

# Supermarkets: An Overview of Energy Use and Energy Efficiency Opportunities



## Energy Use in Supermarkets

On average, supermarkets in the United States use around 50 kilowatt-hours (kWh) of electricity and 50 cubic feet of natural gas per square foot per year — an average annual energy cost of more than \$4 per square foot. For an average-size (50,000 square foot) store, this equates to more than \$200,000 annually in energy costs and results in 1,900 tons of CO<sub>2</sub> being emitted into the atmosphere — equivalent to the emissions from 360 vehicles in one year!

Refrigeration and lighting account for over 50 percent of total energy use in the average supermarket, making these systems the best places to start looking for energy efficiency opportunities. Especially since the profit margins of supermarkets are so thin, on the order of 1 percent, ENERGY STAR estimates that one dollar in energy savings is equivalent to increasing sales by \$59!

## Energy Efficiency Opportunities

### Low-Cost Measures

- > Measure and track energy performance.
- > Establish an effective operations and maintenance program to identify and address equipment issues before they become energy-wasting problems.
- > Calibrate thermostats to ensure that their ambient temperature readings are correct.
- > Take advantage of skylights or other natural daylight sources to reduce lighting during daytime hours.
- > Set back the thermostat in the evenings and other times when a building is unoccupied, and adjust the temperature for seasonal changes.

### Cost-Effective Investments

- > Install occupancy sensors to reduce lighting and plug loads in storage rooms, back-of-house offices, and other vacant or low-traffic areas.
- > Consider energy audits to identify areas where building systems have become inefficient over time and bring them back to peak performance.
- > Explore more energy-efficient practices and technologies for refrigerated display cases, walk-ins, coolers, and freezers.
- > Upgrade to more efficient lighting technologies, including replacement of T-12 lamps with T-8 and even T-5 fixtures. Examine the opportunity to switch from high-pressure sodium lamps to metal halide lamps in parking lots and consider upgrading to LED lighting for outdoor signage.
- > Purchase ENERGY STAR qualified commercial food service equipment for kitchens.

## How to Talk to Supermarket Owners and Operators About Energy Efficiency

Energy efficiency improvements may be essential to a supermarket's continued success and the quality of the customers' shopping experience. Too much cold air escaping from refrigerated displays, for example, may decrease comfort for customers and employees alike, requiring simultaneous space heating and a significant overuse of energy.

### Supermarkets Making a Difference:

**Food Lion** has been recognized twice as an ENERGY STAR Partner of the Year for Energy Management and has been recognized four times with ENERGY Star's prestigious Sustained Excellence Award. Since 2000, Food Lion has trimmed energy use by more than 27 percent (2.43 trillion Btu) through new lighting, refrigeration, heating and cooling technologies, and company-wide energy management efforts — all while adding new stores. Each of Food Lion's 600 ENERGY STAR qualified stores (over half of the chain) saves as much as 86,000 kWh annually, enough to power nine American homes for an entire year. The associated carbon emissions reduction from each of these stores is equivalent to avoiding emissions from 19 vehicles for one year or planting 26 acres of trees.

**Giant Eagle** ranks 32nd on Forbes magazine's largest private corporations list and is a four-time ENERGY STAR Award winner. It received the ENERGY STAR for 19 stores in 2006, bringing its total to 116 ENERGY STAR labeled stores, or 82 percent of its store portfolio. The company has created a comprehensive energy management program that emphasizes energy-saving strategies and technologies, benchmarking facility energy use, energy commissioning, power monitoring, and energy procurement.

**HEB Grocery (H-E-B)** has been recognized as an ENERGY STAR Leader, and is constantly exploring energy-saving opportunities through new technologies and innovations. For example, the company requires energy-efficient lighting in stores and parking lots, saving more than \$3 million per year and reducing carbon dioxide emissions by 78 million pounds. Other low-cost measures such as closing dock doors, repairing water leaks, and turning off lights when not in use have also helped to save significant amounts of energy.

ENERGY STAR® is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency.



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[energystar.gov](http://energystar.gov)

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## How to Talk to Supermarket Owners and Operators About Energy Efficiency (cont.)

By starting with low-cost approaches to efficiency improvements, significant savings can be realized and leveraged into later, more extensive energy performance upgrades. The ancillary benefits include increased sales, increased worker productivity, and enhanced reputation as “climate stewards,” and will only add to the bottom line.

## ENERGY STAR Resources

**Guidelines for Energy Management:** Based on the successful practices of ENERGY STAR partners, these guidelines can assist supermarkets in improving their energy and financial performance while distinguishing themselves as environmental leaders.

[www.energystar.gov/guidelines](http://www.energystar.gov/guidelines)

**Portfolio Manager — Measure and Track Energy Performance:** By measuring, setting goals, and tracking energy use, supermarkets can gain control of energy expenses. Supermarkets can rate their energy performance on a scale of 1 to 100 relative to similar buildings nationwide.

[www.energystar.gov/benchmark](http://www.energystar.gov/benchmark)

**Perform Cost-effective Building Upgrades:** Plan systematic building upgrades using the 5-stage approach in EPA’s Building Upgrade Manual. This online handbook offers guidance for each stage — from commissioning to plant upgrades.

[www.energystar.gov/bldgmanual](http://www.energystar.gov/bldgmanual)

## Recognition for Achievements

**Earn the ENERGY STAR:** Buildings that rate in the top 25 percent of energy-efficient buildings in the nation may qualify for the ENERGY STAR.

[www.energystar.gov/eslabel](http://www.energystar.gov/eslabel)

**Become an ENERGY STAR Leader:** ENERGY STAR Partners who demonstrate continuous improvement portfolio-wide, not just in individual buildings, qualify for recognition as ENERGY STAR Leaders. EPA will recognize building portfolios that have achieved reductions of 10, 20, 30 percent, or more.

[www.energystar.gov/leaders](http://www.energystar.gov/leaders)

For more information on ENERGY STAR resources and recognition, visit [www.energystar.gov/retail](http://www.energystar.gov/retail).

### ENERGY STAR Offers

- Guides and manuals
- Facility benchmarking
- Training
- Institutional purchasing
- Technical support
- Financing resources
- Emissions reporting
- Third-party recognition
- Motivational campaigns

### Other Resources for Supermarkets:

Food Marketing Institute, Energy & Technical Services Conference [www.fmi.org/events](http://www.fmi.org/events)

Edison Electric Institute, National Accounts Workshops [www.eei.org/meetings/](http://www.eei.org/meetings/)

Northwest Energy Efficiency Alliance, Grocery Market Program [www.nwalliance.org/ourwork/projectsummary.aspx?ID=91](http://www.nwalliance.org/ourwork/projectsummary.aspx?ID=91)

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