



LOCATION

Camarillo, CA

APPLICATION

Groundwater Pumps
Agriculture/Irrigation

INSTALLATION

March 2020

PRODUCT

Pump Controller
(Pump Sequencing
Optimization)



CLOUD-BASED SCADA DELIVERS ENERGY SAVINGS AND QUICK ROI FOR SOUTHERN CALIFORNIA WATER DISTRICT

CHALLENGE

Dynamically sequence pump operation to favor efficiency

Pleasant Valley County Water District (PVCWD) supplies irrigation water to agricultural end-users in Ventura County, California. PVCWD delivers approximately 15,000 acre feet of water each year to a service area of approximately 10,000 irrigated acres. The District meets customer demand through a diverse water portfolio. The District prioritizes the use of surface water from the Santa Clara River and nearby Conejo Creek first, depending on availability.

Eleven deep groundwater wells are used to augment surface water supplies, especially during periods of droughts and extended dry seasons. The District operates these 200 HP well pumps intermittently throughout the year, yet the electricity required to operate them, in addition to the three booster pumps, is a major financial expense to the District.

Southern California Edison (SCE), the regional power company in Southern California, offers numerous rebate and incentive programs to municipal customers (water districts) to improve energy efficiency

and reduce overall energy usage. PVCWD enrolled in the Southern California Regional Energy Network (SoCalREN) Program offered by The Energy Coalition, and the Water Infrastructure and System Efficiency™ (WISE™) Program offered by Lincus, Inc. in early 2018 to identify, implement, and facilitate incentive payments for energy efficiency projects.

Staff from Lincus provided an initial evaluation to determine potential efficiency gains available to PVCWD through the development of a pump sequencing algorithm to optimize energy intensity rates for the eleven well pumps in the service area. While the pumps were meeting the variable water demands of PVCWD's customers, their energy intensities varied due to changes in pump efficiency and groundwater levels.

The approved project called for an automated system that would continuously evaluate energy intensity for all eleven pumps and favor the most efficient (least energy-intensive) pump for the conditions at any given time.



The District examined costs associated with a traditional SCADA system, including consulting, custom programming, hardware, and ongoing software updates, and decided it was cost-prohibitive. PVCWD’s General Manager, Jared Bouchard, approached XiO to determine if their Cloud SCADA® System could provide the dynamic pump sequencing required by the project.

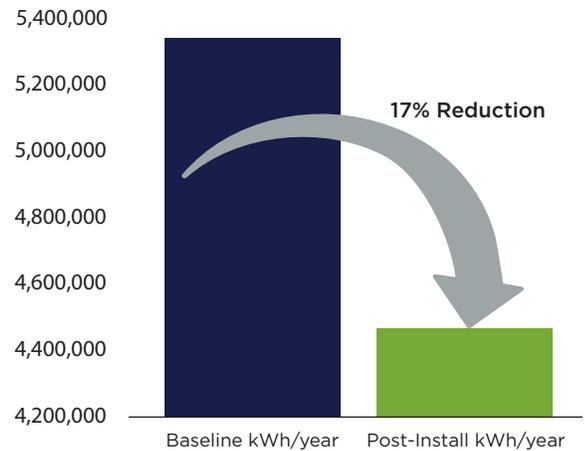
Following scoping meetings with PVCWD and Lincus, XiO Field Installable Units (FIUs) and sensors were installed at each of the well pump locations. The FIUs were connected to the XiO cloud platform using a combination of point-to-point radios and cellular modems. XiO’s cloud-based system eliminated the need for an on-site SCADA server. XiO’s platform provided PVCWD staff with secure access to monitor and control their system from any web-enabled device, as well as 24/7 technical support.

Installation of the FIUs was completed in late March 2020. Once the system was installed and calibrated, Lincus worked with PVCWD to obtain two months of post-installation measurement and verification data to compare with baseline values collected earlier. Post-installation data from 6/18/20 – 8/17/20 showed **a reduction (savings) in kWhs of over 17%** (5,340,144.2 kWh vs. 4,433,441.1 kWh).

The savings in kWh (906,703.1 kWh) translated to a projected annual energy cost savings of over \$110,000 per year. As a result of meeting the project objectives, PVCWD received the maximum financial incentive from SCE (50% of project cost) amounting to over \$50,000. PVCWD will recoup the cost of implementation in less than one year by factoring the estimated annual energy cost savings and the SCE incentive. The continued savings will enable PVCWD to fund future infrastructure upgrade projects.

As energy utilities and municipalities seek to reduce energy consumption, platforms such as XiO’s Cloud SCADA® System can leverage the power of cloud computing to deliver programs capable of greater levels of analytics and control at affordable rates.

Baseline vs. Post-Installation Annual Energy Consumption



“PVCWD has realized a multitude of benefits that extend beyond the energy cost savings. Increased data collection, real-time monitoring of production and operational performance, and increased staff efficiency through the ability to prioritize well maintenance tasks has resulted in further savings by reducing overtime.”

—Jared Bouchard, General Manager, Pleasant Valley County Water District

