

SOLAR PANELS: SAN DIEGO COUNTY WATER AUTHORITY

San Diego, California



Solar Panels at the Twin Oaks Valley Water Treatment Plant

PROJECT DESCRIPTION

To take advantage of the unique solar potential in Southern California, the San Diego County Water Authority (SDCWA) installed solar panels at three locations in 2011: Twin Oaks Valley Water Treatment Plant (WTP) (4,844 panels), Kearny Mesa Headquarters (Headquarters) (1,918 panels), and Escondido Operations Center (Escondido) (742 panels). These panels have the potential to produce 2.5 million kWh of electricity per year, accounting for 59% of the energy needs at Headquarters, 43% of the energy needs at Escondido, and 40% of energy needs at the Twin Oaks Valley WTP.

Energy generated by the solar power systems reduces the SDCWA's energy costs, making agency operations more efficient for water ratepayers. Combined, the solar power systems will reduce the agency's energy expenses by nearly \$3 million over 20 years. Through its agreement, the SDCWA is not able to receive the Renewable Energy Credits (RECs) from these systems but does receive an applied generation credit from San Diego Gas & Electric for excess solar energy the SDCWA is able to put back on to the electric grid. This helps to further reduce energy costs.

The SDCWA continues to evaluate opportunities for both ground and floating solar power systems. If new opportunities are implemented, the SDCWA's greenhouse gas emissions will be revised accordingly.

MAKING THE PROJECT HAPPEN

The SDCWA implemented this project primarily to reduce the organization's energy expenses by \$3 million dollars over 20 years. An Agreement was executed that outlines that CleanCapital, the electricity provider and owner of the solar infrastructure, shall deliver electricity from each system to the applicable Point of Delivery, and the Host (SDCWA) shall accept delivery of the electricity.

FINANCES



The solar power systems were installed at no cost to the SDCWA through a 20-year power purchase agreement with CleanCapital. CleanCapital owns and operates the systems and sells the energy to the SDCWA at a reduced and fixed rate with an annual price escalation factor.

CHALLENGES

Two years into the project completion, there were some intense windstorms that blew off some photovoltaic panels and damaged cars. The solar company responded by retrofitting the structure.

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IMPLEMENTATION

To initiate the project, the SDCWA released a Request for Quote and received multiple bidders. Borrego Solar (contract sold to CleanCapital) won the contract and implemented the project. The solar power installations were installed in the parking lot and on the roof of the SDCWA's Kearny Mesa headquarters and its Fred A. Heilbron Operations Center in Escondido, California. The largest of the three solar energy systems was mounted using a first of its kind, black Sunlink ballasted racking atop several large water storage structures at their Twin Oaks Valley Water Treatment Plant north of San Marcos (pictured above). At the time of installation, Borrego Solar complied with all applicable requirements of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The systems generate enough renewable energy to meet 60% of the power needs for the Kearny Mesa and Escondido facilities and more than 25% of the power needs for the treatment plant.

The SDCWA financed their solar power installation using Borrego Solar's integrated power purchase agreement. Per this agreement, Borrego Solar designed and constructed the solar electric installation on the three SDCWA locations and was to operate and maintain the solar energy systems for the 20-year contract term at no capital expense to the SDCWA. In return, SDCWA agreed to purchase the renewable energy produced at a predetermined energy rate with an annual price escalation factor. Based on the energy at the time of the installation, the SDCWA estimated saving ratepayers over \$1.7 million in energy costs over the life of the contract. It took under one year for Borrego to construct the project. Borrego Solar's contract with the SDCWA would later be sold to CleanCapital who is now the owner of the contract.

The SDCWA did not pay for implementation, installation, equipment, labor, or the continued maintenance related to the project and does not take credit for any greenhouse gas emissions offsets. The SDCWA only pays CleanCapital for the energy produced and there are no on-going costs.

ADVICE AND LESSONS LEARNED



From its experience with this set of solar installations, the SDCWA suggests that it is more beneficial for water utilities to own the installed solar infrastructure and the energy created, as this allows the utility to take full economic advantage of the energy produced.

(Note: in a separate case study, a utility that does own solar infrastructure suggested that if it were to do the solar project over again, it might do it the other way by not owning the infrastructure and instead purchasing the electricity produced by the solar project. From these two examples, the advantages of a utility owning vs. not owning the solar infrastructure appears to be case dependent.)

LEARN MORE

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