CASE STUDY

SNOTEMP AND LOGIX TURN WASTED ENERGY INTO MONEY SAVED THROUGH LOW- AND NO-COST FACILITY PROJECTS

SNOTEMP SLEUTHS OUT ENERGY SAVINGS WITH CRES

When Dave Brant, senior chief engineer at SnoTemp Cold Storage, heard about a new certification focused on saving energy offered by the Refrigerating Engineers and Technicians Association (RETA), he was intrigued: becoming a Certified Refrigeration Energy Specialist (CRES) meant he could reduce energy waste and cut costs for his company. With his facility operating at full capacity, and a team of engineers supporting operations, Dave knew there would be plenty of opportunities to sleuth out savings and make a big impact.

To kick things off, the SnoTemp team looked for no- and low-cost energy-savings projects. By spending time examining the process step and phase of each piece of equipment they began to find energy savings opportunities that make an impact: the company has saved over $50,000 to date on energy consumption.

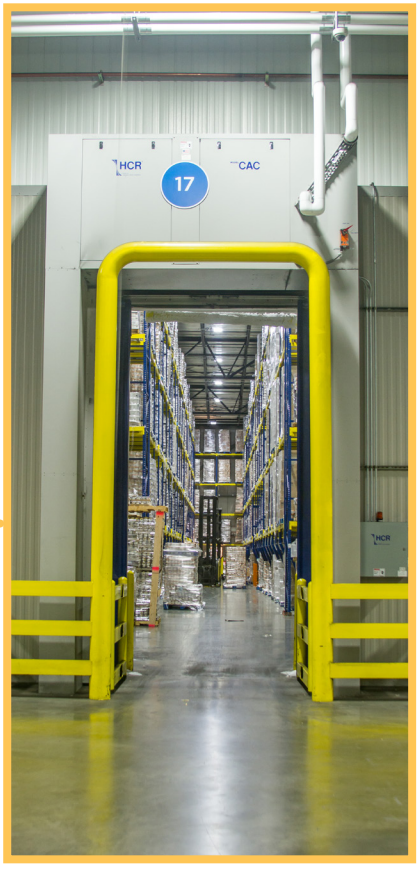
For their first project, the SnoTemp team looked at the air curtains on their freezer doors. They noticed that the fans that keep the warm air away from the refrigerated areas were constantly engaged and thus always using energy. The fans even ran at night, when no operators were working at the plant or opening the doors: during those times, the opportunity for the warm exterior air to enter the cold freezer section just wasn't there.

To address this, SnoTemp operators installed a timer on the air curtain system. The timer shut the air curtain system off after 10 minutes of non-use, eliminating the run time and energy waste associated with the unused hours. The upgrade cost SnoTemp around $1,000, but the payback for the project was less than three months.

AIR CURTAIN TIMER ACTIVITY HIGHLIGHTS

125,067 kilowatt hours
$6,200 annual energy costs
$1,000 Spent to Complete Activity

> ***Why wouldn't you want to do something that net-net saves you money in just three months,"*** **says Dave.** ***"Some of these activities do cost some money, but on those, you have to look at the payback. By working it into the budget, you can see a big savings down the road.***



ABOUT SNOTEMP

SnoTemp Cold Storage is a family owned and operated temperature-controlled public warehousing company with two centrally located in Eugene and Albany, Oregon. Since 1957, SnoTemp has built a reputation of quality customer service by offering a variety of storage and value added services to meet our customer's needs through their 725,000 square feet temperature controlled facility, and convenient storage and supply chain services. SnoTemp's company culture is a perfect pairing for innovative programs like CRES: they work hard to develop their employees and build a strong company culture that creates reliable service for their customers. Their teams are purpose driven; allowing them to connect to the world as an integral link in the food supply chain.

DEFROST CONTROL STRATEGY ACTIVITY HIGHLIGHTS

110,431 kilowatt hours
$6,600 annual energy costs
$0 Spent to Complete Activity

My favorite project was finding a change we could do on the programming of our refrigeration control system during defrost. I took note of when the system didn't need the head pressure change and suggested it to the manufacturer, Logix. They really encourage system customization, so every operator should be having a look at their Logix controls to see what can help their facility run more efficiently," said Dave. "It led to big savings and I'm proud of it because they have implemented the change nationally and globally. The whole industry is going to save!

PAYING ATTENTION TO PROCESS CAN PAY OFF: LOGIX AND SNOTEMP PARTNER TO IMPROVE AN INDUSTRY

Another impactful project was completed simply by monitoring the facility's refrigeration system; the SnoTemp team pulled up a chair to sit and monitor the defrost cycle, timing each stage, and documented the results on paper.

It didn't take long for Dave to see that the system was calling for the head pressure to be raised at the initial stage of defrost, or, pump-out phase, and continued throughout the entire defrost cycle. Dave knew that he didn't need the head pressure to increase for the 20 minute pump-out period, or the 7-minute equalize and cool-down phases. However the control system did not allow him to make any changes to this setting.

To address the issue, Dave wrote to Logix, the control system manufacturer, asking them to delay raise the head pressure until the hot gas phase. Logix encourages operators and managers to customize their systems, across functionality, so this type of improvement request was met with encouragement. Logix reviewed Dave's request and agreed that the change was a great suggestion; two weeks later, the system adjustment was made. Through this no-cost activity, Dave was able to save his facility approximately $6,600 on energy costs annually.

A LOCAL PROJECT RESULTS IN WORLDWIDE SAVINGS

Sometimes, it really does take one good idea to start a chain reaction that benefits an entire industry – and that's exactly what happened here with SnoTemp and Logix. After receiving Dave's input on the defrost process, Logix immediately realized that this process could be implemented across all of their installations. In just two weeks, Logix included this change in their revision 14 and integrated it as part of their systems rollouts worldwide.

"It means a lot to work with operators and facilities to achieve best-in-class operations," says Mark Ghan of Logix. "We want to provide excellent service to our customers, and that applies to making their equipment run as smoothly and cost-effectively as possible."

In short, what started out as an opportunity to achieve energy savings and become RETA CRES certified changed the entire industry for good. That's something SnoTemp, Logix and the entire team at RETA is proud of and will continue to replicate as the program grows.

WHAT IS CRES?

The Certified Refrigeration Energy Specialist (CRES) is a new certification offered by the Refrigerating Engineers and Technicians Association (RETA); it's an energy efficiency certification for industrial refrigeration professionals. The certification is made up of two parts: an exam covering operations, safety, and energy-efficient refrigeration practices, and the completion of three energy efficiency activities at your facility. Check with your local utility to find out if they have incentives or programs to help you complete projects around your facility.

IT'S SIMPLE: JUST POINT AND SAVE

Across all of their projects, the team at SnoTemp adhered to one major theme: keeping it simple. Not only did the facility managers want to keep costs low, but they wanted to find manageable projects that would be easy to implement. The goal was to get energy savings quickly and cost-effectively.

So, as part of all of their energy efficiency management projects, Dave Brant and the team at SnoTemp ran a full facility check with their infrared camera. Using the camera, operators can survey each and every part of a facility to uncover areas where systems are running inefficiently or where vapor leaks are detected. The cameras are easy to use: simply point them at the area you'd like to scan, capture an image, and review the thermal readings that show up as hot or cool spots in the image display.

For example, when Dave took a look at his transformers, he found a set that didn't need to be used and had not been used for years. By shutting down these transformers, Dave saved 15,067 kWh or $979 per year. Because this same system ran across his facilities, by making the updated at each location he automatically doubled his savings. Although the cameras cost approximately $1,000, there are many opportunities to use them, so the savings add up.

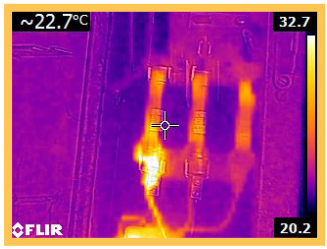
Here are just a few examples of areas where an infrared camera can be used to review system efficiencies:

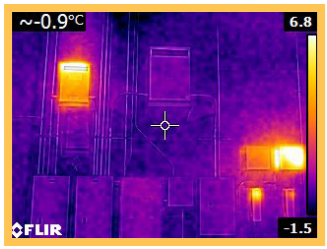
- **Fuse boxes:** Run imagery of your fuse boxes to see if you have any connections that are running hotter than others. By repairing hot spots on electrical equipment, we could save on maintenance costs and prolong functionality and longevity on the equipment.
- **Freezer doors**: By pointing and shooting the thermal camera at your freezer doors, you quickly see any vapor leaks along the door seal. Often the seal adjustments are all that is needed to be back in the energy savings game.
- **Windows:** Don't forget the office areas. Similar to your freezer doors, office windows can be leaky and air can often escape outside, or temperature outside can affect your interior environment. Be sure to check your windows with your thermal camera to see if they need replacing or a weatherization treatment. Every bit of savings helps you meet your goal.
- **Refrigeration systems:** Using the thermal camera on motor bearings may help catch a bearing going bad so you can change it out before it does any damage. It is also a good educational tool to see how heat flows through a compressor package. One look at the heat a hot gas defrost introduces to your freezer and you will be doing studies to reduce frequency and length of defrosts.
- **Pipe Insulation:** The cameras make it easy to spot hot water pipes that need insulated to squeak out a few more KWH savings - simply wrap them with inexpensive pipe insulation and you'll be all set. You can also see where refrigeration pipe insulation is saturated with a loss of insulating value. Use that info to plan future budgets to replace ineffective insulation.
- **Hot Gas Solenoid Valves:** Leaking hot gas solenoid valves can create much more loading so compressor horsepower has to go up without you receiving any refrigerating benefit. Finding and repairing leaking hot gas valves can result in awesome savings.

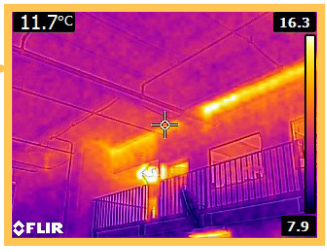
TRANSFORMER DE-ENERGIZING ACTIVITY HIGHLIGHTS

15,067 kilowatt hours
$979 annual energy costs
$1,000 Spent to Complete Activity
(Camera cost is $1,000)

"Finding savings using the thermal camera is great," says Dave. "Not only are the projects you find fairly low cost and easy to do, but surveying the facility with your camera can feel like a treasure hunt. Each time you see a big reading, you know you have a chance to save big money!"







SnoTemp