



Four Star Fruit



Jesse Munguia, Cold Storage Operations Manager, Four Star Fruit

SCE's Automated Demand Response Program Helps Grape Grower Become Leaner and Greener

Planting the Seeds for Energy Savings

A renowned provider of premium table grapes based in California's San Joaquin Valley, Four Star Fruit takes pride in its commitment to innovative business practices and toward contributing to a healthier environment. The family-owned firm is now reaping the benefits of its stepped-up commitment to energy management by using Auto-DR and energy efficiency measures to lower its electricity costs and carbon footprint.

After introducing organic farming and eco-friendly packaging, the company began to review how it could address increased power consumption due to business growth, while further enhancing sustainability, by implementing strategies to reduce energy use. As an initial step, Four Star Fruit turned to SCE's Technical Assistance and Technology Incentives (TA&TI) Program for a site assessment to identify Demand Response (DR) potential. Based on the results, Four Star Fruit installed SCE's Auto-DR enabling equipment to automatically reduce load during high demand periods, which helps ensure adequate electricity supplies while offering environmental benefits.

Auto-DR allows customers with an automated load control system, such as Energy Management system (EMS) or Supervisory Control and Data Acquisition (SCADA) systems, to participate in SCE DR programs, such as Demand Response Contracts (DRC) through a DR Aggregator, with no manual intervention, providing flexibility and ease of use. Customers pre-select their level of participation, the Auto-DR technology automatically powers down equipment, and customers earn incentives for peak-period energy load reductions.

SCE provides technology incentives of up to \$300 per kilowatt (kW) of tested load reduction for system upgrades and Auto-DR enabling equipment. Four Star Fruit's incentive totaled \$216,700 for 722 kW of tested load reduction. In addition, the company may receive additional incentives by participating in DR events through a DR Aggregator.

Four Star Fruit's Cold Storage Operations Manager, Jesse Munguia, says given the Auto-DR technology incentive, the EMS system paid for itself in less than two months.

Estimated Savings by Managing Energy

- **Location:** Delano, Calif.
- **Industry:** Agriculture
- **Description:** A premier family grower of table grapes located in Tulare County, with 170,000 square feet of refrigeration area
- **SCE Programs Utilized:** Technical Assistance and Technology Incentives (TA&TI) Program, Automated Demand Response (Auto-DR), Demand Response Contracts (DRC), Customized Solutions
- **Results:**
 - **Demand Response Incentive:** A \$216,700 incentive to pay for Auto-DR equipment for 722 kilowatts (kW) of tested load reduction in the farm's refrigeration system, with a return on investment of less than two months
 - **Energy Efficiency Incentive:** A nearly \$47,000 incentive for the installation of equipment to improve the efficiency of the refrigeration system's compressors
 - **Overall Savings:** Annual savings of almost \$110,500 — coming from increased energy efficiency — decreased peak demand use and DRC participation

Energy Management Success Story

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Harvesting the Benefits of Auto-DR

Four Star Fruit uses Auto-DR to reduce load in its two-loop refrigeration system — what Munguia calls “the workhorse of the facility,” as the refrigeration system accounts for about 90 percent of the company’s cold storage facility electricity bill. Covering 170,000 square feet, the refrigeration system is capable of cooling down 1 million boxes of grapes at once.

During a DR event, SCE sends a signal to Four Star Fruit’s EMS to shut down pre-identified portions of equipment in the refrigeration system without impacting food quality or safety. The company, however, retains the ability to override the automated signals and change its load reduction strategies at any time. The company also participates in DR events for additional load reduction.

“We knew we wanted to have that powerful tool at our disposal to be able to automate the most important part of our process while achieving a reduction in power, which means lowering costs and going green,” Munguia says.

He adds, the Auto-DR equipment provides other significant benefits, such as access to real-time operational information and improved temperature control in the grape rooms.

“It’s such a powerful tool with real-time advantages,” he says. “For example, I know instantaneously (through alarms) if a pump is not working or a fan broke, and I can have it fixed right away. It used to be that people had to walk the system to visually inspect and check for these things.

“In terms of the core quality of our product, the best part is that I know the temperature of each grape room — the quality control experience has taken us into the 21st century.”

On the importance of the grape rooms’ temperatures, Munguia explains, “Grapes are our very lifeblood and the temperatures and air flow in the grape rooms are our No. 1 priority. Our core product is providing outstanding table grapes globally, so each grape room’s temperature control is critical.

“Our grapes come in off the field at different times and then are sorted and treated differently based on their ultimate use, so the grape rooms have a wide array of temperature needs that need to be closely managed.

“Now we can do that more effectively, and have the capability to schedule defrost cycles automatically,” he continues. “This transparency and management of temperature that is now at the tips of our fingers lets us address the bigger energy issues that we wanted to tackle.”

Those energy issues include continued growth. Munguia says that from 2008 through 2010, Four Star Fruit grew by 20 percent, while its power consumption doubled. The TA&TI program audit, he adds, showed a very visible trend of high-peak charges, which identified the opportunity for Auto-DR.

“Since we use a very large amount of electricity during three critical months of the grape season, we wanted to get on top of this issue,” he notes. “We also wanted to do the right thing from a ‘green’ perspective.”



Jose Luis Villarreal,
Production Manager,
Four Star Fruit



Energy Management Success Story

Reaping More Gains Through Energy Efficiency

Four Star Fruit is also addressing energy use by installing more efficient refrigeration equipment and systems. These upgrades include controls to enable compressor head pressures to vary with outdoor conditions, helping reduce load and extend compressor life. They also include controls to manage the efficient sequencing of compressor operation.

The company received an SCE incentive of more than \$46,800 for these upgrades. Combined, Munguia says, use of the Auto-DR equipment, participation in DR events and the energy efficiency improvements are providing Four Star Fruit with a 16 percent reduction in its energy bills — nearly \$110,500 annually.

Munguia says SCE's assistance with both the Auto-DR and energy efficiency projects provided significant value in helping Four Star Fruit bring these projects to fruition.

"Our process was seamless," he says, noting that Four Star Fruit's next step is working with SCE to tap into incentives for lighting upgrades. "A lot of that probably had to do with the relationship among the three parties" — Four Star Fruit, SCE and the engineering firm that provided the EMS.

Munguia concludes, "The experience has been really positive. I've found it very rewarding."



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More About Auto-DR

Auto-DR is available to customers who are willing to participate in one of the following programs: Capacity Bidding Program (CBP), Critical Peak Pricing (CPP), Demand Bidding Program (DBP), Demand Response Contracts (DRC) and Real-Time Pricing (RTP). Certain DR Programs allow customers to enroll in a second compatible program, which may offer benefits beyond what a single program can provide.

Qualifying customers who do not have automated controls to participate in DR programs may be eligible to receive technology incentives to help offset the purchase and installation of the system equipment or upgrade existing systems.

To learn more about Auto-DR opportunities and incentives, contact your SCE Account Representative, visit www.sce.com/autodr, call (866) 238-3605 or e-mail ta&ti@sce.com.

"We knew we wanted to have that powerful tool at our disposal to be able to automate the most important part of our process while achieving a reduction in power, which means lowering costs and going green."

Jesse Munguia, Cold Storage Operations Manager, Four Star Fruit, on the use of Auto-DR for its refrigeration system

Earn Even More Savings with Other SCE Programs

- Find out how SCE's Demand Response Programs can reward you for reducing electricity usage during peak hours.
(866) 334-7827
www.sce.com/drp
- Energy management systems can also qualify for additional equipment incentives (up to \$.09 per kWh and \$100 per kW) through SCE's Customized Solutions. Visit www.sce.com/business/ems/appdownload.htm for a copy of the Energy Management Solutions Directory.
- Purchase qualifying energy-efficient equipment or technologies and receive incentives through SCE's Express and Customized Solutions.
(800) 736-4777
www.sce.com/solutions
- Take free SCE classes in 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
- Use Web-based tools such as SCE EnergyManager® Basic, SCE Cost Manager® and SCE Bill Manager® to monitor your electricity usage in real time and over the long term.
(888) 462-7078
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