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Comments on August 15th Joint Agency Workshop Report

Additional submitted attachment is included below.

CTC GLOBAL

August 24, 2016

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

RE: RETI 2.0 Workshop of August 15, 2016

Dear Commissioners,

The coordinated effort of the RETI 2.0 participants is remarkable. The information being generated to assist decision-makers appears "solid" and will be very useful for the choices that will need to be made in the near future. CTC Global, a California company headquartered in Irvine, appreciates the opportunity to provide comments in this RETI 2.0 process. Specifically, we would like to focus the Commission's attention on the enormous untapped potential for *improving the efficiency* and *increasing the capacity* of California's high voltage network – improvements that directly support the State's goals for CO^2 reduction and the need to connect large amounts of Renewable Energy to the electric system. There is a commercially available class of High Performance Transmission Conductors (HPTC), which includes CTC Global's ACCC®, that substantially reduce line losses while increasing transfer capacity. These HPTC can be applied in existing rights-of-way (ROW) in a re-conductoring strategy (modern HPTC replacing old, inefficient conductor) to significantly reduce transmission losses and increase ROW capacity by 2X. And when new or expanded ROW is required, the HPTC products bring lower life-cycle costs with lower transmission losses, increased transmission resiliency, and substantially more capacity than using traditional conductor.

Energy Efficiency and Added Capacity in Existing Right-of-Way

Billions of dollars have been spent on improving thermal efficiency of power plants and creating new technologies in power generation. Billions of dollars have been spent on improving efficiency and creating new, high efficiency products for end-uses. But, the electricity moves from generator to consumers over inefficient, old conductor technology. There are modern High Performance Transmission Conductors (HPTC) commercially available that can improve the efficiency of the transmission & distribution (T&D) system. Using HPTC, such as ACCC®, the losses on the existing California T&D system could be reduced by 30% or more through a reconductoring effort in existing ROW using existing towers: replacing old transmission conductor technology with the same diameter and weight of HPTC. Such a reconductoring effort would bring lower energy costs to all consumers and would reduce California's CO^2 emissions by 1-2 million tons per year.

Further, the modern HPTC also bring increased capacity on those same reconductored ROW corridors. Generally, products in this class of transmission conductor can move 2 times the amperage of the old conductor it replaces without line sag violations or failures. This additional transmission capacity in existing ROW enables more renewable energy (RE) to be integrated into the existing system before more substantial ROW upgrades are required. This adds substantially improved resiliency to a system that is expected to have dramatically changing load flows as old thermal plants are closed down and many more RE power plants (in other locations) are brought online. This adds confidence that unexpected load flow changes or electric system upsets can be accommodated by the reconductored lines without service interruptions.

This summer, American Electric Power (AEP) received the "Edison Award" from the Edison Electric Institute EEI) for just such a reconductoring effort. AEP replaced old ACSR conductor with ACCC®, a HPTC conductor, in an existing ROW on existing towers. This 240 circuit mile reconductoring was done without taking the lines out-of-service, representing the largest live line (energized) reconductoring project in the world. The project reduced line losses by 30% equating to a reduction of CO^2 emissions by over 166,000 metric tons per year, and increased the total existing ROW capacity by 2X.

New or Expanded Right-of-Way

Even after we have maximized the potential of the existing ROW, some new transmission lines will likely be necessary. These lines may be "feeder" lines to connect new renewable power plants to the grid or may be major pathway upgrades for importing or delivering RE. For either application, the products in the HTPC class of conductors are more efficient (delivers more renewable energy) and add greater capacity (and greater resiliency). And, for many conductors in the HTPC class, there is the potential for significantly lower installed and life-cycle costs than using old conductor technology.

Recommended Commission Actions

CTC Global is aware that the state's utilities are the entities that propose transmission projects and chose the type of conductor that they will use in the project. But, the Commission, the CPUC, ARB, and CAISO can certainly influence that decision by making it clear that improving the efficiency of the T&D grid at every opportunity is encouraged (if not required). This permits the utility to consider more efficient alternatives, such as HPTC, in compliance to the state agencies' guidance rather than attempting to "up sell" the higher efficiency, more resilient, alternatives rather than the "traditional" solutions. The Commission and the other state agencies with a stake in the California GHG emissions can change the transmission planning criteria and change the utility's planning process behavior through its guidance for increasing the efficiency from the transmission system.

The following are specific recommended actions. Some recommendations are reflective of comments that CTC Global submitted in the Integrated Energy Resource Planning (IERP) process.

1) The RETI 2.0 Report should include a discussion that replacing traditional conductor with higher efficiency, higher capacity, and modern conductor is an approved way to get more from existing ROW. The Report should direct utilities to consider HPTC instead of traditional conductor for increasing existing ROW capacity, for reducing transmission losses (increasing transmission efficiency), and for improving system resiliency.

2) The Commission, and the CPUC, should provide guidance to utilities and to the transmission planning process that increased efficiency of the T&D grid should be a significant consideration and objective for all projects being offered. Every opportunity for increasing the efficiency of these long-lived investments should be taken. Modern High Performance Transmission Conductors (HPTC) provide a reliable way to increase transmission efficiency (lower losses), reduce the air emissions, and increase ROW/transmission pathway capacity.

3) The Commission should review a policy-driven reconductoring strategy as a tool for meeting GHG emission reduction targets. By improving efficiency (reducing transmission losses) and adding capacity to existing ROW with a reconductoring strategy, CO^2 (and other air emission) is reduced and more renewable resources can interconnect before more substantial ROW upgrades are required.

   The RETI 2.0 and the Transmission Planning Process are activities where a policy-driven reconductoring strategy could be evaluated and implemented. As a result, lower consumer costs, significantly reduced CO^2 emissions, and increased grid resiliency and reliability can be captured; making a substantial contribution to meeting the California RE and GHG goals.

   This policy-driven reconductoring approach supports Garamendi Principles #1 and # 2: summarized together as “get the most out of the existing ROW”. But, implementing this strategy will need the Commission’s leadership to provide the direction and confidence to the state utilities that they can successfully bring policy-driven, reconductored ROW projects to the transmission planning process.

4) The Commission with the CPUC should include T&D losses and solutions as a significant topic within the Integrated Energy Resource Planning (IERP) process for meeting the California GHG emission reduction targets.

CTC Global thanks the Commission for the opportunity to provide comments to the RETI 2.0 process.

Thank-you,

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