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CTC Comments on Increasing Need for Electric System Flexibility Workshop

Additional submitted attachment is included below.

CTC GLOBAL

May 19, 2016

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

RE: Docket No. 17-IEPR-07
Joint Agency Workshop on the Increasing Need for Flexibility in the Electricity System

Dear Chairman Weisenmiller,

CTC Global, a California company headquartered in Irvine, appreciates the opportunity to comment on this IEPR workshop that focuses on responding to the increasing need for flexibility on the electric system. While most of the workshop explored new demand-side and distributed energy resource technologies that can be responsive to system flexibility needs, CTC Global would like to focus the Commission's attention on an area that is often "overlooked": the ability to provide electric grid flexibility, reliability, and resiliency by upgrading the "wires" within the electric grid.

Increasing Flexibility in Existing Right-of-Way

There is a commercially available class of High Performance Transmission Conductors (HPTC) [also know by transmission engineers as "high-temperature low-sag conductor"] that when deployed in a line-for-line reconductoring on existing towers in existing right-of-way (ROW) could provide substantial flexibility, resiliency, and reliability by keeping the system intact and operating even during substantial or unexpected load flow changes across these lines. Products in this class of conductor provide the ability to move up to 2 times more power without violating sag clearance or failing than the same size (diameter and weight) traditional conductor (ACSR). Using the same towers and existing ROW enables the upgrades to be made as part of the grid owner's maintenance process rather than under a much more costly and time-consuming construction permitting process required when the towers have to be rebuilt. Some of this additional capacity in the existing ROW can be designated as operational capacity and the balance as emergency capacity. This adds substantially improved flexibility and resiliency to an electric system that is expected to have dramatically changing load flows as old thermal plants are closed down and many more renewable power plants (in other locations) are brought online. This adds increased confidence that unexpected load flow changes or electric system upsets can be accommodated by the reconductored lines without service interruptions: improved reliability.

Energy Efficiency in Existing Right-of-Way

Some products within the HPTC class of conductor are much more efficient than the same size (diameter and weight) traditional conductor. For example, using a HTPC such as ACCC@, the losses on the existing California T&D system could be reduced by 30% or more through a line-for-line reconductoring effort in existing right-of-ways using existing towers: replacing old transmission conductor technology with the same diameter and weight of modern, high-efficiency conductors. An ACCC reconductoring effort applied across the state would bring lower energy costs to all consumers and would reduce California's CO^2 emissions by 1-2 million tons per year[1] (as well as lowering other air emissions and reducing water consumption at thermal power plants). Energy efficiency is the preferred action in the loading order to meet growing energy needs. This should include the increased efficiency of the T&D system that makes more energy available by reducing its waste in T&D losses. And, ACCC, like other HPTC, provide additional capacity, flexibility, resiliency, and reliability to every line upgraded.

CTC Global thanks the Commissioner for the opportunity to participate and add comments to this important IEPR Workshop.

Thank-you,

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[1] 2014 Energy Information Administration (EIA) data for electric losses in California shows 7% transmission and distribution (T&D) losses. With total California 2014 generation (minus direct use) of 199,996,478 MWh, this equals about 13,999,753 MWh of T&D losses in the 2014 electric grid. 25% T&D loss reduction equals 3.5 million MWH that did not have to be generated which would save fuel costs to customers, free-up 500 MW of generating capacity, and reduce CO^2 emissions by more than 1.0 million tons per year (at 2014 California emission rate).