

"With Powerit, we can manage all of our cost-cutting initiatives – demand response, demand control, and energy efficiency – with one easy-to-use system."

Jake Nixon, Process Improvement & Project Engineer

Case Study: Mission Produce



Powerit's Financial and Conservational Impact:



279kW average billed kW reduction
(appx. 33%)



141,112kWh annual kWh reduction
(appx. 24%)



500 kW controlled load shed
for demand response



ROI: **20 months**



Mission Produce is a global packer, importer, processor, and distributor of avocados and asparagus. The company has operations in Mexico, Peru, Chile, New Zealand and the United States.

Mission revolutionized the avocado industry by being the first company to supply ripe fruit to retail, wholesale, and foodservice customers nationwide. The company has ripening and distribution centers in California, Denver, Chicago, New Jersey, Atlanta, Dallas and Seattle. These regional, state-of-the-art facilities ripen fruit, maximize just-in-time delivery, reduce customer inventory management and enhance transportation efficiency. Mission customers are ensured a consistent flow of fresh products on an as-needed basis.

Mission Produce, Oxnard, CA

Optimized Loads:

- Cold Room Evaporators with VFDs
- Condensers with VFDs
- Freon Refrigeration Compressors (Sequencing & Staging)
- Hydro-Coolers
- Ripening Rooms
- Battery Chargers
- Lights

Powerit Solutions Installed:

- Energy Management Hardware and Software
- Konnekt® Wireless I/O
- Energy Monitoring and Reporting
- Temperature Monitoring and Reporting
- Variable Frequency Drives (VFDs)



A Powerful Need

Like most companies, Mission Produce is always on the lookout for ways to cut costs and improve bottom line performance. After reviewing operational expenditures Mission realized energy costs were among the company's highest expenses. Anxious to learn how they might lower their electricity costs Mission reached out to local utility SCE, aggregator Enernoc, and energy savings consultant Global Energy Partners.

Mission was encouraged to learn there were several options available for controlling costs, including energy efficiency measures and participation in SCE's demand response program. However, implementation proved more difficult than previously thought. According to Jacob Nixon, Process Improvement & Project Engineer, "I was certain we could control the necessary actions manually – until we actually tried it. It took too much time and we couldn't fine-tune adjustments. Since we weren't willing to risk production we had to find a better solution."

Automation wasn't Nixon's only concern. Because he was launching multiple initiatives he wanted them brought together seamlessly into one, easy-to-use system. The components had to work together as well as integrate with existing controls. And he wanted to work with just one vendor.

At the suggestion of Enernoc, Nixon turned to Powerit Solutions. The Powerit team was able to take all the recommendations from SCE, Enernoc, and Global Energy Partners and implement them together into one technology solution. Powerit also made additional cost-cutting recommendations in the form of peak demand control, which made the system even more effective.

Not surprisingly, when it came time for implementation Nixon met with skepticism from his management team. It was a tall order to fill and Nixon himself was not a refrigeration expert where much of the system was being implemented. But, says Nixon, "the Powerit team quickly earned my confidence. It was clear they had experience working with equipment and processes like mine and were able to translate that experience to our specific needs."

Despite the complexity of the project, which involved Powerit implementing comprehensive refrigerator controls to leverage available energy efficiency while adding demand control and demand response capabilities the system needed to be up and running in 13 weeks. This was necessary to meet the deadline for the SCE rebate that paid for 52% (\$177,750) of the system.

So how is the system performing? "Even better than expected," says Nixon. In particular, he was surprised by how easy the system is to use. "I spend a lot of time working outside the country and the system manages itself while I'm gone. If I need to review anything or make changes I can log on remotely from wherever I am."

Nixon attributes the graphical user interface with greatly simplifying the technology. He didn't need to be an expert on either the equipment the system was controlling or the system itself to be successful. Another feature Mission finds useful is the automated alerts. "If we have a problem we risk millions of dollars of inventory. In the past we might not catch it right away, but now we are notified immediately," says Nixon.

"...the Powerit team quickly earned my confidence. It was clear they had experience working with equipment and processes like mine..."

The results have been dramatic. Mission's energy bill has been reduced by as much as 33% even while production increased, and they were able to shed 500kW for demand response. And because they financed the project through Powerit they realized a positive cash flow from the first month since savings exceed the monthly payment.

There have been other surprising benefits as well. This project has made the entire company more conscious about cutting energy costs, which has resulted in the implementation of other energy-related measures throughout the organization. Energy efficiency is now a strategic business element with awareness from the board of directors on down.

What started as a seemingly impossible project has not only resulted in meeting the original goal of cutting costs, but has actually become a much larger initiative, causing a shift in strategic decision-making and having even greater impact on the company as a whole.

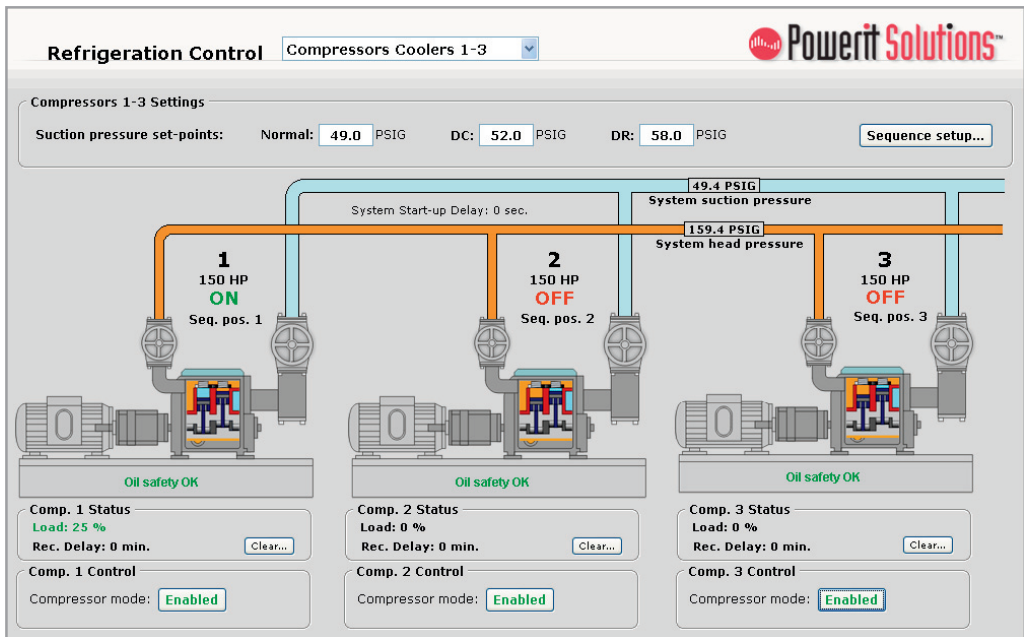


How the Mission Produce System Works

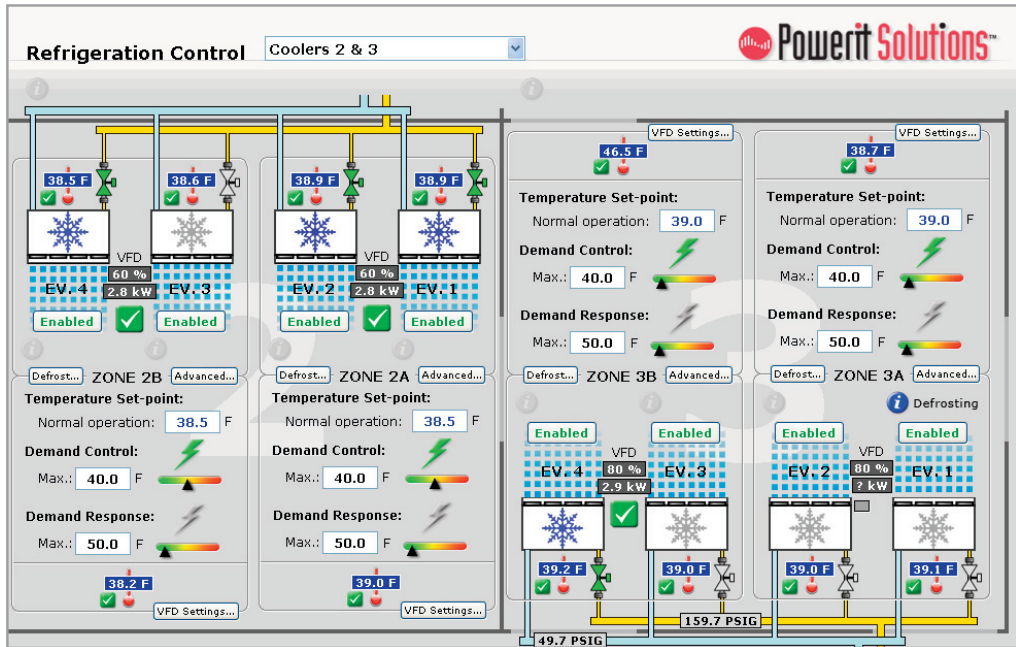
Spara EMS implements a three-pronged attack on energy costs by taking advantage of Energy Efficiency, Peak Demand Control, and Demand Response.

Energy Efficiency is the foundation of the system. Spara EMS provides refrigeration controls to ensure Mission consumes the least amount of

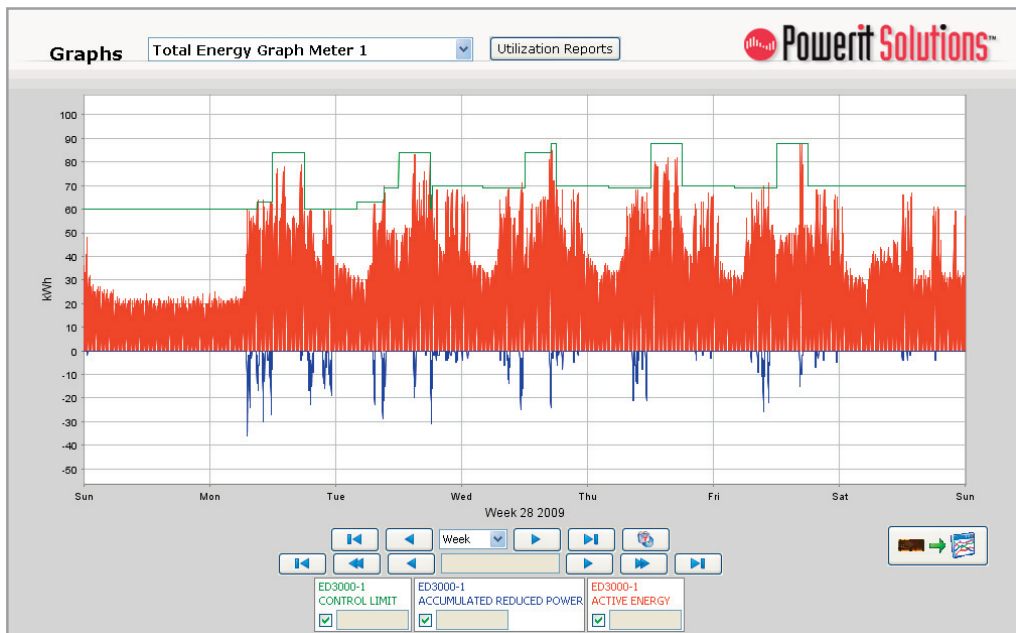
energy possible while processing avocados. This was accomplished by implementing compressor staging and sequencing along with the installation of variable frequency drives on condensers and evaporators. The system also accurately controls temperature and defrost within the cold rooms.



Here the system is performing standard refrigeration and energy management practices such as suction pressure control, staging & sequencing, condenser VFDs, and alarming. In addition to these standard practices, Powerit also deployed demand control and demand response to reduce utility bills even further. The system automatically balances refrigeration needs with utility bill penalties.



Here the system is performing standard cold storage evaporator control including temperature control & monitoring, VFD speeds, and demand-based defrost along with demand control and demand response giving the plant the ability to manipulate energy consumption to minimize utility bills without affecting quality or production.



This screen shot shows a week of demand control in action. The green line is the demand setpoint, the red line is the energy consumed by the plant, and the blue line represents the curtailment actions taken by the system. The system utilizes different setpoints to minimize time-of-day demand charges. As energy consumption nears the demand setpoint curtailment actions are taken to prevent demand peaks, which saves Mission money.