

On The Menu: Major Energy Savings



Changing how you operate, maintain and upgrade commercial kitchen equipment can help you save on your energy bill.

Ovens, ranges, refrigerators and freezers are restaurant essentials. But they also comprise a substantial portion of a restaurant's energy usage. Operators like you can realize significant energy savings by maintaining current equipment, changing procedures or purchasing new, more energy-efficient equipment when needed.

We have compiled this handy guide to help you better manage energy demand across all your appliances.

Ranges

Ranges are manually controlled, and can be energy guzzlers depending on how you operate them.

Cost-saving tips:

- Maintain and adjust burners
- Use a lid to maximize heat
- Reduce idle time

How Do You Rate?

A good energy conservation program starts with good measurement. So be sure to use the Energy Star Portfolio Manager at energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager to measure and track your energy

Ovens

In terms of energy efficiency, ovens often rate better than broilers, but not as well as steamers and pressure cookers. Combination ovens are versatile and save space; yet they can use twice as much energy as convection ovens. Fortunately, Energy Star[®]-Qualified deck ovens are now available.¹

To qualify, electric deck ovens must demonstrate a tested heavy load cooking energy efficiency of 60% and an idle energy rate less than or equal to 1,300W.² Electric combination oven/steamers must demonstrate a tested steam mode cooking energy efficiency of 50% and convection mode cooking energy efficiency of 70%.³

Multiple deck configurations are paid per qualifying oven deck.

Cost-saving tips:

- Reduce idle time and turn off backup ovens whenever possible
- Fully load the oven whenever possible
- Replace seals and tighten hinges
- Use the Combination Mode sparingly

Ice Machines

Because running a smaller machine constantly during operating hours uses a lot of energy, bigger models are typically more efficient than smaller ones. Yet the price difference is usually not that great. Choose wisely and you could get twice the ice capacity at half the energy cost per pound of ice.

Energy Star-Qualified commercial ice machines are on average 15% more energy efficient than standard models.⁴

¹ Energystar.gov

² Design & Engineering Services. Southern California Edison, May 2015, Based on ASTM Standard F1965.

³ Design & Engineering Services. Southern California Edison, May 2015, Based on ASTM Standard F2861.

⁴ Putting Energy Into Profit. Energy Star[®] Guide for Restaurants. U.S. EPA, January 2012.

Fascinating Fact:

Dirty evaporator and condensing coils can rob refrigerators of **90% of their energy efficiency**.⁵ Clean every 30 days.

Did You know?

A well-designed exhaust hood can **cut energy use by 33%** compare to standard equipment.⁸

Cost-saving tips:

- Make ice at night, during off-peak periods
- Clean the coils
- Keep lids closed
- Install a timer to turn off the machine during summer on-peak time-of-use (TOU) hours from noon to 6 P.M.

Exhaust Hoods

Commercial kitchen ventilation systems typically operate at 100% capacity, even during slack periods. What's more, because they remove so much indoor air they must often draw more outside air into the kitchen than necessary, working harder and using more energy.

But a well-designed exhaust hood can deliver significant energy savings. Energy Star exhaust hoods in particular can cut energy use by 33% compared to standard equipment.⁶

Installing a variable-speed drive controller can also help. These activate the exhaust fan only when it is needed, and at the desirable speed. The result? Your exhaust system costs could drop anywhere from 30 to 50%; and you could enjoy a one- to two-year simple payback.⁷

Cost-saving tips:

- Cut down on spillage by adding inexpensive side panels to hoods
- Position each appliance as far back against the wall as possible to maximize hood overhang and close the gap between the appliance and the wall
- Install a variable-speed exhaust hood controller

Refrigerators and Freezers

Refrigerators and freezers typically consume the most energy of any type of commercial kitchen equipment, accounting for one third of total electricity usage. This includes reach-in, walk-in

and under-the-counter refrigerators/freezers, as well as a multitude of food and drink storage and display cases.

Fortunately, restaurant owners like you can do a lot to improve the energy consumption of your equipment through routine maintenance and by adding simple accessories.

Cost-saving tips:

- Set holding temperature to between 35° and 40° for walk-in coolers, between -5° and 5° for freezers
- Set defrost frequency to every four to six hours for 20 to 40 minutes, depending on walk-in traffic
- Replace old gaskets and check door sweep for tears
- Turn-off door heaters when possible
- Clean evaporator and condensing coils every 30 days
- Check refrigerant charge
- Add evaporator fan controllers. They reduce fan motor power (hence airflow) when the compressor cycles off.
- Tighten electrical connections, as loose wires can result in high amperage, which increases energy usage



⁵ 14 Ways Restaurants Can Save Money on Refrigeration. Biermayer, Peter, PG&E, March 2015.

⁶ Guide for Restaurants. Putting Energy into Profit. Energy Star® U.S. EPA, January 2012.

⁷ Ibid.

⁸ Boosting Restaurant Profits With Energy Efficiency. PGE. Efficiency Partnership, August 2006.

⁹ Guide for Restaurants. Putting Energy into Profit. Energy Star® U.S. EPA, January 2012.

- Make room for better air circulation around equipment, since poor airflow decreases performance
- Install LED lights in walk-ins and display cases
- Purchase strip curtains for walk-in units to minimize the amount of hot air entering the cooler
- Use automatic door closers

Fryers and Griddles

Like all kitchen equipment, fryers and griddles can use a lot of energy. But you can make them “energy-smart” through proper calibration and by reducing idle time. Purchasing new, Energy Star-Qualified models is also well worth considering.

Qualifying electric fryer models (vat width of 18”) must meet Energy Star specifications for energy efficiency or must have a tested heavy load cooking energy efficiency of 80% and an idle energy rate of 1,000W.⁹

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Qualifying electric griddle models must have a tested heavy load cooking energy efficiency of 70% or more, plus an idle energy rate of 355 watts per square-foot of cooking surface or less.¹¹

Cost-saving tips:

- Reduce idle time
- Recalibrate precisely and often
- Consider investing in new Energy Star-Qualified equipment



How Cool Is That?

Replacing refrigeration fans with electrically commutated motors will **reduce the energy** consumption of refrigerator and freezer cases by **40 to 70%**.¹²

Invest In New Equipment

Sometimes, it's better for energy conservation and your bottom line to invest in newer, more energy-efficient appliances.

The good news is that there is now a broad choice of equipment that is Energy Star-Qualified or that meets the efficiency standards set forth by organizations like the Foodservice Technology Center (FSTC) and the Consortium for Energy Efficiency (CEE).

Paired with a state rebate and incentives, some equipment can have an almost immediate payback.

Outfitting an entire kitchen with a suite of Energy Star-Qualified equipment could save you about 340 MBtu/year, or the equivalent of more than \$4,500/year.¹³ In addition, using such equipment is often mandatory for obtaining credits from many commercial kitchen and restaurant rating programs.

How Do You Know When It's Time to Buy New?

Start your decision-making process by following these steps:

- ✓ Calculate current costs
- ✓ Use the Food Service Technology Center lifecycle calculator at fishnick.com/saveenergy/tools/calculators (calculators are customizable and include actual brand name and model)
- ✓ Include cost of maintaining current equipment
- ✓ Figure total price of ownership
- ✓ Include the purchase price and cost to install

By Conserving Energy, We All Win

Maintaining, retrofitting and upgrading your kitchen equipment is not only a great way to save on your energy bill; it's good for business, and good for *all* businesses that count on the electrical grid for power.

For more help in saving energy, contact your Account Manager or visit sce.com/restaurants

⁹ Design & Engineering Services. Southern California Edison, May 2015, Based on ASTM Standard F1361.

¹⁰ Design & Engineering Services. Southern California Edison, May 2015, Based on ASTM Standard F2144.

¹¹ Design & Engineering Services. Southern California Edison, May 2015, Based on ASTM Standard F1275.

¹² Duke Energy® Progress, progress-energy.com. [Energystar.gov](http://energystar.gov)

¹³ [Energystar.gov](http://energystar.gov).

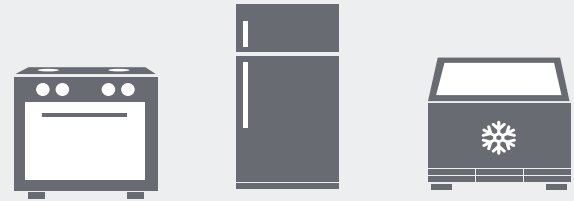


What Is Energy Star?

Commercial equipment that has earned Energy Star qualification meet strict guidelines set by the U.S. Environmental Protection Agency for energy-efficiency. Performance is certified by third-parties based on testing performed in an EPA-recognized laboratory.

New, Energy-Efficient Energy Star-Qualified Equipment Can:

- ✓ Help cut energy costs by 10 to 30%¹⁴
- ✓ Improve the quality of food prepared
- ✓ Increase productivity
- ✓ Contribute to a cleaner environment



Now You're Cooking

Electric Energy Star-Qualified convection ovens can save you \$190 annually.¹⁵

Star Quality

Investing in new Energy Star-Qualified refrigeration can help cut energy costs by 10 to 30%!¹⁶

Cold, Hard Fact

Energy Star-Qualified commercial ice machines are 15% more energy-efficient than standard models on average.¹⁷



Additional Resources

Food Service Technology Center.

fishnick.com

U.S. Department of Energy, Federal Energy Management Program.

eere.energy.gov/femp/procurement

Green Restaurant Association.

dinegreen.com

Putting Energy into Profit. Energy Star® Guide for Restaurants. U.S. EPA. January 2012.

energystar.gov/ia/business/small_business/sb_guidebook/smallbizguide.pdf

Interested In Learning More?

Choose from the many topics in our Energy Conservation Series:

- LED Lights: A Bright New Way to Conserve Energy
- Plug In To Greater Energy Savings— With Smart Plug Load Management
- Switch To a More Energy-Efficient Business—With Smart Lighting Controls
- Manufacturing Motors & Compressors: Start Your Energy-Efficient Engines
- Cold Hard Facts About Refrigeration and Energy Conservation for Grocery and Convenience Stores
- Energy Efficiency Is In the Air: Optimizing Your HVAC
- Agricultural Pumping: Pumped and Primed to Save Energy

¹⁴ Duke Energy® Progress, progress-energy.com

¹⁵ energystar.gov

¹⁶ Duke Energy® Progress, progress-energy.com

¹⁷ energystar.gov