

Overhead or Underground: What's in the best interest of California businesses?

Projects such as the Tehachapi Renewable Transmission Project (TRTP) are important because they assist in providing businesses with reliable power, while facilitating California's ambitious goal to increase the amount of renewable energy provided by public utilities to 33 percent by the year 2020. This goal requires expedited transmission line construction over the next seven years, in an effort to import renewable power from wide-spread locations, where it is already available or where it can be easily produced.

As illustrated by the originally approved plan for the TRTP section through Chino Hills, overhead construction in existing utility corridors provides for the most cost-effective and environmentally responsible way of achieving the state's energy goals, while meeting the business needs of our customers through reliable, affordable energy. As the California Public Utilities Commission (CPUC) is considering undergrounding this 3.5-mile portion of the TRTP, it is important that business owners understand what the ramifications of undergrounding this portion may be if the precedent is set with Chino Hills.

Why Overhead?

Virtually all 230 kilovolt(kV) and above high-voltage electrical transmission lines constructed are proposed as overhead infrastructure for three general reasons: cost, reliability, and environmental considerations. SCE's preference for placing high voltage transmission lines on overhead structures is rooted in our responsibility to safely provide customers with the most affordable, reliable power possible.

Underground construction has occurred nationally for lower voltage lines that power homes and businesses –typically, lines 33 kV and below. In rare instances, short portions of 115 kV, 230 kV, and 345kV lines have been constructed underground. However, 500+ kV underground transmission line construction has not been attempted to date, in the United States, and is extremely uncommon worldwide; primarily due to concerns of increased cost and maintenance.

Affordability

With safety, reliability, and affordability in mind, undergrounding transmission lines can cost up to 50 times more than an equivalent overhead line. For example; in Chino Hills, the cost of the approved 3.5-mile overhead project is about \$20 million, whereas undergrounding the same stretch, at the same capacity, would cost an estimated \$700 million. Those costs are passed along to all customers across California through their monthly electric bills.

Reliability

While 500 kV overhead lines can be repaired in a matter of hours or days when a problem arises, the average restoration time on an underground line of the same size can potentially be weeks or months. Often there is additional construction needed with underground facilities to unearth, repair, and replace the specialized equipment for the line.

Environmental Concerns

In proposing a transmission solution to the CPUC, SCE looks first and foremost to the path of least impact, identifying all possible routes that follow existing utility corridors, taking into consideration land use and environmental features. Once a route is selected, SCE conducts numerous community outreach efforts, in order to identify concerns, questions, and suggestions which serve to minimize the overall impact. Ultimately, the CPUC conducts formal reviews on all utility-proposed solutions and evaluates public comments to determine the best course of action.

In the case of the Chino Hills portion of the TRTP, seven routes (including an underground option), were originally considered. The CPUC approved the current overhead option because it utilized existing utility corridors and had the least environmental impact. Undergrounding the 3.5-mile portion through Chino Hills would require two transition stations—up to three acres a piece in size. It would also require a four-acre expansion of the existing Mira Loma Substation in Ontario. The following simulations illustrate potential impacts of the transition stations.



KOP 2 - Simulated view looking south-southeast from the hillside above the service road at the end of Avenida Compadres toward the completed Segment 8 of the approved TRTP. Note: View shown in KOP 2 is a composite view consisting of two photographs.

KOP 2 - Simulated view looking south-southeast from the hillside above the service road at the end of Avenida Compadres toward the proposed Western Transition Station. Note: View shown in KOP 2 is a composite view consisting of two photographs.

SOUTHERN CALIFORNIA EDISON
POWER BULLETIN



BEFORE

KOP 2 - Simulated view looking southeast from Pipeline Avenue toward the completed Segment 8 of the approved TRTP



AFTER

KOP 2 - Simulated view looking southeast from Pipeline Avenue toward the proposed Eastern Transition Station.

The following map shows the proposed corridor for the entire Tehachapi Renewable Transmission Project, and identifies the 3.5-mile portion through Chino Hills which the CPUC is considering to place underground.



If approved by the California Public Utility Commission, the costs associated with this 3.5-mile undergrounding effort will be passed along to all California electric utility customers. Furthermore, a precedent can be set for undergrounding future transmission lines of this size, leading to further increased costs to all ratepayers.

CUSTOMER FOCUS

The William S. Hart School District Gets an A in Energy Management with SCE's Summer Discount Plan

"When we started focusing on energy management here about six years ago," says Bob Weber, Energy Manager for the William S. Hart School District, "we didn't have any real benchmarks for what a school should spend on electricity. We were estimating. It was a surprise when we spent \$91,000 for electricity in just one high school in a single summer month. The next year, same month, we spent \$20,000 less. The savings are there if you look for them."

Located in the Santa Clarita Valley, the District serves one of the fastest-growing communities in California with over 23,000 students in the six comprehensive high schools, a continuation school, one independent study school, six junior high schools and an adult school. Excellence in education is a hallmark of the Hart District, and sound energy management supports that mission. Bob's most recent success comes from applying Southern California Edison's (SCE) Summer Discount Plan (SDP).

Savings Without Sacrifice on the SDP

SCE's Commercial Summer Discount Plan saves money on electric bills and helps conserve energy. The plan works during the peak energy season from the first Sunday in June to the first Sunday in October, when rates are highest. At no charge to you, SCE provides and installs a "cycling" device on your air conditioner(s). Activated when needed by a remote radio signal, it allows SCE to turn off, or "cycle", the compressor temporarily while leaving the fans running. In exchange, you receive a credit on your summer season electric bills. You decide how much credit you receive by the program and the amount of cycling you select.

"We tested SDP with two schools," Bob explains. "Our summer school schedule is four days per week, and the school hours start and end early, before the hottest part of the day. That made us a natural fit for the SDP. By the time of day when electricity costs are highest, we can power down without any compromise to student comfort. One season's savings convinced us to commit the whole District. SCE called only a couple of cycling events, but our participation in the program earned us a substantial savings – we saved more than \$100,000, and it took just a little coordination between our SCE account rep, the SDP program manager, and us."

Win-Win Savings with SDP

A story from the local paper on Bob's wall headlined, "Energy Manager Saves \$1 million." "It's out of date," Bob says. "The total savings through sound energy management at the Hart District stands at nearly \$3 million, and it's still climbing." Needless to say, the taxpayers are pleased. "The process isn't without hitches," Bob says. "Some parents were concerned that SDP would compromise the comfort of the students in class. When we showed them the costs of running these buildings, the timing we use for SDP, and the savings we get, they became our biggest community advocates. That money can be applied to teacher salaries, to supplies, to educational programs – all better investments to make than overspending on electricity. It's win-win for all of us, the students, the District, and the taxpayers."

After five years of proven success at Hart, Bob has become a leader among the local school districts in educating colleagues about SCE programs like SDP. He's helped facilitate classes at SCE's Energy Education Center in Irwindale for energy managers from as far away as Bakersfield. Hart's results speak for themselves, and the sense of mission Bob shares is another compelling argument for energy savings. "There's a moral aspect to energy management," he says. "It's the right thing to do. We're raising a generation of students who'll inherit one of the fastest-growing areas in the State. We want to preserve the best of the Santa Clarita Valley as it develops. Sound energy management with programs like the Summer Discount Plan is one way we can save money now and be responsible to the community for the future."

Estimated Savings by Managing Energy

Location: Santa Clarita, California

Industry: Education Services

SCE Programs Utilized: Summer Discount Plan (SDP)

Results: More than \$100,000 in savings using SCE's Summer Discount Plan

Learn how the SCE Summer Discount Plan (800-900-7788) can help you cut your electricity costs during the summer season

Like the William S. Hart School District, you can save money on electricity:

- To learn more about SCE's Energy Management Solutions contact your account representative or visit www.sce.com/solutions
- Take free SCE classes in lighting, energy management and more at the Edison Energy Center in Irwindale (800-336-2822) or Tulare (800-772-4822).
- Use Web-based tools such as SCE EnergyManager[®], SCE Cost Manager[®], and SCE Bill Manager[®] to monitor your electricity usage in real time and over the long term.