

# FACILITY UPGRADES REDUCE ENERGY 35%

Cascade Energy gives Zirkle Fruit's facility a system overhaul to reduce costs nearly \$185,000 annually.

## CASE STUDY

### Challenge: Modernize an Aging Facility

Zirkle Fruit had long wanted to upgrade and modernize its aging facility in Prosser, Washington. The facility features a series of controlled atmosphere (CA) rooms that maintain precise conditions at all times – including finite oxygen and temperature control bands – to keep the company's apples fresh year-round. The CA rooms also have to manage the carbon dioxide emitted from the harvested apples.

"Keeping our produce fresh throughout the year is a complex process with no margin for error," says Jeff Gill, project manager at Zirkle Fruit. "But there is always room for improvement, and we like to take advantage of modern techniques and technologies. Investing in our future, staying ahead of the competition, and being as environmentally sustainable as possible are key elements of our culture."

Gill said the company had previously worked with Cascade Energy to modernize and improve the energy performance of its facility in Selah, Washington. "The Selah upgrades were smaller, but they helped establish a rapport and level of trust with Cascade," Gill recalls. "We wanted to see what they could do at our older facility in Prosser."

### Solution: Refrigeration, Compressed Air, Door, and Lighting Upgrades

A team of Cascade energy experts visited Zirkle Fruit's Prosser facility to identify energy conservation opportunities. A detailed study was conducted – with data collection, baseline modeling, and in-depth analyses – to quantify the potential savings. The team also found more than a dozen energy efficiency measures that would qualify for incentives through their local utility, Benton PUD, and Bonneville Power Administration's Energy Smart Industrial (ESI) program to help reduce the company's energy consumption and costs.

"The project team was very good at identifying, quantifying, and explaining the opportunities at hand – not just in engineering terms, but in business terms," says Gill. "If we can save money and energy without harming our product, and receive financial assistance for doing so, why not?"

With help from Cascade Energy, Zirkle Fruit implemented a series of energy efficiency upgrades at its Prosser facility. Freon compressors typically used in commercial environments were replaced with large ammonia compressors designed for industrial environments. Variable frequency drives (VFDs) were installed on evaporator and condenser fans to improve part-load efficiency. System pressures were reduced through the use of new control valves. And CA system software was upgraded, increasing the control and automation of the company's evaporators, condensers, and compressors.

In addition to refrigeration and computer control improvements, old-fashioned cold storage doors were replaced with state-of-the-art insulated doors, which use infrared sensors to open and close quickly and automatically. And energy efficient fluorescent lights were installed in the Zirkle Fruit offices.



[www.zirklecommunity.com](http://www.zirklecommunity.com)

#### INDUSTRY

AGRICULTURE

#### ENERGY BENEFITS

3.4 MILLION kWh per year in energy savings

#### NON-ENERGY BENEFITS

- Slashed operating costs by \$185,000 annually
- Reduced ongoing maintenance and capital expenses
- Improved operational efficiency through better systems control and automation

“It can take a long time to get these things off the ground,” says Kevin Fischer, energy efficiency advisor for Benton PUD. “Without the expertise and hard work of Cascade, projects of this size would be difficult if not impossible to implement. This was the largest energy conservation project in Benton’s history, and Cascade made sure it happened without a hitch.”

“Cascade was great, and they were able to work around our production schedule during the busiest time of year,” adds Gill. “The entire project was much simpler than we anticipated. These are complex things, but the project team made them easy. The bulk of the energy reductions came from the VFDs, but all of the upgrades had a positive impact. And the combined results were incredible.”

### Results: Reduced Energy Consumption By 35%, Delivering \$185,000 in Annual Savings

All told, the upgrades reduced the overall energy consumption of Zirkle Fruit’s Prosser facility by a staggering 35 percent, representing nearly 3.5 million kilowatt hours per year. The company will save just under \$185,000 in annual energy costs as a result.

“We try to give back to our communities, and energy conservation helps,” says Gill. “These improvements are good for our company, they are good for our community, and they are good for our planet.”

While the upgrades had a total price tag of \$1.2 million, an ESI rebate of more than \$880,000 ensures the project will pay for itself within two years. And the energy savings will continue year over year, just like Zirkle Fruit’s apple crop.

“Cascade was very accommodating, thorough, and efficient,” says Gill. “Overall communication, scoping, project management, and follow-up were excellent. It was a very pleasant experience, and the results speak for themselves.”

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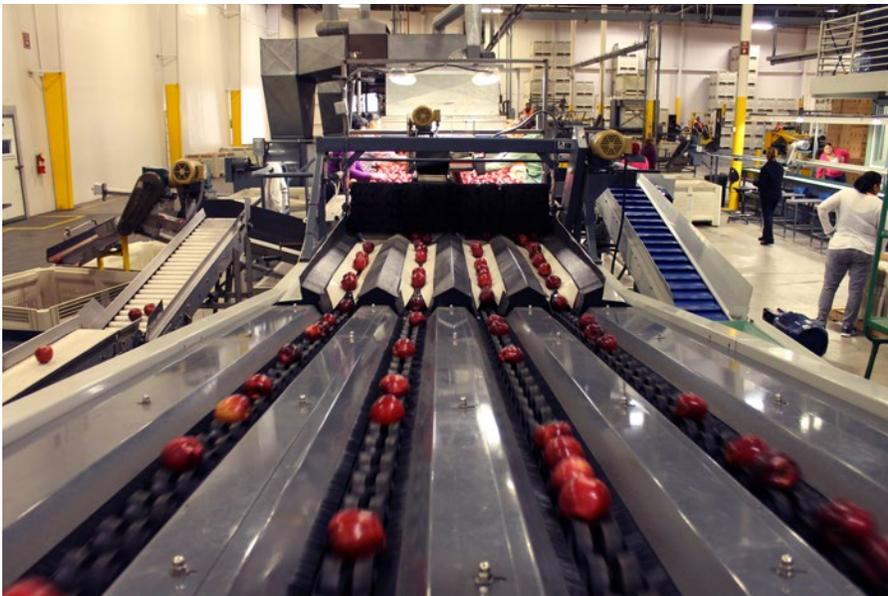
– Kevin Fischer

Energy Efficiency Advisor, Benton PUD

### For more information about Cascade Energy

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Or visit [www.CascadeEnergy.com](http://www.CascadeEnergy.com)



Apples zoom up a conveyer belt to be cleaned before packing.



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