



IRWA's 2012 Project of the Year **SUNRISE POWERLINK**

California's New Superhighway of Electricity

BY BARBARA BILLITZER

This past June, San Diego Gas & Electric Company (SDG&E) put into service the Sunrise Powerlink, a 500,000-volt transmission line linking San Diego to California's Imperial Valley, one of the most renewable-rich regions in the state. The 117-mile electric transmission line will deliver 1,000 megawatts of clean, reliable energy, enough to power 650,000 homes and businesses in San Diego.

The completion of the Sunrise Powerlink project couldn't have come at a more critical time. With the San Onofre Nuclear Generating Station offline for repairs since the beginning of the year, Southern California's transmission grid was facing serious reliability issues. A prolonged shutdown of the San Onofre Station had the potential to cause customer outages during the lingering heat waves expected over the summer months.



Experts had identified the Imperial Valley/Northern Baja California regions as having huge renewable energy potential, and studies conducted by California's Renewable Energy Transmission Initiative validated the region's ability to produce solar, geothermal and wind power. Sunrise was specifically designed to import these vast sources of renewable energy to accommodate peak demands and ensure reliability benefits for the region.

The construction of Sunrise was also crucial to SDG&E's ability to satisfy a 2002 California mandate that at least 20 percent of the company's power come from renewable sources. In 2008, SDG&E voluntarily agreed to acquire 33 percent of its power from renewable energy, and over time, this amount became state law.

Although the project is officially in operation, it was initially considered to be one of the most controversial projects in California. The nearly \$1.9 billion project endured a rigorous, five-year environmental review and permitting process and more than 75 public hearings. SDG&E adhered to more than 320 environmental mitigation and conservation measures and permit conditions that were ultimately required as a result of an 11,000 page Environmental Impact Report/Statement.

Comprehensive Study and Regulatory Reviews

When the Sunrise Powerlink was first conceived, it underwent what is considered to be the most comprehensive study of a proposed transmission power line in state history. Because SDG&E is an investor-owned utility in California, it is regulated by the California Public Utilities Commission (CPUC), the state agency authorized to issue the final license for public utility transmission projects and the lead agency for California Environmental Quality Act compliance. Since the bulk of the project alignment would ultimately cross lands under the control of the U.S. Bureau of Land Management (BLM) and the U.S. Forest Service, the BLM served as the federal lead agency under the National Environmental Policy Act. Because the project necessitated a collaborative effort between SDG&E and a number of state and federal agencies, it was subject to an extensive regulatory review.

SDG&E initially proposed to build the Sunrise Powerlink along a northern alignment and focused its efforts on this route for the first several years of the project. This alignment was located in the more northern portion of Imperial and San Diego counties, as opposed to the final southern route that was ultimately approved by the CPUC and then constructed. Additionally, through the environmental review process, the CPUC considered approximately 100 alternative route or route segments. This significant change in the location of the route and the timing of this shift contributed to the resulting compressed project schedule.

The land team supported the project from its inception and ensured property access for the initial studies of the various route alternatives. Lynn Trexel, Principal Right of Way Agent for the Sunrise Powerlink, was part of the initial core project team



At the dedication ceremony at SDG&E's new Suncrest Substation in July, California Governor Jerry Brown praised the project for its creation of clean energy and new jobs.

that was formed in 2005 and tasked with obtaining project approvals. During the land rights acquisition phase, her team acquired land rights from nine various federal, state and local agencies. “Throughout the project we were reminded of just how important relationships are to the success of any project,” said Lynn. “We worked hard to develop our agency and property owner relationships based on open communications and a foundation of trust.”

Building the Team

“A core team needs to be assembled at the very beginning stage of a major project and remain with the project until it’s finished,” noted Gerry Akin, Sunrise Powerlink’s Project Manager for the overhead segment that spanned 111 miles. “We recognized that the project would require expertise in permitting, project management, land rights acquisition, construction and environmental compliance.”

A representative from each key area was assigned to the team, including land, environmental, engineering, construction, legal, regulatory and public affairs, with support from various contractors. Over time, the team evolved in structure and composition to meet the needs of each stage of the project. During the most active phases of the project, there were three different sub-project teams, including one for the overhead sections, one for the underground section and one for the substation. With the sheer size and composition of the various teams, a tremendous amount of coordination and communication was needed, particularly during construction.

Prior to the acquisition phase, an in-house team of land agents was assembled, augmented by right of way contractors, most of whom were former SDG&E employees. Of the company’s twelve staff right of way agents, seven were assigned full-time



Roughly six miles had to be built beneath Alpine Boulevard, the main county road, so SDG&E constructed streetscape improvements to mitigate the inconvenience to the community.

to Sunrise, and four seasoned contract agents were brought on board. Since the utility would be a long-term fixture in the community, it was vital that SDG&E establish good relationships with property owners early in the process.

SDG&E used the land surveying services from five separate contractors. Two of the firms supported the land rights acquisition process, while the other three focused on project engineering and construction. SDG&E’s in-house survey contract administrator, also a licensed surveyor, provided invaluable assistance in interpreting drawings and legal descriptions, as well as coordinating with the various contractors.

Looking back, Gerry noted, “The project succeeded because everyone on the team eagerly stepped up and took responsibility to get things done. If the initial efforts were stalled or blocked by events or factors outside our control, the team quickly identified and pursued alternatives.”

Community Opposition

Early on, SDG&E partnered with the community and openly communicated information about the route selection and alternatives analysis. However, the landowners who would be impacted initially saw no near-term benefit from a line connecting the desert with the greater San Diego region. They voiced their concerns about the line’s effect on property values and appraisals being conducted in a down market, fearing that lower payments for property rights would result.

In response, the land agents participated in many public outreach meetings in those communities most affected by the project. Handouts that outlined owners’ rights and the property acquisition process were disseminated, and the agents took time to listen and respond to the owners’ specific concerns. The agents also made sure to explain the legal mandate to disregard project influence in valuations, even if it required analyzing market data and sales in areas distant from the project. In some instances, agents were able to facilitate adjustments in the alignment that lessened the impact to certain properties.

Despite conducting extensive outreach efforts, the project was still opposed by many in San Diego County. As with other newly proposed infrastructure, the opponents objected to the potential direct and indirect impacts on back-country wildlife, vistas and tribal cultural sites. Several intervenor and volunteer grassroots groups were formed to try and stop the project. The anti-project sentiment was further heightened by the publicity generated by the U.S. Supreme Court’s Kelo decision, which spawned more owner-friendly eminent domain legislation and restrictions on condemning agencies.

Evolving the Design

However, it is not unusual for a route that spans 117 miles and passes through two counties to be plagued by design changes. Some of the environmental mitigation measures required for the project were not clearly understood up-front, making it difficult to identify the best way to implement them. This caused a significant number of design changes along the way, which ultimately triggered various right of way and appraisal revisions. In turn, the land team needed more time to explain the changes to the property owners.

The agents worked collaboratively with design and environmental personnel to minimize or eliminate changes, stressing the economic consequence and the negative impact to the project schedule in having to make right of way and appraisal revisions. However, many of the design changes were unavoidable. For those owners where negotiations reached an impasse, the design changes further hampered the ability to commence eminent domain proceedings in a timely manner.

A portion of the segment needed to pass through the downtown business district of Alpine, CA, a town just east of San Diego. Roughly six miles had to be built beneath Alpine Boulevard, the main county road, and construction was estimated to take about 15 months. In mitigating the inconvenience to the community, SDG&E agreed to construct streetscape improvements in the form of curbs, gutters, sidewalks and a rubberized asphalt curb-to-curb surface, in addition to undergrounding the overhead electric distribution facilities in much of the area.

Environmental Impacts

The environmental impact statement/report was by far the largest in California history. SDG&E implemented more than 320 environmental-mitigation and conservation measures and permit conditions, which required almost 1,000 separate tasks, including protections for ten special-status species. Some of the requirements created unprecedented challenges for the construction team, such as vegetation clearing limitations, bird nests impacting construction and no-fly zones, narrow flight corridors and extensive storm water pollution prevention plans.

For example, construction within an eagle nesting area was required to be scheduled with pinpoint precision. Safeguarded by the Bald and Golden Eagle Protection Act, the golden eagle faces threats ranging from loss of foraging and nesting areas to pesticide poisoning and collisions with manmade structures. To protect the golden eagles, a 4,000-foot land and air buffer zone was instituted around the eagle nesting areas for the six-month period that roughly coincides with eagle reproduction.



For environmental reasons, nearly 75 percent of the construction was performed by helicopters, and the project logged more than 30,000 flight hours.

All work within the eagle buffer zones needed to be completed before a mandated cutoff date, forcing construction and helicopter crews to work at breakneck speed to complete four key sections before the onset of the eagle nesting season.

In preparation for the Sunrise project, SDG&E trained more than 400 environmental professionals from eleven different companies to monitor air quality, fire safety, and biological, cultural and visual impacts. Pam Fair, SDG&E's Vice President of Environmental and Support Services explained, "For major construction projects, we recognize that effective management of land rights and environmental requirements is critical, especially since the laws impacting these areas have become increasingly complex over time. Our land, environmental and legal teams were instrumental in achieving successful outcomes, and their ability to work with property owners and other key stakeholders demonstrated an outstanding team effort."



Two of the company's eight renewable contracts under construction are Pattern's Ocotillo Wind project and Tenaska's CSolar South solar project, both located in California's Imperial County.

Landowner Relations

During the initial project scoping phase, it was estimated that condemnation would likely be unavoidable for a significant number of private property ownerships, primarily due to project opposition, chronic nimbysism and what the land agents thought was a very optimistic schedule. The agents understood that their primary objective was to acquire property rights in a timely manner, preferably without using their statutory right of eminent domain.

Of the total project alignment, roughly 69 miles are located on federal lands, seven miles on state and local agency lands and 30 miles on private property. SDG&E was only able to utilize its existing right of way and a franchise agreement for 11 miles. The acquisition of land rights from 79 private land owners and nine agencies on a compressed project schedule complicated the acquisition timeline and approval process.

According to Jon Taylor, SR/WA, the project's Land Services Manager, "We began our negotiations making offers based on independent appraisals, and we listened to the landowners' concerns. Yet, because so many of the landowners felt there was no direct benefit from the project, many of them opposed our efforts. We were often rebuffed or faced with unreasonable demands, leaving us no alternative but to file condemnation. In working closely with our legal team, we were able to resolve, through negotiations and mediation, all but one of the cases filed."

SDG&E's in-house legal team and outside counsel were key contributors to the project's success. "As in-house counsel, it was my responsibility to provide legal direction on right of way and property acquisition issues," said C. Larry Davis, SDG&E's Assistant General Counsel. "This began during the CPUC licensing phase, continued with obtaining pre-condemnation access through the courts for conducting environmental review for California Environmental Quality Act compliance, to ultimately overseeing the acquisitions through condemnation. With a project of this magnitude, our team's biggest challenge was in coordinating the filing of eminent domain cases and obtaining orders for possession

with the construction schedule." Landowner negotiations resulted in the condemnation of half of the number of cases originally projected and many filings occurred for reasons other than compensation.

According to Peter McMorris, SR/WA, R/W-NAC, Principal Right of Way Agent for the Sunrise Powerlink, "Winning the trust of property owners was one of the land team's greatest challenges. It required overcoming project resentment, doubts about fairness of compensation and cynicism regarding the company's objectives and motives." All in all, a familiar challenge facing many of today's right of way professionals.

"The team's ability to manage those factors over which they had little or no control really made a difference," said Peter. "From design changes to mitigation requirements to issues raised by owners and their legal counsel, I commend the project team for their thorough preparation, follow-up and empathy, all of which helped them to effectively work through a range of diverse acquisition and valuation challenges."



By reviewing land survey data, project mapping and property ownership, the land team was able to confirm the most feasible routes and land rights required. From left, Land Surveyor Pete Tkachuk, PLS and Right of Way Agents Fred Clark, SR/WA, Lisa Murphy, SR/WA and Paul Nussbaum, SR/WA.

Although the negotiations were ever-challenging, Sunrise's land acquisition efforts resulted in the development of many positive relationships with property owners and agencies. One example of poignant relationship-building involved a property owner in El Centro, CA. Greg Mayo, SR/WA, one of the project's right of way agents, not only acquired an easement but through the process acquired a new "mom."

The landowner's husband had bought their desert property decades ago before they were married, and she had only been there one time many years ago. Greg went above and beyond what was normally required to make sure she clearly understood all of the detailed information. He even picked her up from her home and drove her to the property, stopping for lunch along the way. She was thrilled to see it again. They developed quite a rapport that day and in the months that followed, she got to know Greg even better. As a result, she began treating Greg like her own son, sending him and his family cards for their birthdays. In one card she wrote, "My dear son Greg, I thank the Lord so much for giving me another son. God bless you and your whole family always."

Renewable Energy Potential

Upon its completion, the Sunrise Powerlink was turned over to the California Independent System Operator, the state's transmission grid operator. Now providing increased reliability to the region, the line will soon deliver a significant amount of wind and solar power.

Over the past three years, SDG&E has signed eight renewable contracts for more than 1,000 megawatts of solar and wind energy in Imperial County to be transmitted across the transmission line. While the eight projects all have different permitting and construction timelines, two projects, Pattern Energy's Ocotillo Express Wind project and Tenaska's CSolar South solar project, are currently under construction in Imperial County. SDG&E has also signed other renewable contracts for projects in eastern San Diego County, which are made possible by the additional capacity created by the Sunrise Powerlink.

The area of east San Diego County, along with neighboring Imperial County and Northern Baja California, has a potential aggregate generating capacity of roughly 6,870 megawatts for solar energy, 3,495 megawatts for wind power and 2,000 megawatts for geothermal energy. Together, these renewable resources could potentially produce enough electricity to power eight million homes. This will help meet several state and federal policies and mandates for the increased use of green energy, including President Obama's New Energy for America Plan, which seeks to ensure that 25 percent of the country's electricity comes from renewable sources by 2025. Roughly \$6.5 billion included in the American Recovery and Reinvestment Act is intended to provide tax relief and other incentives to develop the infrastructure necessary to move renewable energy from rural production areas to urban markets.



SDG&E's President and COO Michael Niggli and Pam Fair, SDG&E's Vice President of Environmental and Support Services.

A Sense of Pride

Constructing the 117-mile transmission line took 18 months of construction and more than 4.7 million work hours. To put things into perspective, this is the equivalent of 2,260 people working 40 hours a week for an entire year. During construction, the project team endured months of overhead and underground construction through rough, remote terrain.

"As we compressed the construction timeline from 24 months to just 18 months, completing the project on budget and on schedule is a true testament to our employees," said Patrick Lee, Sunrise Powerlink's Vice President of Design and Construction. "The land agents worked proactively to match the priorities of project construction with appraisal assignments, acquisition and commencement of eminent domain proceedings. I am proud of their diligence, dedication and commitment to safety, while at the same time complying with hundreds of environmental mitigation measures that were required."

During the dedication ceremony, Michael R. Niggli, President and Chief Operating Officer of SDG&E said, "We faced significant challenges in constructing this project which will enable clean, renewable energy to be transported from the desert to urban coastal communities of southern California. Due to the team's outstanding efforts, we were able to ensure that the Sunrise Powerlink was put into service just in time to meet energy shortfalls due to San Onofre Nuclear Generating Station being offline and the summertime's high power demands. Our employees came through when it was critical to the community, and everyone who worked on the project feels a sense of pride and accomplishment in its completion."