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Smart Wires Comments on the 2017-05-24 Workshop on Strategic Transmission Planning

Additional submitted attachment is included below.

June 7th, 2017



California Energy Commission
Dockets Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: 2017-05-24 Lead Commissioner Workshop on Strategic Transmission Planning: Interactive Data Platforms to Support Collaborative Planning and Advanced Technologies, Docket Number 17-IEPR-13.

Chairman Weisenmiller and fellow Commissioners:

Smart Wires thanks the California Energy Commission (CEC) for arranging the May 24th, 2017 workshop on strategic transmission planning. The demonstrated its CEC understanding of the many challenges of supporting our state policy goals in a way that is environmentally sensitive while also ensuring highly reliable and affordable power. Smart Wires agrees with the CEC's view that maximizing the utilization of current transmission rights-of-way is critical to meeting these goals. As noted by the panelists, there are many technologies that help to increase the available transfer capacity of the current system, such as improved tower designs, advanced conductors, dynamic line ratings, energy storage, and Smart Wires' modular power flow control technologies.

Smart Wires technologies increase the utilization of California's transmission system and existing rights-of-way

Smart Wires' technologies can be used for these, and other, applications but essentially the technology has one elegant function: *to push and pull power around transmission constraints*. When electric transmission systems are constrained (see figure 1, top row) the traditional solution is to build new lines. The Smart Wires Guardian® technology (figure 1, middle row) and Router™ technology (figure 1, lower row) pushes or pulls power from the overloaded line, onto under-utilized parallel paths. The result is additional available transfer capability on that path and an increased utilization of California's transmission system and rights-of-way.

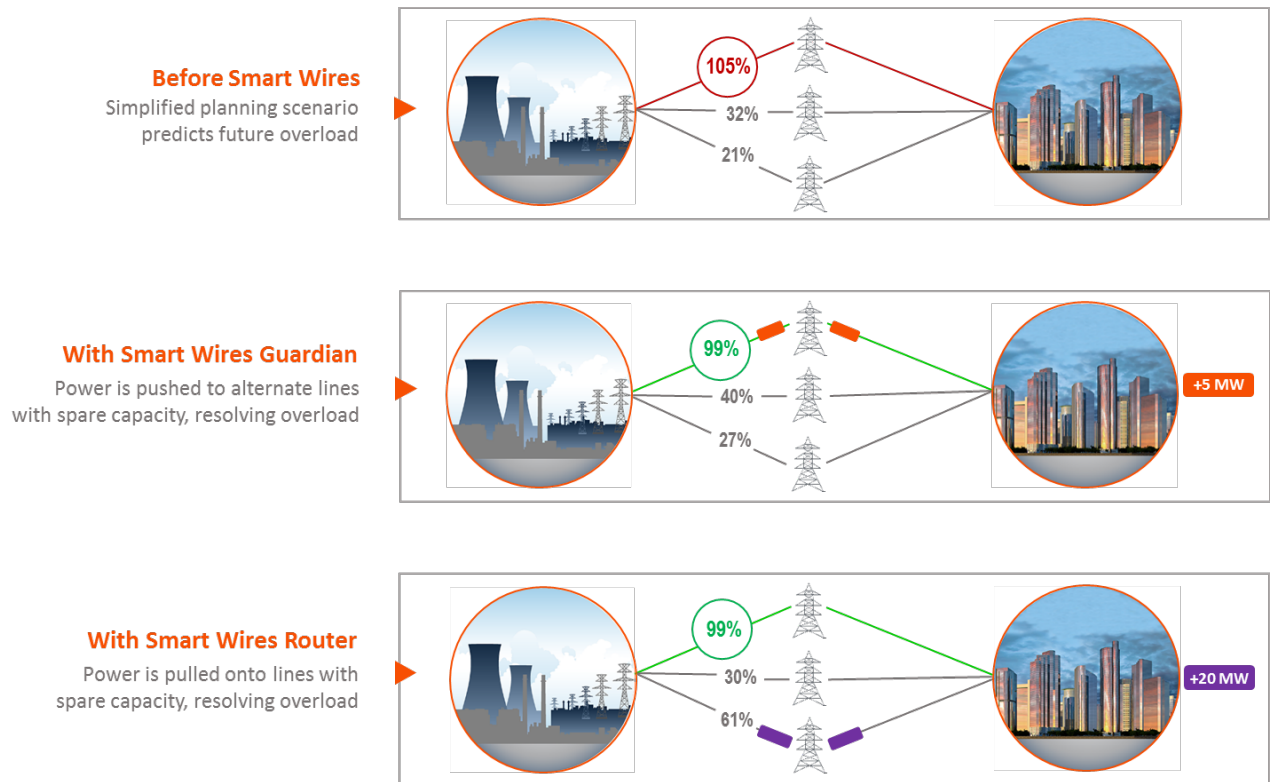


Figure 1. When electric transmission systems are constrained (see top row) the traditional solution is to build new lines. Smart Wires Guardian® technology (figure 1, middle row) and Router™ technology (lower row) pushes or pulls power from the overloaded line, onto under-utilized parallel paths. The result is additional available transfer capability on that path and an increased utilization of California’s transmission system and right-of-ways.

Pacific Gas & Electric Company and the California Independent System Operator are leaders in adopting advanced transmission technologies

Smart Wires is currently working with a number of transmission owners in California to find opportunities to address a wide range of grid challenges, including thermal overloads, economic congestion, local capacity resource requirements, renewable integration, and transfer capability increase across major transmission interfaces. That said, Pacific Gas & Electric (PG&E) and the California Independent System Operator (CAISO) are leading the way in the adoption of advanced transmission technologies such as Smart Wires. Smart Wires offers these two examples:

PG&E’s EPIC Demonstration Project

PG&E deserves great credit for their forward-thinking nature. Their representative was too humble in regards to their accomplishments, specifically regarding the success of the demonstration project using Smart Wires’ PowerLine Guardian and their continued consideration of additional applications.

“The project demonstrated that DSRs can reduce line flow and phase imbalance while maintaining high availability and reliability and minimizing impact to primary protection communications.”

Pg. 7¹

“This demonstration project shows ...that deployment of DSRs would still be significantly less costly than a traditional transmission upgrade to increase capacity in most scenarios.”

Pg. 7¹

Additionally, PG&E showed even greater innovation and environmental sensitivity by installing all of the Smart Wires devices using a helicopter. The helicopter installation eliminated the disturbance of an endangered species and other effects of bucket trucks and work boots on environmentally sensitive lands.

PG&E tested key operational measures, including availability and reliability of the units, with 99.9% and 99.99% positive results, respectively. The full PG&E report is publicly posted online¹ and is an excellent resource for anyone who would like to learn more about Smart Wires PowerLine Guardian technology.

Old Town - Mission Power Flow Control Project

Early in 2017, CAISO’s modeling showed that there are multiple N-1-1 conditions under which the Mission - Old Town and Mission - Old Town Tap lines can overload, resulting in load shedding in an urban area. These conditions are driven by multiple factors and risks, including the availability of Encina generation; the repowering of Carlsbad generation; the delay of the Suncrest SVC project; the current 30-day delay of the Sycamore – Penasquitos project; and the risk of further delay to the Sycamore – Penasquitos (SX-PQ) project. These risks were temporary; they will exist only for the month of June 2017 and any additional months until the Sycamore – Penasquitos is in service.²

It is difficult to justify using traditional, permanent investments for temporary reliability issues. CAISO recognized that the redeployable nature of Smart Wires technologies allows for a temporary issue to be addressed by a temporary solution. Smart Wires Power Guardians would have been deployed in the Old Town substation as an insurance policy against the risk of urban load shed in the case of further delay to the SX-PQ. Once SX-PQ is in service, the Smart Wires devices would be moved elsewhere to solve another reliability issue. CAISO also recognized the significant consumer savings this redeployability can afford consumers. The Smart Wires solution had similar upfront-capital costs to other alternatives, however it would be a small

¹ https://www.pge.com/pge_global/common/pdfs/about-pge/environment/what-we-are-doing/electric-program-investment-charge/PGE-EPIC-Project-1.09C.pdf

² CAISO April 25th presentation to stakeholders

http://www.caiso.com/Documents/Agenda_Presentation_Mission-OldTown_PacificDCIntertieUpgradeProjects.pdf

fraction of the alternatives' costs when the redeployment is factored in.³ CAISO was quick to recognize this value and it resonated with stakeholders.⁴

California cannot afford trivial challenges to stymie the state's electric transformation.

California is a global leader in the transformation to a clean, sustainable power system.⁵ This transformation in our electric power system is going to require new methods, new technologies, and significant changes from "business as usual" by all participants. Some of the panelists representing the investor-owned utilities focused on the challenges of adopting new technologies without highlighting the benefits new technology can unlock. Smart Wires is concerned that this may represent an aversion to change when California needs to change at an ever increasing rate. We'd encourage the commission and its stakeholders to apply more focus on best practices and successes when discussing technology adoption in future panels.

Sincerely,



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³ The upfront capital cost of Smart Wires solutions was estimated to be \$6-12M, similar to the lowest cost alternatives. However if the project is only needed for two years, the cost to consumers to solve the two year need would be only \$3-4M. The units would then be used to solve other issues on the grid.

⁴ CalWea http://www.caiso.com/Documents/CalWEAComments_Mission_OldTown_PacificDCIntertieUpgradeProjects.pdf

GridWise Alliance

http://www.caiso.com/Documents/GridWiseAllianceComments_Mission_OldTown_PacificDCIntertieUpgradeProjects.pdf

NRDC

http://www.caiso.com/Documents/NRDCComments_Mission_OldTown_PacificDCIntertieUpgradeProjects.pdf

⁵ *Exempli gratia*, **AB 1493** (Pavley, Chapter 200, Statutes of 2002); **AB 32** (Nunez, Chapter 4888, Statutes of 2006); **SB 375** (Steinberg, Chapter 728, Statutes of 2008), **SB X1-2** (Simitian, Chapter 1, Statutes of 2011), Governor's Executive Order S-3-05; Governor's Executive Order B-16-12; Governor's Executive Order B-18-12; and SB 100 (de Leon, 2017)