

TECHNOLOGY & LOGISTICS

SN SPECIAL REPORT



AS SEEN IN SUPERMARKET NEWS
A Retail Solutions White Paper

EnergyMisers

For some retailers, the key to using less energy involves targeting underperforming stores and applying energy management technology

By Michael Garry, Supermarket News

Wild Oats Markets, Boulder, Colorado, is taking a different approach to energy management than Food Lion and DeCA. Rather than ranking its stores, the natural foods retailer is reprogramming all of its 110 stores for greater energy efficiency. Two stores are used to test efficiency strategies before they are applied to other stores.

Wild Oats began this process in August 2004. By August 2006, energy-saving measures were taken at 20 stores, including four new units, as well as at a new refrigerated warehouse outside of Riverside, Calif., said Gary Epright, national director of maintenance and energy management. In that two-year period, he noted, the company cut energy usage by 4.4 million kWh of electricity, which

translated into a cost savings of \$512,369, as well as rebates from utility companies worth another \$453,120. Wild Oats has since reprogrammed 15 more stores.

Epright described Wild Oats' energy management system, E2, from Emerson Climate Technologies, St. Louis, as the heart of the store savings program. E2, which is in 15 of the 20 reprogrammed stores, monitors and controls a store's refrigeration, HVAC, lighting and other devices and systems — both Emerson's own systems and those of other vendors. (The other stores use older Emerson controls.) Stores each use between two and five E2 controllers, which average about \$2,400 apiece. Epright gave a number of examples of how the system has helped cut energy costs.

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EnergyMisers (continued)

By Michael Garry, Supermarket News

The E2 system, for example, controls the “antisweat” heating devices in freezer doors, which prevent them from frosting up. The E2 system will turn the devices on or off based on the amount of humidity in the store, said Epright.

E2 also controls the pressure in Wild Oats’ refrigeration compressors. By maintaining a lower pressure in the supply of refrigerant, “you minimize the amount of energy required to run the compressor,” said Epright. In addition, the system allows the temperature of the refrigerant supply to “float” to a higher level without affecting the case temperature, thereby reducing energy usage.

In other examples, E2 works with Wild Oats’ daylighting of stores, cutting back on electrical lighting when possible. It controls the air conditioning, raising the temperature setting when fewer people are in a store.

Wild Oats also employs Emerson’s ProAct Service Center, a remote monitoring service that monitors energy equipment in stores at all times. The center contacts the store manager when it detects a problem, leaving it up to the manager to request a service call. “This is our checks-and-balances system so we don’t make unnecessary service calls,” said Epright.

The E2 system has enabled Wild Oats to qualify for a number of rebates from utilities, particularly in California. One rebate was



earned as a result of the floating-temperature capability in the refrigerant supply.

Wild Oats plans to use E2 to rank its stores’ energy consumption in the future, said Epright.

“We need to do the same things in our stores, but with less energy,” he said. “The energy constraints we’re facing — higher costs, less supplies of fossil fuels — are not going away. And by using less energy, we get rebates, spend less on the electric bills and help the environment. When you look at it that way, you say, ‘Why aren’t we doing that?’”

Reduce your power consumption with Emerson Climate Technologies

Intelligent Store™: Better decisions. Better bottom line.

As highlighted in the feature story about the successful Wild Oats operation, Emerson’s Climate Technologies’ Intelligent Store™ delivers advanced electronic control and monitoring of your stores’ refrigeration, HVAC, lighting and other systems, all the way down to the component level. By integrating these systems and having them deliver actionable information, Emerson can help you substantially lower your capital, engineering and operating costs. With Intelligent Store, you’ll be able to understand what your entire network of facilities are costing to operate and maintain, and help you make decisions about where and when to spend resources to ensure they have the most impact possible.

Two primary components of the Intelligent Store are the E2 controller and our enterprise management service, ProAct™, a comprehensive monitoring and facilities management service.



Emerson’s Intelligent Store combines integrated equipment, facility control, and facility services.

ProAct™ : The intelligent watchdog for your stores

ProAct is our comprehensive enterprise management service designed specifically to help ensure that facilities are consistently running at optimum levels 24 hours a day by giving you the information you need across your entire enterprise.

The service is provided through our ProAct software suite, and is tailored to meet your specific needs, from full-service monitoring with remote equipment interrogation and resolution to call management of your maintenance and dispatch requests.

Critical Alarms	Quantity	Product Saves	Save %
Rack Failure Occurred	2,364	72	3.05%
High Suction Limit Exceeded	1,180	96	8.14%

Total Saves	168
Dollars of Food Saved	\$ 2,520,000
<i>Note: assuming \$15,000 per case/save</i>	

Assuming Product Loss savings of	\$ 2,250,000
Simple Payback of	0.196 years
Or	2.35 months

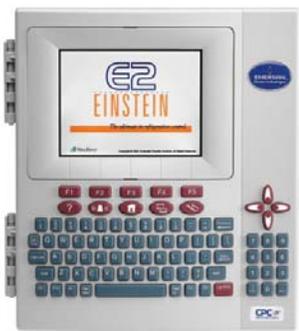
With our 24/7 service, custom reports and data analysis are sent automatically as well as around-the-clock monitoring of alarms and problem identification, thus allowing unique insight into performance issues at stores with higher alarm rates, which increases your



In working with supermarkets across the country, Emerson has saved millions of dollars in lost product while significantly reducing energy consumption.

energy usage. By automating responses to facility alarm conditions, corrections can be made quickly and histories are automatically generated by site, allowing easy identification of problem stores.

The E2 Controller. Your key to greater store intelligence.



The E2 Controller is the heart and soul of the Emerson refrigeration and energy management systems, providing intelligent monitoring and control of HVAC, refrigeration, lighting, plus many other devices and systems. In this era of increasing energy prices and greater emphasis on environmental sustainability, Emerson's products and services are the perfect match. The E2 allows you to operate systems economically,

communicate directly with compressors, safeguard valuable perishable products, seamlessly interface to third-party devices, and save both energy and maintenance dollars.

Refrigeration

E2 technology keeps your refrigeration systems running at optimum levels thus reducing operating costs and safe-guarding perishables. Case performance can be managed so precisely that shelf life of perishables can be safely extended while taking advantage of energy gains.

HVAC

With E2 controllers, you can create zones of variable heating or cooling to meet specific demands and cycle heating and cooling stages to maximize energy savings, while maintaining the correct temperature and relative-humidity set points. It's the intelligent way to manage your HVAC.

Anti-condensate control

Anti-condensate controllers minimize heater ON time based on dewpoint measurements – reducing energy usage without sacrificing the effectiveness of door heaters.

Lighting control

Combining results from time schedules, light-level sensors and override buttons, E2 easily determines whether your lights are illuminated, optimizes your lighting needs and provides you with timed overrides.

Power monitoring

E2 maximizes building comfort levels while it minimizes wasted energy. Both a power monitor and a regulator, E2 comes equipped with extensive demand shedding features, as well as detailed power-usage logs, to help you spot trends and optimize performance..

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The E2 Controller. Your key to greater store intelligence.

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Demand Control

Demand Control is used by E2 to keep the total power usage of the building environmental system below a specific demand setpoint, which is usually dictated by Wild Oats or their power company. Demand Control algorithms achieve this by reducing power consumption in one or more applications in the other E2 applications as necessary until the total KW is below the setpoint. This process is called "load shedding."

Interoperability

The E2 technology lets it monitor and control third party devices – everything from refrigeration equipment and HVAC to irrigation and security systems.

Supermarket Case Study

Total Stores	452	
Avg grocery store electricity intensity (KWH/sqft/year)	52.5	
Annual Electricity Usage – per store	1,198,673	\$ 139,482
Annual Electricity Usage – 452 stores	541,800,000	\$ 63,045,820

Intelligent Store Program

	2004-2006	Annual Average
Energy Savings (KWH) – 80 stores	17,600,000	8,800,000
Energy Savings (KWH) – per store	220,000	110,000
Cost Savings – 80 stores	\$2,048,000	\$1,024,000
Cost Savings – per store	\$ 25,600	\$12,800

Savings Percentage		9%
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Emerson delivers advanced control and facilities services for your stores' refrigeration, HVAC, lighting, and other systems, all the way down to the component level. Just as we have helped Wild Oats Markets lower their operating costs, we can do the same for you. Call us today at 770.425.2724 for more information.



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