SOUTHERN CALIFORNIA EDISON
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Wastewater Treatment Plant Taps Into Energy-Efficiency Program for Expansion Project

*"There is a nexus between water and energy, and at the Western Riverside County Regional Wastewater Authority (WRCRWA) Treatment Plant, by eliminating high-energy processes and replacing them with more efficient processes, we can save energy." – WRCRWA Civil Engineer Linda Garcia**

With the Inland Empire being one of the fastest-developing regions in California, in the past few years it became clear that the WRCRWA Treatment Plant (governed via the WRCRWA Joint Powers Authority and operated by the Western Municipal Water District) needed increased capacity to keep up with growth in the region and lessen some of its member agencies' dependence on costly imported water.

To expand the plant while reducing operating costs, improving its overall performance, and maintaining service levels, WRCRWA turned to Southern California Edison (SCE) for guidance in choosing the most effective options to achieve these goals.

SCE recommended the Savings By Design (SBD) program, which provided technical and financial incentives and services that made the integration of energy-efficient and sustainable technologies more cost-effective investments for the project. SBD support enabled the plant to expand its sewage treatment capacity from 8 million gallons per day to 14 million gallons per day – with impressive savings results.

Annual Energy Savings of $825,000

With the plant expansion, completed in 2017, WRCRWA is seeing significant benefits: energy savings of approximately 7.5 million kWh and 784 kW annually, which translate into a bill reduction of approximately $825,000 per year. The size and scope of WRCRWA's project enabled it to qualify for an even higher incentive – $500,000 – than typically provided under the SBD program.**

The project features a number of highly effective energy-saving measures, from secondary treatment and tertiary filtration, to sludge thickening and sludge digestion, to dewatering and sludge drying. For example:

- Secondary treatment involved the removal of high-energy-usage surface aerators (which provided air for biological processes and mixing) and their replacement with submersible mixers and fine bubble diffusers that provide water and mixing in a more energy-efficient manner.
- Sludge drying featured the installation of a solar solids drying facility (a greenhouse for solids handling) with fully autonomous, robotic tillers (known as sludge turners). The drying facility is one of the first of its kind on the West Coast, and the new process harnesses the sun's energy to dry solids, eliminating the need to truck wet solids out of the plant. Previously, 12 to 14 trucks journeyed hundreds of miles to Arizona each week to dispose of the biosolids. Now, only two trucks make the same trip because the solar power evaporates the moisture in the biosolids in the plant. Fewer trucks on the road means much lower hauling expenses and significantly reduced greenhouse gas emissions.

The treatment plant expansion builds on previous initiatives by WRCRWA to utilize sustainable technologies. The plant already features a 5,000-panel solar array that provides up to 1 MW of energy during peak energy-use hours.

Continued Partnerships with SCE

Garcia (formerly of WRCRWA) credited the SCE Account Manager – "she kept in touch on a regular basis to inform us of the latest SCE incentive programs" – as well as the SBD field engineer for being "indispensable throughout the application and review process." WRCRWA's Administrator also credited its SCE Account Manager for keeping WRCRWA apprised of SCE incentive programs.

* Linda Garcia has since retired after working on this project.

** See savingsbydesign.com/owners for the SBD program incentive policy.

Looking ahead, Garcia added, "We have several projects in the preliminary phases and look forward to continued partnerships with SCE when those projects come to fruition."

To learn more about Savings By Design, visit ***savingsbydesign.com*** and energydesignresources.com. Please contact us early in the design process to learn about program options, check funding availability, and ensure you maximize your SBD participation benefits.

For more information about all of our energy management solutions, ways to reduce your energy usage, and manage your energy costs, visit us online or contact your Account Manager.

Western Riverside County Regional Wastewater Authority Treatment Plant

SCE Programs Utilized: Savings By Design

Results:

- Energy savings of approximately 7.5 million kWh and 784 kW annually
- Annual electricity bill savings of approximately $825,000
- A project incentive of $500,000

SCE representatives present the Western Riverside County Regional Wastewater Authority (WRCRWA) with a $500,000 incentive check for an energy-efficient upgrade, completed through the Savings By Design program, to the WRCRWA Treatment Plant. Left to right: WRCRWA Board of Directors member Ted Hoffman; WRCRWA's Linda Garcia (now retired) and Rod LeMond; SCE's Espy Brache, Amy Olson, and Chris Tran; WRCRWA consultant Brian Knoll; WRCRWA Board of Directors member S.R. "Al" Lopez; WRCRWA Board of Directors Chair Tom Moody; and WRCRWA Board of Directors members Janey Gress and Jane Anderson.

SCE Helps Builders Build Energy-Efficient Homes

New SCE display highlights materials and techniques for builders, designers, architects, engineers, and installers to meet new energy-efficiency residential construction standards.

Over the years, much has been done to improve the energy efficiency of refrigerators, washers and dryers, and other home appliances, but California is now focusing on a bigger target – the construction of the house itself.

In 2020, new state standards will take effect with a goal that future residential construction will be ***zero net energy*** – housing that produces about the same amount of renewable energy over a year as it consumes.

One challenge for the building industry in meeting these new energy-efficiency requirements is learning the techniques and materials to better seal attics and roofs so they leak less heat in cold weather or cool air when it is hot.

SCE created a display at our ***Energy Education Center in Irwindale*** that brings together all of the techniques and materials available for this new high-performance construction. It is intended for builders, designers, architects, engineers, installers, and anyone else associated with residential construction.

"SCE is committed to helping industry and customers meet state energy-efficiency and ***greenhouse gas reduction goals*** by providing tools and programs such as this exhibit," said Mike Marelli, SCE vice president of the Business Customer Division.

"We created this display as a teaching tool so the industry can have a one-stop place to go to learn about the new state residential construction standards."

Hands-On Learning With 3-D Display Modules

The 3-D display features eight life-size examples of attic and wall assemblies. Each module uses different construction methods and materials to illustrate various ways energy efficiency can be achieved. The exhibit is being used for energy modeling classes as well as other zero net energy-focused courses taught at the Energy Education Center.

Eight pullout modules showing energy-efficient roof and attic construction are on display at SCE's Energy Education Center in Irwindale. The display is intended for builders, designers, architects, engineers, installers, and others associated with residential construction to learn about techniques and materials available for high-performance construction to meet the state's new energy-efficiency residential construction standards. Photo: Randall Creasey

Each cutaway module lets students see how different materials contribute to the overall thermal performance of the wall or attic, a value also known as the U-factor. This lets students observe the effect high-performance walls and attics have on a home's energy use, while the exhibit gives students a tangible reference as they learn about the measures they are modeling.

Martha Brook, advisor to California Energy Commissioner Andrew McAllister, called the display "fantastic" because it pulls together all aspects of the code changes in one comprehensive exhibit.

"This will really get the trades to learn how to build better buildings," Brook said at a grand opening event for the new display. "That is central to helping the state meet its greenhouse reduction goals."

Steve Easely, a building energy-efficiency consultant, helped design the display and has used it for an SCE workshop on high-performance walls and attics that he teaches at the Energy Education Center.

He said the 3-D display is especially valuable because it's easier to see what the construction looks like physically rather than reading about how it is constructed.

"A lot of times people can get the conceptual idea, but this really gets into the details," he said. "It's a really great teaching tool because people can see it, feel it, and touch it."

David Peery, an energy-efficiency project manager at TRC Solutions, put it another way: "If a picture is worth 1,000 words, this display is worth 10,000."

The display can be seen at the Energy Education Center, 6090 N. Irwindale Ave., Irwindale, 91702, Monday-Friday, 8 a.m.-5 p.m. ***Free classes*** about the 2019 energy-efficient construction standards are also being held there throughout the year.

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Register Today for SCE's 25th Annual Water Conference: Sept. 11-12

The free event will provide water and wastewater agencies with the latest information about issues affecting these industries, as well as new and creative ways to save energy, water, and the environment.

Don't miss out on SCE's FREE 25th Annual Water Conference, taking place on Sept. 11-12, 2018, at our Energy Education Center-Irwindale.

The event will include a general panel session, four classes on current topics relevant to water and wastewater agencies, and a networking and exhibitor show. Brandon Goshi, manager of water policy & strategy at the Metropolitan Water District of Southern California, will serve as the keynote speaker.

General Session Panel Discussion:

Transforming the California Electric Grid With Distributed Generation

As use of renewable resources and distributed generation grows, battery storage is becoming an increasingly viable option for both utilities and customers to meet higher electricity demand. This fascinating panel discussion will look at how the state, SCE, and our customers can work together to utilize this bi-directional energy resource.

Classes: TOU Rates, Cooling Towers, Pumping Plants, and More

Whether you're a general manager, energy manager/analyst, operator, or engineer, the Water Conference will offer classes to meet your needs. Scheduled classes are:

- Time of Use Rates: What Is Changing? What Is New?
- Cooling Towers: Water-Energy Savings Opportunities
- Pump Testing and Improving Your Pumping Plant Efficiency
- Basic Pumping Control Strategies Using PLCs and SCADA Systems for Energy Efficiency (Level 1)

Don't miss out on this opportunity to tap into the latest resources available to help you maximize your operational efficiency and improve your bottom line. For more information, and to register for the Water Conference, visit ***scewaterconference.com***.

Tulare Water Conference: Nov. 8

If you are located in California's Central Valley, mark your calendars for SCE's 9th Annual Water Conference at our Energy Education Center-Tulare. Taking place on Nov. 8, 2018, this free event also will provide an excellent opportunity for water and wastewater agencies to learn, interact, and move forward in the fields of drought management, water efficiency, and energy management practices. Check back soon for more details at ***scewaterconference.com***.