

2017-2018 Transmission Planning Process

Submitted by	Company	Date Submitted
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Comments on Stakeholder Web Conference of April 25, 2017 on Mission – Old Town Flow Control Upgrade Project

Smart Wires appreciates CAISO’s efforts to investigate and expedite approval of San Diego Gas & Electric’s proposed Old Town to Mission project. We believe this project is a low-cost, innovative insurance policy to protect against load shedding in San Diego. Smart Wires would like to voice our support for the expedited approval of the Old Town to Mission Flow Control Project.

Multiple risks contribute to the identified reliability need that must be addressed

CAISO’s modeling shows 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 after these N-1-1 contingencies and, in some cases after, the first N-1. 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 project. The CAISO’s recommendation will allow SDG&E to avoid planned load shedding after N-1-1 contingencies and, in some cases, after the first N-1, thus avoiding non-compliance with NERC Standard TPL-001-4.¹

Expedited approval is needed

This project is extremely time sensitive and cannot be addressed in the normal timeline of the 2017-2018 TPP. Delaying this project by even a month will unnecessarily expose San Diego residents to further risk of potential blackouts.

This is a short-term problem that needs a short-term solution

Most transmission investments are permanent. For example, if one reconductors a line, that conductor is expected to be there for 40 years or more. This has not been an issue for the last century because, up until recently, the reliability issues on the grid have been primarily 40 year problems. This is no longer the case. Across the country, there is a growing uncertainty in transmission planning stemming from uncertainty in load growth (net of behind the meter resources), uncertainty in thermal retirements, and uncertainty in thermal and renewable

¹ <http://www.nerc.com/files/tpl-004-1.pdf>

generation additions. The net effect of all this uncertainty is an increasing number of short-duration reliability issues: reliability needs that last for fewer than five years. These short-term needs make it difficult to justify a 40 year fixed solution to solve a 5 year need. Consumers should not have to pay for a permanent solution when the problem is short-term. Smart Wires solutions are redeployable, meaning that the devices can be relocated after the short-term need has ended. Said another way: Smart Wires solutions can solve multiple problems over their lifetime, saving costs for California consumers.

Smart Wires is the right solution for this problem

The Smart Wires solution is the right solution for this problem. This problem requires that a solution have four key criteria: i) meet the in-service date; ii) resolve the overload; iii) be highly redeployable; and iv) minimize the cost to consumers. The table below is our assessment of each of the potential solutions based on those four criteria. The table shows that no other technology can meet this aggressive in-service date, can be scaled to provide a right-sized solution, is highly redeployable, and can provide as much value to consumers.²

Comparison of Potential Technologies				
	<i>Reconductoring</i>	<i>PST³</i>	<i>Series Reactor</i>	<i>Smart Wires</i>
<i>Can Meet In-Service Date</i>	No	No	No	Yes
<i>Resolve Overloads</i>	Yes	Yes	Yes	Yes
<i>Highly Redeployable</i>	No	No	No	Yes
<i>Cost For a 2 year Need</i>	\$20-30M ⁴	\$8-10M ⁴	\$8-10M ⁴	\$2-4M ⁵

² See slide 21 of the April 25th presentation to CAISO stakeholders for a discussion of the alternatives. http://www.caiso.com/Documents/Agenda_Presentation_Mission-OldTown_PacificDCIntertieUpgradeProjects.pdf

³ PST stands for Phase-Shifting Transformer

⁴ The solutions are assumed to be permanent solutions and have upfront capital costs as presented in the April 25th stakeholder meeting. See *supra* note 2. The reconductoring and Smart Wires costs shown are full project cost; SDG&E noted in the stakeholder call that the PST and Series Reactor costs were based on equipment cost estimates only.

⁵ This is based on Smart Wires estimates of a 5 Ohm solution that has an upfront capital cost of \$6-10M and is redeployed after two years.

This project represents a new method of investing in our transmission infrastructure.

John Jontry of San Diego Gas & Electric put it well when he said “*We’re kind of breaking new ground here because it’s a new way of looking at utility infrastructure.*”⁶ The CAISO and San Diego Gas & Electric are innovating new ways of investing in our transmission infrastructure and challenging the fundamental assumption that infrastructure needs to be large, lumpy, high cost, permanent, and require many years to build. This project demonstrates that we, as Californians, can invest in our transmission infrastructure in ways that are scalable, quickly deployable and redeployable, and that significantly saves consumers money.

The implications of this project go far beyond this one project.

We consider this deployment to be quite valuable not only for SDG&E, but for all of California. Putting Smart Wires firmly in the toolkit of SDG&E allows them to respond to unexpected changes in flows quickly and complete future installations of Smart Wires in a fraction of the time, leveraging their learnings from this first project. This experience will also be helpful to all California utilities, who will be invited to watch and learn from this deployment, so that they are better prepared for the next grid emergency with a rapidly deployable, easily redeployable tool for creating more capacity on our grids.

Conclusion: This is a cost-effective insurance policy against dropping load and violating NERC criteria.

CAISO has concluded that this project is a low-cost insurance policy against dropping load in the city of San Diego and Smart Wires agrees with this assessment. If any of the possible risks come to fruition, the Smart Wires solution will eliminate the risk of load shedding in San Diego for the conditions studied and avoid potential non-compliance with NERC Standard. All this is achieved at a cost much lower than any other solution. When the need no longer exists, these devices can be relocated to a new line where they can continue to be useful. The result is a no-regrets investment for Californians.

Sincerely,



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⁶ April 25th CAISO stakeholder meeting and quoted in the April 25th article of RTO Insider *CAISO Considers Fast-track Approval for Two Transmission Projects*, <https://www.rtoinsider.com/caiso-pacific-dc-intertie-42097/>

About Smart Wires

Based on the San Francisco Bay Area, with offices in the United States, the United Kingdom, Ireland and Australia, Smart Wires is the leader in grid optimization solutions that leverage its patented modular power flow control technology. Smart Wires solutions are quickly deployable, enabling utilities to react quickly and address emergency problems. This flexible technology is also easily re-deployable, providing a robust investment to solve short duration need windows and hedge against the uncertain nature of their systems' future needs. Driven by a world-class leadership team with extensive experience delivering innovative solutions, Smart Wires partners with utilities around the globe 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 U.S. utilities at the National Electric Energy Testing Research and Applications Center (NEETRAC). This core group of utilities, which included Southern Company and Tennessee Valley Authority (TVA), defined the vision for the original modular power flow control solution. Today, PG&E, EirGrid (Ireland), Minnesota Power, RTE (France), and TransGrid (Australia) are some of the utilities leveraging Smart Wires power flow control solutions.

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