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TransWest Express Comments to RETI 2.0 Plenary Group (15-RETI-02)

Additional submitted attachment is included below.



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VIA ELECTRONIC DELIVERY

April 22, 2016

Docket Unit
California Energy Commission
Docket No. 15-RETI-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
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RE: Response to 4/18/16 Meeting Discussion Questions

Dear Mr. Turner:

TransWest Express LLC (TransWest) appreciates the opportunity to provide comments to the Renewable Energy Transmission Initiative (RETI) 2.0 Plenary Group in response to the questions posed at the April 18, 2016, Plenary Group Workshop.

1. What conclusions can be drawn from long-term renewable resource portfolios about the kinds of resources that may be important for California utilities to procure by 2030?

The RETI 2.0 Joint Agency leads set out the kinds of resources that may be important for California utilities to procure by 2030 at the initial RETI 2.0 meeting in September 2015. Keith Casey summarized the kinds of resources with the following two points:

- “Diversity – diversity in terms of technology as well as geographical diversity”, and
- Regionalism – “we have to recognize that there’s potential opportunities and synergies with the rest of the West on other goals”¹

The long-term renewable resource portfolios that have been examined in the multiple studies and presented to Plenary Group have shown the value of diverse portfolios and the extent and magnitude of the potential opportunities and synergies associated with taking a broader regional perspective. Information provided by SDG&E (TN-210752), PG&E (TN-210746), E3 (TN-210748), the CPUC (TN-211085), NREL (TN-211081), CEERT (TN-211082), and the WGA (TN-211104) to the Plenary Group as well as data presented by the CAISO (TN-208297) and SDG&E (TN-20824) to the Transmission Technical Input Group all highlighted the importance of diverse technical and geographic resources on a regional basis. In addition,

¹ Transcript of the 9/10/15 Joint Agency Workshop on RETI 2.0, pages 22 and 23

many other RETI 2.0 stakeholders have presented or commented on the importance of diverse technology and regional resources.

Another theme that has emerged through the studies presented is the diminishing importance of the Resource Adequacy (RA) portion of renewable resources. The CPUC highlighted this point at the April 18, 2016, Plenary Group Meeting (TN-211085). They showed how the values of resources change dynamically depending on the make-up of the portfolio. As the value of RA capacity associated with renewables diminishes, the opportunity arises to use existing transmission infrastructure to accommodate delivery of renewable resources as either energy-only renewable resources or as partial RA resources. The CAISO conducted a 50% Special Study as part of the 2015-2016 TPP (TN-208297) and confirmed, on a preliminary basis, the amount of existing transmission capacity available to deliver these renewable resources on the ISO system. The CPUC (TN-211085) found that energy-only, or partial RA, renewable resources that limit the need for transmission infrastructure investment are another kind of renewable resource that may be important for California utilities to procure by 2030.

a. What quantities of which renewable resource (and from where geographically) are studied in long-term energy scenarios?

TransWest encourages RETI 2.0 to consider studying at least 30,000 MW of renewable resources in long-term energy scenarios. This is roughly two to three times the projected need. Various groups provided a wide range of incremental renewable resource forecasts at the January 29, 2016, Plenary Group Meeting. The forecasts include many variables that impact the levels of forecasted renewable resource need. These include the driving objective (e.g. GHG reduction targets vs. RPS requirements), load projections (e.g. load growth, energy efficiency program success, BTM generation penetration levels, EV adoption rates, etc.), and supply market projections (e.g. contract failure rates, re-powering rates, etc.). The total need for incremental resources should be in the 12,000 to 15,000 MW range.

Studying higher levels of renewable resource quantities:

- a) requires the same level of effort as studying lower quantities, particularly as RETI has a fixed time to conduct this analysis,
- b) still allows for the slower deployment of resulting plans if the higher quantities are not required over the long term, and
- c) provides a degree of flexibility and optionality that would not exist if higher quantities are later found to be needed yet hadn't been studied.

Therefore it is prudent for the RETI 2.0 to bias total quantity of incremental renewable resources to the higher end of the forecasts reviewed by the Plenary

Group. This total aggregate amount should consider all of California's needs and not just the need within the CAISO and CPUC level projections presented to the Plenary Group.

Based on the direction from the State Agency leads and the data collected during the first phase of the Plenary Group's work, the quantities of resources per area should be limited in California to the available existing transmission capacity to access energy-only and/or partial RA renewable resources. The quantity of potential in-state resources that can be accessed through the existing transmission capacity, or some 22,000 MW, exceeds the incremental renewable energy needs of the utilities through 2030. The relative cost of the solar and wind resources in California are fairly close across the various geographic areas such that any related cost to build transmission infrastructure to access an area would most likely not be economic as compared to accessing resources in areas with existing transmission capacity. This approach will result in an economic outcome for California as well as simplify the work of RETI 2.0 by eliminating the need to identify transmission solutions to access California resources.

There may be exceptions to this approach for California resources, such as for geothermal resources that have very high RA capacities. The value of these resources may be high enough compared to other market options to support the investment in transmission to realize their full value. Given the dynamic valuation of renewable resources that will tend to lower the RA value of PV solar and increase midday over-supply, it is difficult to see how these resources will present sufficient economic benefit to justify transmission investment.

The quantity of the Wyoming and New Mexico wind resources should be capped at the aggregate amount of transmission capacity included in the proposed transmission projects for California to access those resources. The Transmission Technical Input Group heard from five projects totaling 9,000 MW of capacity to access Wyoming wind resources and three projects to access 5,000 MW of New Mexico wind resources. TransWest notes that the ISO has preliminarily determined there are approximately 3,000 MW of existing transmission capacity from the Eldorado area for energy-only renewable resources and approximately 4,000 MW of existing capacity. Like the in-state resources, a case would need to be made to upgrade the existing in-state transmission system to access more of these remote resources.

b. What lessons about the “fit” of different resources can we learn from the different scenarios? What aggregate metrics of “fit” are used to measure different portfolios of resources?

The CPUC and CAISO provided information about scenarios that provide some important lessons on “fit” with respect to the integration challenges with high renewable resource penetration levels. The two main variables that distinguish the scenarios studied were the assumption used for renewable resource transmission service requirements and the assumption on available regional resources.

The CPUC used the updated RPS Calculator to learn about “fit” of different resources by changing these two assumptions. The CPUC (TN-211085) found that by relaxing the transmission service and the regional resource availability assumptions, the selected portfolio resulted in lower aggregate capacity of incremental renewables, lower curtailment levels, lower costs and lower rates. Lower values for these four metrics indicates the portfolio with the relaxed assumptions are more efficient and provide a better “fit” while still complying with the system RA requirements and the Product Content Category 1 requirements for the incremental resources.

The ISO quantified the difference in relaxing the regional resource availability assumption in the 50% RPS Special Study in the 2015-2016 TPP (TN-208297). These preliminary results show that the portfolio that includes regional resources reduces the projected annual curtailment level by 5,900 GWh/yr, which is roughly equivalent to the output of 2,200 MW of PV solar resources at a 30% capacity factor. Quite simply, high-value regional reduce curtailment levels while lowering overall costs.

c. Are there lessons about complementarity of resources in certain combinations? Are there insights about the complementarity of renewable generation profiles in some areas with electric demand in others?

The CAISO 50% RPS Special Study also examined the complementarity of the resources in the portfolio with regional electric demand through examining different ranges of maximum export capacity. The ISO found that the curtailment levels decreased as the maximum export capacity was raised, suggesting that the renewable generation profiles in California complement the regional electric demand.

2. What lessons about the role of transmission can we learn from the studies?

a. Where is the existing system capable of integrating new renewables, where may new transmission be necessary to access resources, and where may new transmission improvements be necessary to integrate multiple renewable resource areas and/or demand centers?

The CAISO 50% RPS Special Study provided a preliminary assessment of available transmission capacity. Input collected by the Transmission Technical Input group and studies presented at the April 18, 2016, Plenary Group Meeting indicates that new interregional transmission may be necessary to access remote regional resources in Wyoming and New Mexico.

3. Based on these studies and prior information, where should RETI 2.0 focus in examining transmission options and implications?

RETI 2.0 should focus on examining transmission options and implications to access the high-value regional resources that use diverse technology to produce diverse output profiles, including Wyoming and New Mexico wind resources. The studies indicate the existing ISO system has a large amount of available capacity that can accommodate high value California resources.

4. Is the proposed Transmission Assessment Focus Area approach appropriate for guiding the next phase of the RETI 2.0 project?

TransWest recommends two changes to the draft preliminary Transmission Assessment Focus Area (TAFA) approach presented at the April 18, 2016, meeting.

Given the preliminary information on the available transmission capacity levels on the ISO system, TransWest recommends changing the order of questions #3 and #4 in the approach (TN-211118, slide 5). The first screen for resources by area should be based on the existing transmission capacity. However, this screen is currently applied in question #4. Information on the available transmission capacity was developed for the ISO system as part of the 50% Special Study in the 2015-2016 TPP. Understandably, this information should be considered as preliminary information subject to refinement. However, the level of accuracy with the preliminary data should suffice for the purpose of the RETI 2.0. Information on the existing transmission capacity of other systems will need to be determined through the Transmission Technical Input Group. A conservative approach would be to assume that the other systems do not have any existing transmission capacity to accommodate renewable resources. These assumptions can be modified as more information about the ISO's and other systems' available capacity becomes known. The resulting information will result in approximately 22,000 MW of renewable resources being available.

Question #4 in the approach should then be: Might a higher level of renewables from different areas justify new transmission infrastructure to access these resources? The recommended re-ordered questions would be as follows:

- 1) How much renewables might we need?
- 2) Which resources might be important by 2030?
- 3) How much existing transmission capacity is there to access renewables from different areas?
- 4) Might a higher level of renewables from different areas justify new transmission infrastructure to access these resources?

This modified approach would focus on the specific objective of identifying high-value resources that need transmission by looking at the potential incremental amount of resources after some 22,000 MW of potentially high-value resources are already assumed accessible without new transmission. The recommended question #4 would be placing the focus on the diverse resources that would require new transmission.

To best answer the recommended question #4, potential transmission project information (e.g. MW capacity, cost and timeframe to place in-service) would need to be considered. Given the relatively low spread between resource costs of the California resources, the initial screening of these areas could probably be done with a one-size fits all proxy project. If resources in an area are on par with resources in other areas that have sufficient existing transmission to meet the need, the area shouldn't be considered for new transmission. The Transmission Technical Input Group has already collected data on a number of transmission projects that could provide California with access to wind resources in Wyoming and New Mexico.

The second recommended modification to the approach is to identify the resource areas in Wyoming and New Mexico as Transmission Assessment Focus Areas. It may be more clear to call these areas "Resource Areas". The Preliminary Focus List (TN211118, slide 10) includes the California SuperCrezs and Interconnections as the TAFAs. TransWest's recommendation is to eliminate the Interconnections from the Focus List and replace them with a Wyoming TAFE and a New Mexico TAFE. In this way all Transmission Assessment Focus Areas will have common attributes for assessment on the environmental and transmission implications.

- a. **Are the assumptions appropriate regarding the range of renewable resource development in specific geographic areas that may be important to meet California's 2030 GHG goals?**

The assumptions should be modified to include the resource level that could be accommodated with existing transmission and the additional amount that might justify new transmission.

b. Are the assumptions appropriate regarding where additional transmission capacity may be necessary to access or integrate these resources?

It is not appropriate to assume that only potential new in-state transmission system and a limited number of interconnections may need to be examined. The TAFAs should be expanded to include a Wyoming TAFAs and a New Mexico TAFAs, and the Interconnection TAFAs should be removed. Transmission needs between California load locations to access or integrate the renewable resource areas need to be assessed by RETI 2.0. The methods of assessment and parties involved for each TAFAs may differ, but the framework for the overall approach should be consistent.

c. Are the conclusions appropriate regarding the initial draft Transmission Assessment Focus Areas presented at the workshop, including the range of resource development in, or flowing through, these areas, and the potential need for additional transmission improvements to efficiently integrate these resources?

See comments above.

Thank you for your consideration of these comments.

Sincerely,

TRANSWEST EXPRESS LLC

/s/David F. Smith

David F. Smith
Director, Engineering and Operations