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Comments on RETI 2.0 Plenary Group Meeting

Additional submitted attachment is included below.

TRANSCANYON

JASON R. SMITH
President

January 7, 2016

RETI 2.0 Plenary Group
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Renewable Energy Transmission Initiative ("RETI") 2.0

Dear RETI 2.0 Plenary Group:

TransCanyon, LLC ("TransCanyon") appreciates the opportunity to provide comments on specific questions that have been posed as part of the RETI 2.0 process. TransCanyon's comments will focus on questions related to:

- Planning goals for RETI 2.0
- Resource values

The following is TransCanyon's response to specific questions posed in these two broad categories:

Planning Goals

1. **What are the right resource metric targets (greenhouse gas emissions ("GHG"), renewables, system) for RETI 2.0 to plan toward**

   TransCanyon believes that while GHG targets should be the primary resource metric/target, RETI 2.0 should also consider other targets such as Renewable Portfolio Standards ("RPS") requirements, goals for electrification of the transportation industry, incentives to flatten demand through the day, and system reliability requirements.

   TransCanyon also encourages the RETI 2.0 team to establish tiers as part of this process such that, as goals become more expansive, the renewable zones are prioritized accordingly. For instance, given California's 2030 and 2050 GHG reduction goals, the 50% RPS threshold should be considered a floor, and the RETI 2.0 team should include plans that assume that renewable energy penetration exceeds 50% in order to identify potential

resource areas and transmission that will need to be developed to meet more expansive GHG reduction goals.

2. What are the "rest of the system" parameters that make a meaningful difference on these metrics?

RETI 2.0 will need to ensure that all resource and transmission assumptions studied will ensure that all system reliability requirements are met. These include, without limitation:

- Voltage control
- Contingency reserves
- System regulating resources
- Flexible reserves to accommodate solar ramping
- Frequency response
- System inertia requirements
- System black start capability

3. What data sources or analyses should we include?

TransCanyon believes that it is very important that the RETI 2.0 study scope include all of the Western Interconnection for potential resource development to meet California's future resource needs, as well as the necessary transmission to facilitate potential out of state renewable resources accessing California loads.

For resource and transmission environmental compatibility analysis, in addition to the natural resource data available from the California state agencies, there is a wealth of biologic, land use, cultural, and visual data on the rest of the west from a number of data sources including:

- Data the Western Electricity Coordination Council ("WECC") has put together for their WECC Environmental Data Viewer

- Data used in the West Wide Energy Corridor Environmental Impact Statement ("EIS") conducted by the Bureau of Land Management ("BLM"), the U.S. Forest Service ("USFS"), and other federal agencies

- Data used in the Solar Energy Development Programmatic EIS conducted by the BLM which focused on finding suitable lands for solar on federal lands in the West

- Data used in the Restoration Design Energy Project conducted by the Arizona state BLM office in an effort to identify lands with high potential for the development of renewable resources with an emphasis on solar resources. The Arizona state land office was a cooperating agency in this effort and as a result Arizona state land was considered in addition to Federal land

- Data from significant transmission projects that have been or are near completion. This data would reside in the field offices of the respective agencies conducting the National Environmental Policy Act studies. The RETI 2.0 effort might be able to leverage the California state BLM office to assist in mining this data

For loads and resource data, state RPS requirements, and other base modeling data, WECC and the regional planning groups (WestConnect, Northern Tier Transmission Group, and ColumbiaGrid) are good sources for data.

Resource Values

4. **How should we measure the system value and costs of individual resources (i.e., what do we know about the capacity, energy, ancillary service, and system value, and development cost, of individual resources areas and technologies)?**

There should be significant historical data on market prices for energy, reliability and ancillary services from the CAISO and other western market hub index prices. The CAISO and CPUC as well as third party consultants who have worked for them should be good sources for future resource cost data. Replacement resource costs and avoided cost for new resource build would be useful in determining system values of resources. When considering the cost of regional transmission projects, potential cost allocation between planning regions should be considered.

5. **How should we measure the system value of resource combinations (i.e., what do we know about how different resources complement each other to provide system value)?**

The value of resource combinations will be determined by applying the system values and costs from above to varying resource combinations, taking into account the degree of correlation of resource energy availability for combinations of intermittent resources and looking at future daily and seasonal load shapes.

6. **How can we assemble conceptual resource combinations (i.e., what do we know about building resource combinations and how do we evaluate different resource combinations)?**

When assembling conceptual resource combinations, in addition to ensuring that the resource metrics discussed above are met, the goal should be to achieve a least cost combination taking into account capital and operating costs of both resources and the required transmission. TransCanyon believes that out of state resources will likely help achieve the lowest cost solution and such benefits will need to be evaluated relative to the direct investment benefits of solutions solely in California.

A number of entities throughout the West including the National Renewable Energy Laboratory ("NREL"), WECC, and the CAISO have been studying different resource combinations for a number of years. See answer to 7) below.

7. **What are the best examples of assembling resource combinations?**

WECC's Transmission Expansion Planning Policy Committee and NREL have both done a number of Western Interconnection studies with various combinations of wind and solar resources modeled to determine the financial benefits to various regions of these different renewable resource combinations. Specifically, refer to the NREL Western Wind and Solar Integrations Study Phases 1, 2, and 3.

8. What other stakeholders should be involved in the RETI 2.0 process?

RETI 2.0 should ensure that all California state and Federal agencies with jurisdiction over land that will be studied for resource or transmission development have an opportunity to participate. This would include the BLM, Bureau of Reclamation, Bureau of Indian Affairs, USFS, the U.S. Department of Defense, California Fish and Wildlife, among other state and Federal agencies. It might also be helpful for WECC to be involved to ensure regional reliability concerns are addressed.

TransCanyon appreciates the opportunity to submit these comments and looks forward to continued participation and engagement in this effort.

Sincerely,

Jason Smith

TransCanyon, a joint venture between Berkshire Hathaway Energy's subsidiary, BHE U.S. Transmission, and Pinnacle West Capital Corporation's subsidiary, Bright Canyon Energy, is an independent developer of electric transmission infrastructure for the western United States.