



SAVING ENERGY UP AND DOWN THE AISLES

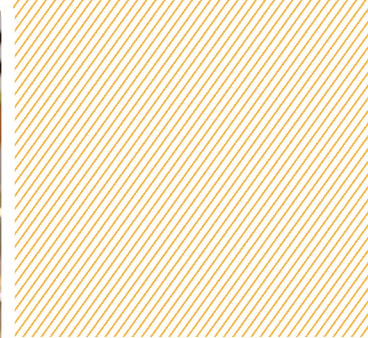
NEW SEASONS MARKET BRINGS ENERGY EFFICIENCY IN STORE

Energy efficiency is a top priority for New Seasons Market. Reducing energy use aligns with the company's commitment to sustainable operations, and cost savings go straight to the bottom line. Since 2005, New Seasons has enlisted the help of Energy Trust of Oregon when designing new stores. Energy Trust technical support and cash incentives help the company identify strategies for reducing energy use to offset the cost of energy-efficient systems and equipment.

This successful collaboration has resulted in six high-performing stores in Oregon, which together save more than 2.2 million kilowatt hours, kWh, of electricity and 54,780 therms of natural gas annually.

These stores also combine to keep approximately 850 tons of carbon dioxide emissions out of the air every year. That's equal to removing 200 cars annually from our roads.

With this record of success, New Seasons didn't think twice about calling in Energy Trust again to consult on the design of its newest project: the 30,000-square-foot Williams store on Portland's North Williams Avenue. When it opened in August 2013, the store was stocked with energy-saving equipment and systems that are expected to save 398,000 kWh of electricity and 4,300 therms every year. The Williams market incorporates lessons learned from previous projects as well as new technologies.



Sustainability through energy efficiency is a long-standing value of our company. The expertise and incentives Energy Trust offers are instrumental in helping us incorporate green building standards in our stores.



Teak Wall
sustainable program manager,
New Seasons Market

FINDING THE RIGHT SOLUTIONS

With a number of stores under its belt, New Seasons has a well-oiled design process in place. To kick off the Williams project, an early design meeting was held with Energy Trust ally R3 Retail Design and the rest of the project team. “We reviewed a number of solutions that had been used before and some that were new to the market,” said Rick Ferguson, owner, R3 Retail Development. “All the systems we consider have to save energy, but they also have to make good business sense in terms of return on investment and payback period.” Experience led the team to focus on systems and equipment that reduce refrigeration and lighting load, which in grocery stores use the most amount of energy. The following solutions were chosen based on their energy savings, cost reductions, solid return on investment and ability to qualify for Energy Trust incentives.

Optimizing refrigeration

Refrigeration can account for almost half of the energy use in the average grocery store. Optimizing refrigeration systems can reduce energy use by nearly a quarter relative to standard practices. The New Seasons team took numerous steps to ensure refrigeration units would work as efficiently as possible.

Anti-sweat heater controls

The doors of refrigerated cases often fog up or sweat due to condensation. This may damage equipment and keep customers from seeing the product. To prevent condensation, the doors and frames are heated. A store is rarely humid enough to require heaters to run constantly, but they will if controls aren't in place. To avoid this, New Seasons installed 98 linear feet of low-temperature, anti-sweat cases resulting in annual energy savings of 20,480 kWh. These controls save energy in two ways. First, the controls sense humidity conditions and turn the heaters off when not needed, rather than allowing them to run 24 hours a day. Second, because the heaters are not running as frequently, the refrigeration unit does not have to use more energy to reject the extra generated heat.



NEW SEASONS AT A GLANCE

Overview

- 30,000 square feet
- Located on Portland's North Williams bike corridor

New Seasons Williams project team

- Systems Designer–R3 Retail Design
- Architect–LRS Architects
- General Contractor–R & H Construction Co.
- Electrical Contractor–Oregon Electric
- Refrigeration Contractor–Refrigeration Contractors, Inc.
- HVAC Contractor–American Heating, Inc.

Energy-saving features

- Energy-efficient lighting fixtures and controls
- LED case lighting
- Energy-efficient refrigeration components
 - » Anti-sweat heater controls
 - » Night covers
 - » Electronically commutated motors
 - » Floating head pressure controls
- Efficient packaged rooftop HVAC system

Energy Trust incentives

- \$2,500 cash incentive for early design assistance
- \$53,900 cash incentive for equipment installations
- \$3,190 cash incentive for commissioning

Estimated energy savings

- 398,000 annual kWh
- 4,300 therms

Additional sustainable systems

- Glycol-based secondary refrigeration system
- Heat recovery system

Utilities

- Pacific Power
- NW Natural

Night curtains

Open display cases don't need to be open when the store is closed. Leaving them exposed requires the refrigeration unit to work around the clock, which wastes energy. Night curtains help contain chilled air inside the coolers, reducing electricity. The curtains also protect chilled foods to reduce product loss and the labor costs of daily trimming and rotating of fresh merchandise.

Electronically commutated motors

Coolers and freezers use forced-air circulation evaporators with propeller fans to keep products cool. New Seasons chose to power the fans with electronically commutated motors, ECMs, instead of typical shaded-pole motors. This can reduce energy use by up to 50 percent. ECMs ensure fans in refrigerated cases and walk-in coolers slow down when full-speed operation is unnecessary.

Floating head pressure controls

The refrigeration compressor helps to keep products cold, but it does not always need to run constantly, which is where floating head pressure controls can be helpful. These controls sense when ambient outdoor conditions are favorable, and engage automatically to reduce the compressor's workload, or even shut it off entirely.

Shedding light on efficiency

Lighting is often the second largest energy expense for grocery stores. New Seasons addressed two lighting components to increase efficiency: refrigerated cases and overall store lighting.

LED refrigerated display case lighting

Typically, display cases are lit by fluorescent lighting systems, however, cold temperatures can cause fluorescent light output to drop as much as 20 percent. LED lighting performs better in cold conditions, uses up to 46 percent less energy and emits less heat. As an added bonus, LEDs produce a flattering light that makes merchandise look better and more appealing.

Energy-efficient store lighting

The team also specified energy-efficient lighting throughout the store and outdoor spaces. The store also includes daylighting strategies such as skylights that reduce the need for artificial light during the day, as well as occupancy sensors in low-traffic areas.



New Seasons' Williams store features skylights that maximize natural light and help save energy.

Maximizing sustainability

The company chose energy-efficient packaged rooftop equipment for heating and cooling. It also installed a two-stage heat recovery component on the refrigeration system that captures heat from the compressor to preheat hot water to 120 degrees for use throughout the store. New Seasons also committed to additional sustainability solutions, such as a nontoxic, glycol-based secondary refrigeration system that replaces a significant amount of refrigeration chemicals that emit greenhouse gases.

LASTING BENEFITS

The equipment and systems installed in the Williams store qualified for \$53,900 in Energy Trust cash incentives, as well as \$2,500 for early design assistance and \$3,190 for commissioning. Not only do these efficiency gains save energy and boost the company's bottom line, they may also improve the indoor environment. Natural daylight and better electric lighting design improve the shopping experience, and studies show that shoppers spend more time in stores with plenty of daylighting.

New Seasons is committed to keeping up with technology gains and incorporating increasingly better efficiency strategies as it opens new stores. The company's whole-building efficiency strategies can then serve as a model for other retailers to transform their stores as well.



To learn more about energy solutions and cash incentives for your new grocery store, contact Energy Trust at newbuildings@energytrust.org or **1.877.467.0930** or visit www.energytrust.org/newbuildings.