



tradeforce tech

Integrated Energy Solutions

Core-Mark Milton Case Study

Intelligent
Refrigeration
Control:

38%

Cost Savings

Electronic
Expansion
Valves:

5%

Cost Savings



Total Cost
Savings:

43%

Total
ROI:

83%

Core-Mark International is one of the largest distributors of fresh and pre-packaged food products in North America. The firm sought to increase energy efficiency at its Milton, Ontario distribution centre which services thousands of convenience retailers across the continent.

“ After having KE2 controllers installed on our refrigeration system we show a significant reduction in hydro costs. We also have a reduction of frost and ice buildup in our freezer. Our temperatures are more consistent without the spiking from defrosts and other temperature changes. Having the controls connected to the internet, we are able to get alarms as soon as there are refrigeration issues which can be addressed in a timely manner.

We are very pleased with the results.

Thank you. ”



Core-Mark®

Gary White
Maintenance Supervisor
Core-Mark International



Challenge

Core-Mark Milton utilizes six refrigeration systems running ten evaporators to regulate temperature in its warehouse. Originally, these evaporators were mechanically controlled to automatically defrost four times per day for approximately 20 minutes at a time. This cycle caused the evaporators to defrost too frequently, causing several problems:

- Safety hazard resulting from ice-build up on the floor beneath the evaporators
- Spoiled product due to heat from defrost cycles causing temperature swings in the space
- Inflated energy cost of unnecessary defrost cycles

Solution

Tradeforce Tech evaluated the system at Core-Mark and identified key modifications that would reduce the amount of energy used to defrost coils and the amount of heat put back into the space while better maintaining consistent temperature control:

1. Replace mechanical refrigeration controls with an intelligent **KE2 Therm evaporator efficiency controller**
2. Install **Sporlan electronic expansion valves** to expand the flow of refrigerant to the cooler, chill dock and freezer systems.

Results

a) KE2 Therm Evaporator Efficiency Controller

The intelligent refrigeration control system activates the defrost only when necessary, reducing the amount of heat put back into the space. The controllers also utilize the ice build-up on the evaporator coil for cooling to supplement compressors and further reduce energy consumption.

These improvements enabled Core-Mark to:

- **Improve product quality** by maintaining a tighter temperature band
- **Reduce ice build-up** by better managing defrost temperature and termination point
- **Apply proactive system management practices** using temperature alerts and alarms

In all, Core-Mark saw **38% in cost savings** from installing the KE2 Therm evaporator efficiency controller.

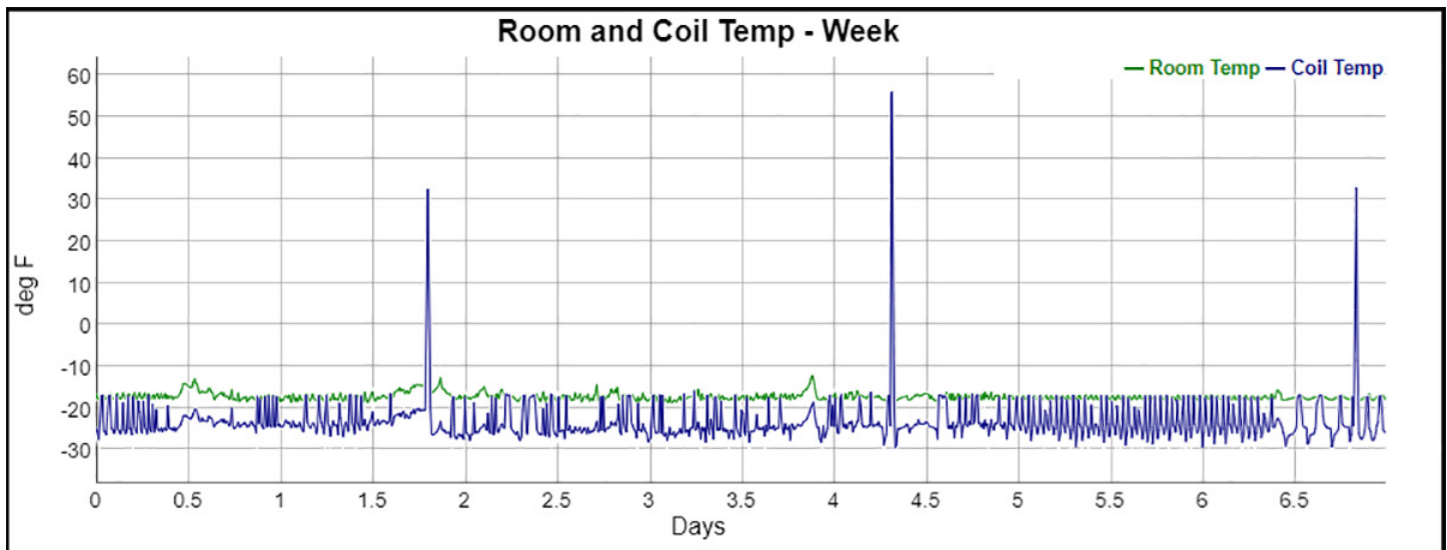
b) Sporlan Electronic Expansion Valves

The electronic valves regulate the flow of refrigerant variably, allowing the compressors to respond to changing conditions and cooling demands. As a result, Core-Mark's system can better accommodate heat loads and operate optimally based on the climate outside.

The addition of ten Sporlan electronic expansion valves account for **5% in cost savings**.

c) Total System Savings

Together, these improvements reduced the number of defrost cycles in Core-Mark's refrigeration system from 21 to three per week, yielding a total of **43% in cost savings**. The new system empowers Core-Mark to close gaps in its process, better manage energy consumption, and operate more efficiently overall.



The system undergoes three defrosts per week compared to 21 per week prior to installing the controller.