



Overseer's Undercurrent: Crossing Wires

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Whenever a major energy facility is proposed, the first response within an affected community is "We don't need it!"

If it's a power plant, there are local opponents who say that the energy should be imported from somewhere else or that energy efficiency would be enough to avoid the project. If it's a transmission line, people will almost always object to the proposed route and say that local generation would be better. If towers are involved, the lines should be put underground. And if you can see the project at all, well, it shouldn't be built.

And yet, often efficiency isn't enough because cities keep growing and energy consumers keep consuming in bigger and bigger doses. And while smaller-scale localized generation sources and substation upgrades ought to be among the first options of utility-system modernization, there are times when a long-distance, high-voltage transmission line becomes the best option for resolving grid reliability problems, reaching preferred resources, or even achieving cost-effectiveness.

From the point of view of San Diego Gas & Electric and the California Independent System Operator, such is the case with the proposed Sunrise Powerlink (also called the Sun Path project).

First of all, they say, there's really not an either/or situation - both new power plants and transmission lines are needed, even with all of the conservation programs that can be feasibly put into play. It's because population and associated energy demand just keep expanding and local reliability keeps deteriorating.

Given the choice between localized generation and distant resources, the answer again is "all of the above." San Diego is already an energy cul-de-sac, the utility argues; turning it into an island would limit access to resources that are more diverse and possibly less expensive in the long run, including renewable energy. And while it might be nice to have solar photovoltaic systems on every rooftop and wind turbines on the hills and in the harbors, utility analysts say it would cost ten times the cost of Sunrise to get the same 1,000 MW of capacity that the line would deliver - and then you start subtracting from the energy and reliability value because of modest energy factors and variable output levels.

When the utility and grid operator assess the Sunrise Powerlink, they tout three issues: economics compared with the existing system or various alternatives, the potential benefits of improved system reliability, and - this is a relatively new but crucial factor - the ability to reach distant regions better suited for the location of solar power or geothermal energy needed to meet the state's 20 percent (maybe someday 33 percent) renewables portfolio standard.

But all this still has not convinced many people that the Sunrise line is either needed or the preferred option.

As I mentioned at the tail of last week's column, ratepayer advocate Michael Shames called the case for all three points "remarkably weak."

Here's his reasoning as laid out in an e-mail that offered his take on some of my questions. I've edited it down, spelled out acronyms, and smoothed out the sentence structure for space - and because that's what I do for a living.

I'm certain SDG&E would like to have a chance at rebuttal, but for right now that will be played out in filings at the CPUC as intervenors delve into the most recent economic analysis of the project and its alternatives, filed on January 26 and referred to last week.

Q. Is Sunrise needed to deliver renewables?

No. SDG&E concedes as much in numerous places in its testimony and data responses. The existing Imperial Irrigation District loads, 230 kV lines to Southern California Edison, and 500 kV lines between Arizona and San Diego, are enough, with planned internal IID upgrades, to deliver all existing renewable generation in the Imperial Valley plus another 2,700 MW. Sunrise is already unnecessary to deliver any credible level of future renewable energy development and will be even more superfluous if the Green Path North project is built as planned by the Los Angeles Department of Water & Power.

Q. Is Sunrise needed to meet SDG&E reliability requirements?

No. SDG&E needs 473 MW of new generation or transmission resources to defer further reliability needs until 2016. Those 473 MW can also be obtained from 3,000 MW to 3,600 MW of alternatives that are going to happen anyway or would be cheaper than Sunrise:

• 250 MW of SDG&E-planned combustion turbine units by 2008.

• 230 MW to 242 MW of demand-response programs included in SDG&E's long-term power plan but not in its Sunrise analyses; these would include automated metering.

• 233 MW from redefining SDG&E's major reliability contingency as Encina 5 rather than a loss of both CTs and either of the Otay Mesa or Palomar power plants.

- Up to 300 MW from the existing Intergen CTs at the La Rosita plant in Mexicali.
- 200 MW to 500 MW from rerating and/or upgrading Path 44 between the San Onofre nuclear station and San Diego.

• 561 MW from the planned South Bay replacement project (or up to 702 MW from keeping some or all of the South Bay 1-4 units in service).

• 400 MW from planned additions at the Encina power plant.

• 1,000 MW from the proposed Lake Elsinore pumped-storage project transmission line.

Q. Is Sunrise economic (will it reduce CAISO ratepayer costs)?

Conceivably, but not based on the evidence to date. SDG&E has overcounted benefits by including the Sacramento Municipal Utility District within CAISO, excluding Arizona natural gas taxes from its analysis, understating load growth east of California, overstating resource additions east of California, understating generation and transmission additions within California, and overstating inflation in the 2030s.

Moreover, it has understated Sunrise's return on equity (11.25 percent in its CPUC filings versus 14 percent requested in its December 11, 2006, FERC filing), understated operation and maintenance costs (0.8 percent per year of capital cost in 2011 versus 2.57 to 3.3 percent in recent historical data), omitted reserve adequacy costs associated with increased imports if Sunrise is built, and apparently omitted administrative costs.

It also appears to have overstated the costs of new generation alternatives to Sunrise by overstating the capacity of alternatives required and assuming that new generation alternatives will charge ratepayers their cost of service for their capital, plus a market price for their energy, plus a locational value. Thus, SDG&E has overstated the benefit-to-cost ratio for Sunrise and understated the ratio for generation alternatives, while ignoring transmission and demand-response alternatives completely.

Aside from those deficiencies, it might arguably be economic. However, our preliminary take is that it won't be close to economic compared to a combined-cycle power plant. Interestingly, SDG&E will only compare Sunrise to CTs - for the obvious reason.

Q. Can Sunrise be economic by 2020 and thereafter?

Perhaps. But SDG&E concedes that it isn't economic in 2010 and only marginally in 2015. Thus, its most recent January 26 revision to its numbers relies heavily on the 2020 forecast to prove a positive cost-to-benefit ratio.

Here's one that I neglected to ask:

Q. Will the project pass muster with the CPUC?

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