

DOCKETED

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Smart Wires Comments to IEPR 2016-10-24 Workshop, Draft 2016 Integrated Energy Policy Report Update

Additional submitted attachment is included below.

November 7, 2016

California Energy Commission
Docket No. 16-IEPR-01 – General/Scope
Docket Office
1516 Ninth Street
Sacramento CA 95814
Submitted Electronically via CEC website

RE: 16-IEPR-01 – IEPR 2016-10-24 Workshop, Draft 2016 Integrated Energy Policy Report Update

Dear Members of the California Energy Commission:

Smart Wires Inc. (“Smart Wires”) is a California-based grid solutions company that designs, manufactures, and delivers modular power flow control solutions for transmission systems. Smart Wires applauds the California Energy Commission’s (“Commission”) impressive work on the Draft 2016 Integrated Energy Policy Report Update (“Draft IEPR”). The annual report helps the state ensure it meets its conservation and clean energy goals, and achieve a reliable supply of electricity while protecting public health, safety, and environmental quality. Smart Wires submits these comments to enhance the Commission’s understanding of how advanced transmission technologies can help California meet its energy goals while building a smarter transmission system.

Smart Wires encourages the Commission to recognize the capabilities of advanced transmission technologies to improve the utilization of existing infrastructure over costly upgrades and new lines, in line with the Garamendi Principles.¹ There are two areas of the Environmental Performance of the Electricity Generation System chapter in which these technologies could be recognized:

- In the Draft IEPR, the Commission recognizes the impact that transmission can have on biological, cultural, and visual resources.² Smart Wires agrees with the use of landscape-scale planning and right-sizing projects as a way to mitigate these impacts.³ However, we also encourage the Commission to look at whether a proposed transmission project is needed or could be mitigated by utilizing existing infrastructure more effectively with advanced transmission technologies and other non-wires alternatives.
- The Emerging and Transformative Technologies section of the Draft IEPR⁴ recognizes changes in energy resources, but should also recognize emerging and transformative advanced transmission technologies. These technologies have the ability to improve flexibility of the

¹ SB 2431 (Garamendi, Chapter 1457, Statutes of 1988)

² Draft IEPR, pages 47-53

³ Draft IEPR, page 56

⁴ Draft IEPR, page 62

transmission system, optimize transmission investments, and mitigate the impacts of transmission projects.

Advanced transmission technologies, as discussed below, can substantially reduce the cost of meeting the State's energy goals. Including these opportunities in the Draft IEPR will continue the important discussion of how best to leverage these innovative tools.

Comment: In line with the Garamendi Principles, the Commission should recognize the ability of advanced transmission technologies to get more out of the existing grid infrastructure in landscape-scale planning and as a category of emerging and transformative technologies.

Advanced transmission technologies and non-wires alternatives, such as power flow control, distributed flexible AC transmission systems (d-FACTS), dynamic line rating, and energy storage can enable further utilization of existing infrastructure. In addition, devices that can be installed incrementally and redeployed can provide optionality in transmission investments. This optionality allows transmission owners and renewable energy developers to make a modest upgrade to the system to increase capabilities in the near-term, allowing time to know with more certainty whether and where large, longer-term upgrades are necessary and enable their implementation where needed in an orderly fashion. Benefits of these flexible grid technologies include:

- **Smarter investments through incremental investment, quick deployment, and redeployment.** Technologies such as power flow control can increase the utilization of the existing infrastructure, and are flexible in three ways that larger investments such as reconductoring and new line builds are not. They are:
 - Modular, allowing for an incremental investment strategy;
 - Quickly deployed, shortening the permitting and installation cycle from years to months; and
 - Easily removed and redeployed; given the rapidly changing utility system this flexibility can ensure the devices are always strategically placed in the system.
- **Improve integration of renewable energy and reduce curtailment cost-effectively.** Transmission upgrades using flexible grid technologies can integrate renewable energy in a timely and cost-effective manner and with the least cost to consumers. It may also reduce curtailment of renewable energy, allowing grid operators to more effectively use low-carbon sources of energy.
- **Reduce the environmental impact of transmission investments.** Flexible grid technologies can reduce the need for investments with relatively high environmental impact such as new line construction, upgrading facilities to higher operating voltages, and reconductoring. Many flexible grid technologies can be installed with little to no environmental impact. For example, Smart Wires recently completed a helicopter installation of its PowerLine Guardian® in California, allowing for installation without disturbing an environmentally sensitive area.

Newer tools such as modular power flow control can, among other things, help improve infrastructure utilization, reduce network congestion, ease the integration of renewable energy resources into the transmission system, and reduce curtailment of renewable energy. These types of flexible grid

technologies should be used by the Commission as an integral component in meeting renewable energy goals while mitigating environmental impacts in a cost-effective manner.

Conclusion

We appreciate the opportunity to participate in and submit comments to the IEPR process. Thank you for your consideration.

Sincerely,

Todd Ryan

A handwritten signature in black ink, appearing to read 'T. Ryan', with a stylized flourish at the end.

Todd Ryan, Ph.D. | Director of Regulatory Affairs

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Smart Wires Inc.

About Smart Wires

Based in the San Francisco Bay Area, with offices in the United States, United Kingdom, Ireland and Australia, Smart Wires is the leader in grid optimization solutions that leverage its patented modular power flow control technology. Driven by a world-class leadership team with extensive experience delivering innovative solutions, Smart Wires partners with utilities globally to address the unique challenges of the rapidly evolving electric system. Smart Wires technology was developed by utilities for utilities, led by a consortium of large US utilities at the National Electric Energy Testing Research and Applications Center (NEETRAC). This core group of utilities, which included Southern Company, the Tennessee Valley Authority (TVA), Baltimore Gas and Electric Co. (BG&E) and the National Rural Electric Cooperative Association (NRECA), defined the vision for the original modular power flow control solution. Smart Wires has since expanded its partnerships and deployments to utilities in California, New York, Minnesota, Ireland, and Australia. Today, the technology is rapidly becoming part of the utility tool kit as more and more electric utilities explore new ways to alleviate congestion, improve network utilization, manage changing generation profiles and maintain reliable electric service.

Smart Wires' technology is used to mitigate transmission challenges, such as network congestion, at a time when increasing the capabilities of the current grid is essential. Smart Wires is a modular advanced power flow control solution that enables control of the power through each power line, directing flows away from lines that are heavily loaded and onto lines with spare capacity. By turning the lines themselves into dispatchable assets that can be dialed up or down like a power plant, grid operators can transfer much more power using the existing infrastructure they already have. In addition, power flow control allows grid operators to spread the variability across a wide area. By adding Smart Wires strategically to their grids, grid owners and operators can dramatically lower the investment required to accommodate a much higher penetration of renewable energy.