the ISO’s Regional Planning process. In this way the ISO can assess whether any benefits associated with cost sharing with other regions would result in lower costs for the ISO through the cost avoidance mechanism. The ISO should consider the direction provided by the CPUC in the form of RPS portfolios or request for Special Studies to consider potential RPS resource areas as direction to the ISO to consider Regional projects as they do not have jurisdiction over the other Regional Entities. Consideration of the potential projects as Interregional Transmission Projects is dependent on the needs of the other Regional Entities. To date neither NTTG nor WestConnect have considered a similar Regional Need or Opportunity as outlined in the ISO’s 50% RPS OOS Wind Study Plan within their respective Regional Planning processes.

Further, the CPUC IRP process is being informed by a modified version of the RESOLVE model that was used in the CAISO’s “Senate Bill 350 Study” to look at the benefits of the CAISO’s network expansion to other areas of the WECC Grid. This model is an improved version of the “RPS Calculator” that was used to help inform the Public Policy-Driven analysis of past TPP’s to achieve the 33% RPS. The assumption in all three of these models is that the transmission needed to provide the market with access to the renewable resource areas would be considered part of the Regional Network and not as Generator tie lines “procured” or funded directly as a

“component of the generation procurement”. Multi-state, high voltage transmission lines designed to be part of the Bulk Power System provide many benefits beyond serving one or more generator or purpose. Moreover, the Interregional Transmission Projects identified these benefits as requested within their project submittals and the CAISO has recognized the potential for both public policy and economic benefits associated with multi-state transmission lines within the Senate Bill 350 Study and other related Stakeholder processes. These transmission projects may be included as a component of generation procurement thus requiring little or no action by the ISO. However, the CPUC IRP record, the CAISO’s regional coordination advocacy and the Interregional Transmission Planning Coordination process all point to these lines being considered as an expansion of the Bulk Power System within WECC and therefore as either Regional or Interregional projects.

TransWest’s suggested “Key Assumption and Sensitivity No. 6, Potential non-CAISO Existing Transmission Paths available capacity and costs” addresses the second item on slide 43 for further consideration. TransWest commends the CAISO for the work completed to research the amount and location of non-CAISO Available Transmission Capacity (ATC) between the CAISO system and the New Mexico and Wyoming wind resource areas. We also note that the TWE Project provides the only transmission solution to directly connect the CAISO grid to potential wind areas in either New Mexico or Wyoming. The ISO should develop a plan to consider the required arrangements to acquire non-ISO capacity for inclusion in the ISO Network to help meet the potential Regional Needs and also consider the risks and costs for capacity associated with the “development of non-ISO transmission” such as the Gateway projects as part of the Special Study.

TransWest agrees that costs and cost responsibilities need to be considered as part of the Special Study as well as the potential staging and sequencing of transmission and generation resources.

The recommendations for “Next Steps” fall short of what needs to be considered by the ISO and Stakeholders to position the CAISO to provide the market and ISO Board with information and ultimately recommendations on whether investment is warranted and on what projects to meet California’s Public Policy associated with SB350. TransWest suggests the ISO staff look at the entire process required to potentially approve Regional Public Policy-Driven transmission expansion solutions to access wind resources in New Mexico and Wyoming within the 2018-2019 TPP. These New Mexico and Wyoming resources do not have access to the CAISO Generator Interconnection Process to determine if Network Upgrades are required on a conditional basis as other resources within the present CAISO footprint have. In addition, all of the potential transmission projects have been developed for a number of years as sponsored projects where the developers have acquired substantial development rights in the form of permits, rights-of way and Path Ratings. The ISO needs to consider these sponsored projects that could help meet California’s Public Policy with the potential inclusion of wind resource that qualify for the federal Production Tax Credit. The Project Sponsors have of the Interregional Transmission Projects (ITPs) and the non-ITPs the ISO found to be needed to assess some of the ITPs (e.g. Gateway and Sunzia) all have extensive information about their respective projects, the proposed project teams and development, construction and operational plans. The ISO staff should be assessing these attributes as well as the transmission infrastructure attributes to be in a position to select and award the appropriate projects as part of the 2018-2019 TPP.



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March 3, 2017

Comments of TransWest Express LLC on
February 28, 2017 Draft of California ISO
2016-2017 Transmission Plan

Introduction

TransWest Express LLC (TransWest) appreciates the opportunity to comment on the Draft 2016-2017 Transmission Plan prepared by the California Independent System Operator (ISO).

TransWest has focused its comments on the 50% RPS Special Study and in particular the Out-of-State Portfolio Assessment (OOS Assessment). As such, these comments are in response to the materials provided at the February 28, 2017 stakeholder meeting as the Draft 2016 – 2017 Transmission Plan issued on January 31, 2017 did not include specific information on the status of the OOS Assessment. As TransWest stated in its July 5, 2016 comments on the OOS Assessment, this assessment, although for information purposes only, is very important because it will help inform various agencies and market participants about the potential solutions to the integration challenges associated with supplying over half of California's electric energy needs with renewable resources.

Unfortunately the CAISO has not completed the OOS Assessment as initially planned. There were a number of factors that caused this lack of progress, including the amount of work in other areas of the TPP, other related planning work like RETI 2.0, the Integrated Resource Planning (IRP) process and the coordination and progress of the Northern Tier Transmission Group (NTTG) and WestConnect planning efforts. The CAISO Regionalization initiative was another effort that touched on many of the same issues that are contemplated in the OOS Assessment and therefore required the same limited resources as these other efforts.

TransWest has participated in all of these various initiatives and planning processes and understands the focus and volume of resources required to participate as a stakeholder and developer in these efforts. The required resources for the CAISO, as the Regional Transmission Planning entity, to lead and directly participate in these efforts are enormous. The CAISO should be commended for their efforts in all these related work streams. However as the Regional Planning Entity, the CAISO is the only entity that can perform certain functions such as transmission planning to inform recommendations for project approvals to the CAISO Board.

Given the complexity of the transmission issues associated with accessing potential OOS wind resource areas in New Mexico and Wyoming, the OOS Assessment, as an information-only special study, should be prioritized by the CAISO to be certain it can if and when called upon perform a formal TPP and prepare appropriate recommendations in a timely fashion, most likely the 2018-2019 TPP, to help California meet its environmental goals.

Another factor attributed by the CAISO at the February 28, 2017 stakeholder meeting for a lack of progress on the OOS Assessment, is the lack of a “road map” to complete the OOS Assessment, inform the IRP and ultimately perform the TPP along with Regional Coordination. TransWest Express provides these comments on OOS Assessment update to help the CAISO and stakeholders consider the appropriate the road map. Within these comments we pull in results from these other processes to help build a solid foundation for the road map.

Apologies in advance for any errors within these comments, they were prepared in a short time frame (3 days) given the CAISO schedule to include changes based on stakeholder comments to the California ISO 2016 – 2017 Transmission Plan. We request these comments be considered as the CAISO prepares the final version of the Transmission Plan and completes the OOS Assessment during the 2017-2018 TPP.

Key Assumptions and Sensitivities:

Below is a listing of the key assumptions and sensitivities the CAISO needs to consider to complete the OOS Assessment. The subject of these key assumptions are ordered to help present a road map of the various considerations within the Assessment to provide useful information to the policy decision process within the CPUC’s IRP proceeding. Several of these assumptions have been highlighted by the CAISO in the update provided on February 28, 2017 and others have not been discussed to date with stakeholders. For each subject TransWest has listed either the CAISO assumption or provided a suggested assumption along with some explanatory notes to help build a road map (or study plan) for the Assessment. In several areas, sensitivity analysis may be warranted that include alternative assumptions on some of these key subjects. Without careful consideration of these assumptions, including the assumed outputs needed from the study to inform the IRP, the modeling framework and assessment of results cannot be adequately informed.

1. Resource Type, Location and Aggregate Size

- a. Assumptions: SB350 Product Content Category (PCC) 1 New Mexico and Wyoming wind resources (requesting FCDS and/or EODS as separate portfolio analysis) with an aggregate size of 2,000 MW in each state.

The Study Update outlined these assumptions used within the Assessment. The SB350 PCC assumption was not specifically delineated. However, the RPS Calculator portion model that uses transmission input from the CAISO TPP is focused on PCC1 resources. This assumption is important in the CAISO's assessment of OOS transmission implications (e.g. modeling, results, etc.) because they require connection directly to a California BA, scheduled into a California BA without substituting energy from another resource, or dynamically scheduled. This PCC 1 requirement requires that the modeling in the assessment capture the extent of the CAISO BA and these scheduling requirements as applicable.

TransWest requests the CAISO to provide stakeholders the specific locations within New Mexico and Wyoming where the resource areas are being modeled.

2. BA/OATT Topography

- a. Assumption: current/planned (2026) BA/OATT Topography with option to expand BA through Regional and/or Interregional Transmission Project

This assumption needs to be clarified as the base assumption for the OOS Assessment. Given the PCC 1 direct connection and/or scheduling requirements, it is important to use the current BA/OATT topography in the base case and to determine if existing transmission capacity is available to schedule deliveries to the CAISO BA. When assessing potential transmission capacity expansion projects, the CAISO should consider how potential projects would serve to expand the boundary of the CAISO BA, such that potentially the assumed resources could be connected directly to a CAISO BA through expansion of the BA to these OOS areas. This expansion would be similar to how the current CAISO BA boundary is impacted by other transmission infrastructure to other states such as Arizona, Nevada, Oregon, Utah and New Mexico.

- b. Sensitivity assumption: regional BA/OATT Topography

As outlined in TransWest's comments on the 50% Special Study in June 2016 (and noted by the ISO), the CAISO should also consider including a sensitivity analysis that considers a Regional BA/OATT topography. However, given the status of the regional expansion initiative and the unknown status of the future BA/OATT topography (e.g. one

BA/Transmission Network or multiple “sub-regions”) it may be difficult to arrive at an agreed upon topography to model at this time.

3. CAISO OATT Project Type (Primary Driver)

a. Assumption: Policy-Driven Project

The CAISO should initially limit its assessment within the 50% RPS OOS assessment to consideration of Policy-Driven Projects, given the purpose and objective of the study is to help inform California RPS policy decisions through the Integrated Resource Plan.

b. Sensitivity assumption: enhanced Policy Driven Project with additional Economic benefits

It is very likely that any large multi-state transmission projects could be enhanced to provide reliability and economic benefits beyond the California policy needs. Although this is likely the CAISO’s information-only assessment should first focus on the Policy-Driven only analysis as modeled within the RPS Calculator. This additional benefits analysis could be performed later if and when an OOS resource area is included within a portfolio that is formally submitted to the CAISO TPP.

4. Project Participation

a. Assumption: CAISO Regional Project

The CAISO and the other western regional planning entities have established their planning processes on a Regional basis that requires first a Regional Assessment followed by Interregional Project Coordination. In addition to this, California RPS policy for the CAISO BA cannot and does not have any authority over the transmission planning within the other western regional planning entities. Therefore the CAISO should perform the 50% RPS OOS assessment by considering existing transmission capacity that is/will be available for scheduling and CAISO Regional (Policy-Driven) Transmission Capacity Expansion Projects first. This Regional Project analysis is required to establish an “avoided cost” metric to use within any subsequent benefit/cost allocation analysis performed by two or more western planning regions.

b. Sensitivity assumption: Interregional Transmission Project with participation by WestConnect and/or NTTG

TransWest is concerned that the CAISO has conflated the 50% RPS OOS Assessment with the Interregional Planning Coordination process. While there is overlap between the two, the Regional process has primacy and needs to be completed as a standalone assessment prior to completion of the Interregional Planning Coordination process. TransWest believes coordination and cooperation between the western planning regions is required to complete each Regional transmission planning process. These groups have been and will continue to coordinate and cooperate throughout this and any other bulk power system transmission planning process. The distinction TransWest is making here is in the formal CAISO Regional process and the assumed participation within transmission solutions (Projects) considered in the CAISO Regional TPP.

5. Existing (2026) Transmission Network

- a. Assumption: WECC Regional Planning Coordination Group 2026 Common Case Transmission Assumptions (CCTA)

TransWest agrees with using the CCTA within the 50% RPS OOS Assessment. The CAISO should confirm that all of the CCTA projects were included within the analysis to date. The CAISO proposed some next steps included developing/identifying some additional stress cases for the 50% RPS OOS assessment in part due to the apparent lack of congestion in the OOS transmission system after including the assumed OOS wind resources. The CAISO should confirm whether the Gateway West and Gateway South projects within the NTTG Region we assumed in-service in the assessment. These massive multi-state projects interconnecting Wyoming to the PAC East BA would substantially reduce congestion and the CAISO may not be able to develop the anticipated additional stress cases with these projects included within the models.

Inclusion of these projects in the CCTA and the CAISO assessment leads to the assumption that the projects are NTTG Regional Projects and not CAISO Regional projects. Therefore the assessment would include potentially the cost of transmission service over these projects to schedule the resources to the CAISO BA.

- b. Sensitivity 2.b. assumption: 2026 CCTA w/o Boardman – Hemingway, Energy Gateway West and Energy Gateway Projects

TransWest suggests the CAISO perform a sensitivity analysis with several of the assumed CCTA projects removed from the model in the NTTG region to better understand the impact these proposed projects have on the system and potentially consider potential benefit/cost allocation between the CAISO and NTTG (PacifiCorp). This assumption would also preserve the status, if desired, of these Gateway Projects as potential “new facilities” in the proposed TAC Options for the Regional Expansion.

Assumed Potential Solutions (Implications)

6. Potential non-CAISO Existing Transmission Paths available capacity and costs

- a. Assumption: existing/planned 2026 NTTG and WestConnect transmission paths with available capacity for scheduling resources to the CAISO BA.

The CAISO SB350 Study Renewable Energy Portfolio Analysis performed by E3 using the RESOLVE model included assumptions on the amount of existing (2030) available transmission capacity and the cost for transmission service on the non-CAISO system. Similar data is required within the RESOLVE model for the IRP analysis.

With respect to the available capacity, it isn’t clear if or how the CAISO plans to arrive at the amount of available transmission capacity to schedule PCC1 resources to the CAISO BA. The CAISO and some stakeholders suggested that the lack of congestion found within the Production Cost Modeling (PCM) results indicated that there is available transmission to schedule resources to the meet the PCC1 requirements. Unless the PCM has including these PCC1 scheduling constraints (or the CAISO is assuming an expanded regional CAISO BA/OATT), the PCM results will overstate the available capacity by assuming all transmission capacity cannot be reserved and will be used to maximize the efficient inter-regional dispatch of all western resources. TransWest request the CAISO to clarify if and how the PCM model is including the scheduling constraints.

As an alternative, the RETI 2.0 Western Outreach Project surveyed regional transmission and OOS resource development experts and found “there is limited capability [on the existing system] for delivering significant amounts of Wyoming and New Mexico wind to California.”

7. Potential CAISO Policy-Driven Transmission Projects

- a. Assumption: The four Interregional Transmission Projects (ITPs) submitted to the CAISO: **TransWest** (multiple configurations proposed), **Cross-Tie**, **SWIP-N** and **HVDC Conversion** plus the four additional regional projects with “advanced permitting” identified within the RETI 2.0 Final Report: **Gateway West** (dependent on whether assumed in service or not), **Gateway South** (same as Gateway West), **Southline** and **SunZia**.

Given the SB350 targets of a 40% RPS by 2024, 45 % RPS by 2027 and 50% RPS by 2030 plus the recent calls for advancing the target date to reach the 50% RPS by 2025, and the very unique position the CAISO is in to evaluate a range of multi-state transmission projects that are significantly de-risked from an environmental permitting perspective, the CAISO should focus its attention on these projects as suggested in the RETI 2.0 Final Report. Although all of these projects are not Interregional Transmission Projects, these projects have all been presented to the RETI 2.0 for consideration in meeting California’s policy needs. Each of these projects could potentially be used to either schedule resources to the CAISO BA and/or be used to expand the CAISO BA. Several projects will require scheduling on existing transmission facilities as noted in the RETI 2.0 Final Report.

The four ITPs have formal Evaluation Process Plans developed in June 2016. Unfortunately, the CAISO has not made sufficient progress in the 50% RPS assessment to actually evaluate any of these projects within their analysis this past planning cycle. The 50% RPS Assessment Next Steps include “test[ing] the effectiveness of the ITPs in mitigating [transmission] issues”. TransWest suggests the CAISO review the draft NTTG Regional Transmission Plan to understand the relationship NTTG identified between wind resource development in Wyoming, the capacity of the existing transmission system in Wyoming, Utah and Idaho, and the need case for the Gateway Projects. This review should help progress the coordination between regions and the initiation of the ITP and other multi-state, advanced permitting project evaluations.

- b. Sensitivity Assumption: other Western transmission projects in final RETI 2.0 Final Report, conceptual projects

TransWest recommends not including this sensitivity. The seven multi-state projects with advanced permitting took seven to ten years to receive

federal permits. Assuming the ISO is in position to approve Regional Policy-Driven Transmission Projects at the conclusion of the 2018-2019 TPP, these projects without advanced permitting would not be placed in service in time to complete the process of bringing on 2,000 MW of wind resources prior to 2030.

Modeling

TransWest suggests that the CAISO de-emphasize the use of PCM analysis in the 50%RPS assessment unless the PCC 1 transmission scheduling constraints can be included within the model. In lieu of the PCM analysis, the CAISO should review the WECC Path Rating analysis performed for the various advanced permitting multi-state projects and determine what additional reliability and/or deliverability power system analysis is required and the appropriate models for these analyses.

Assessments and Key Findings and Next Steps

TransWest agrees in general with the key findings on curtailment, transmission congestion, and the California reliability/deliverability assessments provided during the update.

TransWest does not agree that additional efforts are needed at this time with the PCM simulations. The CAISO should focus on the validity of the assumptions suggested above and the on developing a road map to provide useful input to the policy decision process in the form of MWs of capacity and costs for transmission service on existing/planned non-CAISO facilities potential investments in transmission to access the OOS resources.

Contact Information

We look forward to working with the CAISO in a collaborative role to help develop a road map for the ISO to complete the 50% RPS OOS Transmission Assessment. Any questions or responses to these comments should be directed to:

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