



Nichols Farms

Johnny Starling, General Manager
of Farming for Nichols Farms



**One Hundred Years of Free Pump Testing Services from SCE:
Helping Nichols Farms Save Energy and Money**

Meeting the Water Challenge

Given that 90 percent of electricity costs in agricultural operations is associated with water use,* like most other growers, Nichols Farms pays close attention to how it can most effectively pump and transport water for crop irrigation.

A fixture in the San Joaquin Valley since 1958, the farm now includes 4,000 acres of pistachios, almonds and assorted row crops, as well as a pistachio processing plant. During dry years the farm relies on up to 75 percent well water for crop irrigation and 25 percent surface water (canals). In wet years, the farm's water use is split 50-50 between well water and surface water.

In Southern California Edison's (SCE) service area, Nichols Farms uses 17 turbine well pumps (which pump from a depth of 150 feet to 350 feet), six centrifugal booster pumps for drip irrigation systems and eight lift pumps for surface water. To ensure it operates in the most efficient and cost-effective manner, for decades Nichols Farms has evaluated its pumps using SCE's free pump testing services.

In 2011, SCE will mark 100 years of offering these services to customers through one of the largest and longest-running pump-related energy efficiency programs in the nation. Benefits of SCE's pump testing services may include:

- Increased energy efficiency
- Reduced costs
- Improved system efficiency.

Over the years, SCE's services have evolved to incorporate the latest in fluid flow and electronic measurement instrumentation to test thousands of pumps annually in conformance with pumping standards established by the American Water Works Association.

Finding the Optimal Pumping Answers

Each growing season, Nichols Farms looks at annual SCE pump test findings to determine the most cost-effective way to irrigate different areas of the farm, "mixing and matching" use of various pumps as needed to employ the ones that operate at the highest efficiency level. Pump tests also help identify potential pump maintenance problems.

Estimated Savings by Managing Energy

- *Location:* Hanford, CA
- *Industry:* Agriculture
- *Description:* A 4,000-acre farm that grows pistachios, almonds and assorted row crops, plus processes, packages and markets pistachios and almonds
- *SCE Programs Utilized:* Free Pump Testing Services, Time-of-Use Rates, Express Solutions, Customized Solutions
- *Results:* Increased overall pumping plant efficiency and use of off-peak pumping for

Energy Management Success Story

Pump Test Results Help Nichols Farms Save Energy and Money

This testing allows repairs to be accomplished in the winter months and not during the peak irrigation season, when an inoperable pump can potentially cause a catastrophic crop loss.

“Pump testing gives you different options and strategies, and helps determine what pump equipment can be adjusted or upgraded for the cheapest cost per kilowatt-hour,” says Johnny Starling, general manager of farming. “The service is absolutely essential to our company.”

For example, in 2008 SCE’s pump testing showed low efficiency on one of the farm’s 100-horsepower pumps. As a result, the farm replaced the pump motor, bowl, tube, shaft and other components to increase the efficiency of the pump.

SCE’s services also help the farm select the best power rates for its pumps, including Time-of-Use rates that provide lower costs for pumping during off-peak periods. On one ranch, Nichols Farms uses its larger pumps during off-peak hours to get water into its own on-site storage reservoir. Then two 150-horsepower booster pumps work off peak to move water from the reservoir to irrigate trees on the farm.

“We can look at our bills at the end of the year and see we did have substantial savings because we changed to a different rate,” Starling says. “It’s such a critical part of saving money.”

Applying More Energy-Saving Solutions

Nichols Farms also saves money by tapping into SCE’s Express Solutions and Customized Solutions to earn rebates and incentives for installing qualifying high-efficiency equipment and systems.

The farm previously completed several projects to improve the efficiency of its main plant and 500 acres of its irrigation system, receiving more than \$41,000 in rebates and incentives.

Its latest project involves an upgrade to its pistachio drying operation. Through Customized Solutions, the processing plant installed electric resistance heaters (to replace natural gas heating), variable frequency drives to modulate fan airflow based on product throughput, and high-efficiency chillers for the cooling process.

The project incentive (pending final post-inspection) totals nearly \$41,000. Besides enhancing product quality and increasing production levels, the upgrade is projected to save Nichols Farms approximately \$33,200 annually.

Starling says he appreciates SCE keeping the farm informed about these types of energy- and money-saving opportunities. And when the topic turns back to pump testing, he credits SCE for retaining this service in-house, indicating he believes it’s more reliable than the third-party testing used by some other utilities.

“SCE has made this a priority,” he says. “We have a very good relationship. I have confidence that what they’re telling me is the best option.”

More About SCE’s Hydraulic Pump Test Products and Services

SCE’s free pump testing services determine the overall “wire-to-water” efficiency of a pumping plant by analyzing the water level in a well during pumping, discharge flow rates, and power input to the pump motor. These measurements of pump performance in progress allow customers to track pumping plant efficiency and determine when maintenance or overhaul will be cost-effective.



Energy Management Success Story

Beyond measuring plant performance, SCE also offers recommendations to capture efficiency and cost-saving opportunities elsewhere in the pumping system. These considerations may include minimizing piping friction losses, maintaining adequate pumping pressure, matching pressure to varying flow requirements through variable speed drives, and determining priority pumping and/or reservoir storage strategies.

Because of the popularity of these services, SCE has expanded the program to include several fee-based predictive maintenance services, such as infrared panel inspection and cleaning, vibration detection analysis, meg-ohm testing and industrial services.

To learn more about SCE's hydraulic pump test products and services, as well as other energy management solutions for agricultural properties, contact your account representative or visit www.sce.com/agriculture. To schedule a pump test, log onto www.sce.com/wps/portal/home/apps/forms/requestpumptest.



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Earn Even More Savings with Other SCE Programs

- Save more with SCE's Pumping and Agricultural Real-Time Pricing (PA-RTP) and other Demand Response Programs: **(866) 334-7827**
www.sce.com/drp
- Purchase qualifying energy-efficient equipment or technologies for agricultural applications and receive incentives and rebates through SCE's Express and Customized Solutions: **(800) 736-4777**
www.sce.com/solutions
- Switch to a Time-of-Use (TOU) rate and take advantage of lower energy rates by shifting electricity usage to off-peak hours. To learn more: on.sce.com/largebusiness
- Take free SCE classes in water irrigation, well efficiency, pipeline flow measurement, lighting, HVAC, energy management and more at an Edison Energy Center. **Irwindale: (800) 336-2822**
www.sce.com/ctac
Tulare: (800) 772-4822
www.sce.com/agtac

Start Saving Now

SCE offers a range of solutions such as cash incentives, energy surveys, and payment options to help you better manage your electricity costs.

For More Information

www.sce.com/solutions

San Joaquin Valley: (800) 634-9175

Ventura/Antelope Valley:

(800) 338-8502

Los Angeles: (909) 820-5333

Contact your SCE Account Representative



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