

DOCKETED

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CTC Global Comments on August 4th ERP Workshop

Additional submitted attachment is included below.

August 12, 2016

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

RE: Docket No. 16-IEPR-03 Environmental Performance Report of California's Electrical Generation System

Dear Commissioners,

The Draft Environmental Performance Report (EPR), introduced at the workshop on August 4th, is an excellent overview of the multitude of coordinated actions of state agencies, organizations, and utilities to implement the visionary plans approved by the leadership of the state of California. It is a well done presentation of the actions and goals pursued.

CTC Global, a California company headquartered in Irvine, California appreciates the opportunity to comment on this EPR and would like to focus the Commission's attention on an area that is "overlooked", but could provide a substantial contribution to the State's goals for CO² 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) that when deployed could substantially reduce the transmission and distribution losses while enabling a significant increase in transmission capacity...in existing right-of-ways.

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

"By legislative mandate, the Energy Commission is required to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy." (2016 Draft EPR, page 8). 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 a HTPC 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 right-of-ways using existing towers: replacing old transmission conductor technology with the same diameter and weight of modern, high-efficiency conductors. Such a reconductoring effort would bring lower energy costs to all consumers and would reduce California's CO² emissions by 1-2 million tons per year (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.

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 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 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.

Some new transmission lines will be necessary, whether for “feeder” lines to connect new renewable power plants to the grid or for major pathway upgrades for importing or delivering renewable energy. For upgraded power-line ROW and new connector or corridor ROW, the products in the HTPC class of conductors are more efficient (delivers more renewable energy) and add greater capacity (and greater resiliency) for each of these applications. And, generally for the 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

- 1) The EPR should explicitly recognize the benefits of increasing the efficiency of the system that delivers electricity from the power plants to the consumers. And, modern High Performance Transmission Conductors (HPTC) provide a way to predictably reduce the transmission losses and reduce the air emissions.
- 2) The Commission with the CPUC should include T&D losses and solutions as a significant topic within the IERP process for meeting the California GHG emission reduction targets. “SB 350 further requires the Energy Commission and CPUC to establish a process for LSEs to prepare IRPs. IRPs are comprehensive electric system planning documents intended to ensure that state’s utilities and energy service providers adequately meet customer electric demand and GHG emission reduction targets that will be established by the California Air Resources Board, as required by SB 350.” (2016 Draft EPR, page 147).
- 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 improving system resilience by having substantial capacity within the reconductored existing ROW. This additional capacity in the existing ROW can enable more renewable resources to interconnect before more substantial ROW upgrades are required. “Continuing to advance the goals of these greenhouse gas reduction goals will require further increasing the use of renewable resources; improving planning and coordination; and

supporting research, development, and deployment of emerging technologies that will ultimately transform the energy system.” (2016 Draft EPR, page 142). The RETI 2.0 and the Transmission Planning Process are activities where a policy-driven reconductoring strategy could be evaluated and implemented so that the lower consumer costs, significantly reduced CO² emissions, and increased grid resiliency and reliability can be captured; making a substantial contribution to meeting the California goals reviewed in the EPR. This policy-driven reconductoring approach supports Garamendi Principles #1 and # 2: summarized together as “get the most out of the existing ROW”. But, it will need the Commission’s leadership to provide the direction and confidence to the state utilities to bring policy-driven, recondutored ROW projects to the transmission planning process.

- 4) The Commission should consider establishing an efficiency standard for T&D conductors. A related approach might be to provide guidance to utilities and to the transmission planning process that for all projects being offered, increased efficiency of the T&D grid should be a significant consideration and objective. Every opportunity for increasing the efficiency of these long-lived investments should be taken. Energy efficiency standards have been established for appliances, building, and automobiles. They should be considered for the electric delivery system. “Energy efficiency standards help overcome well-understood barriers in markets for appliances and buildings. Standards eliminate the least efficient products and practices from the marketplace, obtaining large benefits for California’s consumers.” (2016 Draft EPR, page 9).

CTC Global thanks the Commissioner for the opportunity to participate and add comments to this important document, the Environmental Performance Report, and this process, the IEPR Update.

Thank-you,

David Townley
Director of Public Affairs
CTC Global Corporation
818-416-4745
dtownley@ctcglobal.com