

CASE STUDY – SUNFRESH FOODS Freezer Upgrade



The Dent Instrument ELITEpro XC is a complete solution for pinpointing electrical usage and quantifying energy consumption. It is capable of measuring, storing, and analyzing electrical consumption data which is derived from the voltage and current inputs.

Sunfresh Foods Inc. is a small, locally owned company based in Seattle that has coined the term “Freezerves” to describe their signature freezer jam product.

The Sunfresh processing facility is an approx. 10,000 sq. ft. pre-fab concrete building built in the 1970s. Sunfresh wanted to reduce their high electricity bills and identified their extremely inefficient refrigeration systems as the biggest opportunity for improvement. Before beginning the project, they reached out to the Energy Conservation Program at Seattle City Light (the local utility) about possible incentives. City Light was able to provide a substantial rebate, making it cost effective for Sunfresh to upgrade to a new system. The new system achieves high energy efficiency while helping Sunfresh also attain the attendant social benefits of saving energy.

In spring of 2018, six exterior 40-foot container freezers were replaced with one large freezer located inside the building, cooled by a packaged rooftop unit. This upgrade more than doubled the freezer capacity and created operational improvements due to increased stock on hand and easier maneuvering within the space.

HOW DID WE HELP?

City Light asked Bob Brennand of Energy Smart Industrial (ESI) to help with measurement and verification (M&V) of the actual energy savings to determine the amount of the incentive.

The ESI program, sponsored by Bonneville Power Authority (BPA), helps utility customers and their industrial end-users achieve cost-effective energy savings.

Bob borrowed the Dent ElitePro XC logging power meters from Smart Buildings Center’s Tool Lending Library to measure consumption data after the upgrade, and the results were very impressive.



Left: Spacious interior of the new freezer upgraded at Sunfresh Foods
Right: Packaged rooftop unit cooling the one large freezer located inside the building

LET’S TALK SAVINGS!

The raw data shows an estimated yearly energy savings from the upgrade of 79,406 kWh or about 35%, saving the company a substantial amount each year.

- This translates to less than a 2-year payback period for the upgrade.
- After considering the difference in average outdoor air temperature between the baseline and post-analysis periods, the estimated savings are substantially greater.

The baseline was measured in March 2018, when the average outdoor temperature was 47.8 degrees F. The post upgrade data period was in May of 2019 when the average temperature was 63 degrees F.

This means that the equipment was working even harder to maintain a freezing temperature range during the post-upgrade analysis period.

After adjusting for this fact, Bob estimated additional annual savings of 27,556 kWh, for a total of 106,962 kWh/year saved, or about 47% of total energy!

MORE ABOUT DENT ELITEPRO XC

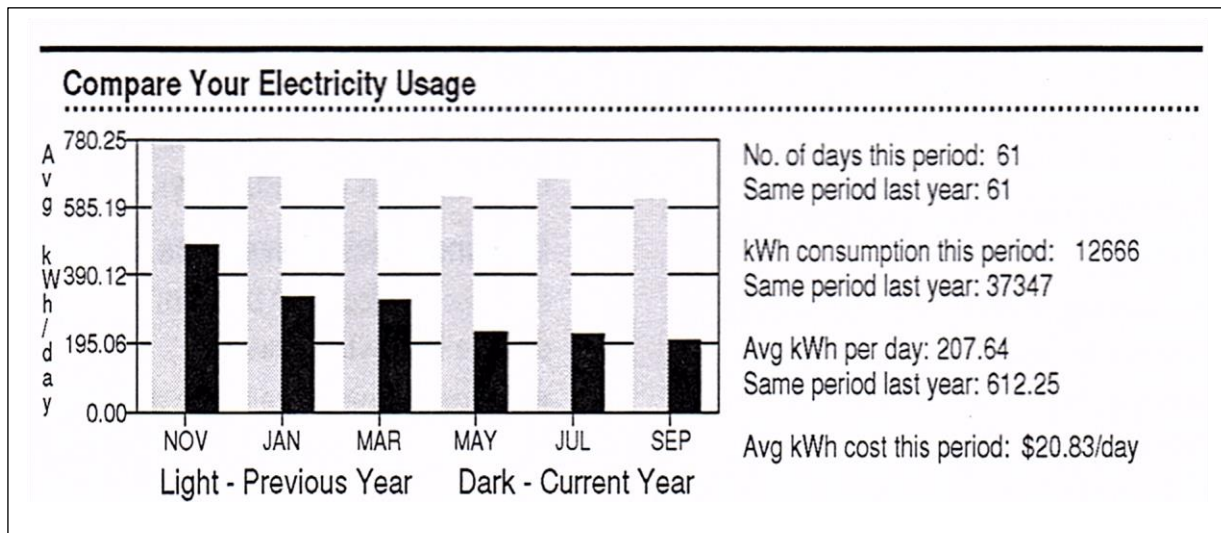
The rugged yet compact and versatile Dent ElitePro XC logging power meters allow for very accurate measurement of multiple conductors up to 6,000 amps and can be conveniently powered using line voltage directly from the panel.

With this equipment, Bob was able to take separate energy measurements for the defrost cycle and identified additional potential for savings by adding controls to activate defrost based on demand rather than on a timed schedule.



“THIS WAS MY FIRST TIME USING THE SMART BUILDINGS CENTER’S TOOL LENDING LIBRARY, BUT IT WON’T BE THE LAST. I AM HAPPY TO BE ABLE TO BORROW EQUIPMENT FOR FREE TO HELP ME DO MY WORK; AND I AM IMPRESSED BY THE GREAT VALUE THIS RESOURCE PROVIDES TO THE COMMUNITY”

-Bob Brennand, Energy Smart Industrial



The above usage graph from Sunfresh’s electricity bill shows compelling savings post freezer upgrade

About Tool Lending Library

Smart Buildings Center hosts a lending “library” of diagnostic tools available to building owners and managers, as well as energy service professionals in Washington State and Oregon, for short term data collection on energy-using equipment and systems in commercial and institutional buildings.

*Available tools include loggers, sensors, IR cameras, power and light meters, air flow tools and more. Browse **the tool inventory online** or view **our Tool List (PDF)**.*

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