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CTC Global Comments to Renewable Energy Transmission Initiative v2.0 following RETI 2.0 Plenary Meeting 4/18

What are the benefits of re-conductoring existing transmission pathways with high performance conductors?

The NREL Low Carbon Grid Study and the Western Interstate Energy Board (WEIB) Resource Options presentations shown at the RETI 2.0 Plenary Meeting indicated that 2030 targets could be met and that a path to meeting 2050 targets exists. This was encouraging. But the analysis and presentations omitted the positive impacts that could be realized from using modern, high performance transmission conductors to replace inefficient conductors (100 year-old conductor technology) on existing transmission pathways.
Modern, high performance transmission conductor can be used to replace old conductors on existing towers [a process known as â€œre-conductoringâ€] to:
â€¢ Increase the transmission capacity by 2X or more in the existing right-of-way;
â€¢ Eliminate sag issues (short-circuit/fire prevention);
â€¢ Reduce line losses by 25% - 40% depending on the line loading (which also reduces carbon emissions); and
â€¢ Free-up generation capacity that was serving the losses.
And this can be done cost-effectively. Because of the freed-up capacity, increased transmission efficiency (energy savings), and reduced emissions, the revenue requirements with a re-conductoring strategy can be lower than with a â€œDo Nothingâ€ plan. In the Cases presented by WIEB, the estimated wire and substation costs were shown for conventional (100 year-old technology) conductor. With the high performance conductors, the wire cost is higher, but the lifecycle cost is substantially lower than the conventional conductor solution.

Recommendation for RETI plans and studies:
1. All new transmission connecting RE projects to the transmission grid should be constructed using high performance conductors. This will enable more of the energy generated by these assets to actually be delivered to the grid.
2. Policy makers should evaluate a large-scale transmission re-conductoring strategy whose purpose is to increase transmission system capacity using existing ROW and towers. Reflect in the studies that using the high efficiency, high capacity modern transmission conductor technology will also reduce line losses (saving energy) and reduce carbon emissions. The re-conductored lines will eliminate sag issues (short-circuit/fire hazards), and will reduce revenue requirements. For California alone, the expected carbon reduction from such a strategy is expected to be 1-2 million metric tons CO2 per year. The re-conductoring strategy can eliminate expected transmission pathway congestion to the point of potentially eliminating the need for construction of new transmission corridors. This re-conductoring strategy for energy saving, carbon reduction, and existing ROW capacity expansion is already being used by utilities around the world.
3. Policy makers should establish an efficiency standard for transmission projects. Increase the required efficiency of transmission upgrades, additions, and construction so that the efficiency by which electricity is delivered through the transmission system increases above the existing system. A MWH saved through a more efficient system means more than a MWH of generation is saved.

Thank-you for the opportunity to briefly describe how high performance transmission conductors can provide significant contributions towards meeting the 2030 and 2050 targets for CO2 reduction ------- while minimizing the rate impacts and improving grid reliability.

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Additional submitted attachment is included below.

CTC GLOBAL

April 29, 2016

Comments to the Renewable Energy Transmission Initiative v2.0 following the RETI 2.0 Plenary Meeting of April 18, 2016

What are the benefits of re-conductoring existing transmission pathways with high performance conductors?

The NREL Low Carbon Grid Study and the Western Interstate Energy Board (WEIB) Resource Options presentations shown at the RETI 2.0 Plenary Meeting indicated that 2030 targets could be met and that a path to meeting 2050 targets exists. This was encouraging. But the analysis and presentations omitted the positive impacts that could be realized from using modern, high performance transmission conductors to replace inefficient conductors (100 year-old conductor technology) on existing transmission pathways.

Modern, high performance transmission conductor can be used to replace old conductors on existing towers [a process known as "re-conductoring"] to:

- Increase the transmission capacity by 2X or more in the existing right-of-way;
- Eliminate sag issues (short-circuit/fire prevention);
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- Free-up generation capacity that was serving the losses.

And this can be done cost-effectively. Because of the freed-up capacity, increased transmission efficiency (energy savings), and reduced emissions, the revenue requirements with a re-conductoring strategy can be lower than with a "Do Nothing" plan. In the Cases presented by WIEB, the estimated wire and substation costs were shown for conventional (100 year-old technology) conductor. With the high performance conductors, the wire cost is higher, but the lifecycle cost is substantially lower than the conventional conductor solution.

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