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Energy Savings Tips for Small Businesses: Restaurants

Restaurants use about five to seven times more energy per square foot than other commercial buildings. High-volume quick-service restaurants (QSRs) may even use up to 10 times more energy per square foot than other commercial buildings. Restaurants generally use the most electricity for refrigeration, followed by lighting, then cooling. This document will help you target energy use in these areas and take your energy program one step further by providing additional guidance tailored for restaurants including:



- How to profile your restaurant's energy use
- What restaurant-specific tips can help you save energy and money
- Where to find restaurant-specific, online resources.

Profiling Your Energy Use

Restaurants face a number of challenges and opportunities for energy management, so ensuring efficient energy use is a business practice that improves profitability, reduces greenhouse gas emissions, and conserves natural resources. The following ENERGY STAR guides and resources can assist you in streamlining your business' energy needs (see the last section, *Resources and Links*, for website links to all these publications).

The *ENERGY STAR Guide for Cafés, Restaurants, and Institutional Kitchens* helps you identify ways to save energy and water in your restaurant, boost your bottom line, and help protect the environment. This resource also contains tips on how to upgrade your equipment and highlights best practices that can positively impact your business' daily operations. This guide specifically addresses ENERGY STAR for Commercial Food Service and other energy-saving options such as: Lamps and Lighting Fixtures, HVAC, and Water and Waste Management. You can also learn about quick tips, energy-efficient equipment, and resources for saving energy in restaurants in the two-page, quick-reference *Energy Use and Energy Efficiency Opportunities in Restaurants* fact sheet. Restaurants also use a significant amount of water in daily operations so check out EPA's WaterSense resources to identify water-efficient products and programs at <http://www.epa.gov/watersense/index.html>.

Make sure to purchase ENERGY STAR certified Commercial Food Service Equipment for new construction or to replace aging equipment. This can cut kitchen utility costs without sacrificing features,



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quality, or style—all while making significant contributions to a cleaner environment. When choosing equipment, take into account the total cost of ownership. The purchase price is often a small portion of the total cost. Certified dishwashers, ice machines, and steam cookers also save water which helps operators lower their water and sewer bills. See how much an upgrade can save using the Commercial Kitchen Equipment Savings Calculator.

In addition to energy waste, another avenue for waste reduction that restaurants can consider is reduction in food waste. The US generates more than 36 million tons of food waste each year. In fact, since 2010, food waste is the single largest component of municipal solid waste reaching landfills and incinerators. Often, simple changes in food purchasing, storage, preparation, and service practices can yield significant reductions in food waste generation. To assist in food recovery, both EPA and the USDA recommend some of the following steps: reduce the amount of food waste being generated, donate excess food to food banks, soup kitchens, and shelters; provide food scraps and fats to farmers for feed and rendering; donate oil for fuel and food discards for animal feed production; recycle food scraps into a nutrient rich soil amendment such as compost. These steps will all significantly improve your waste impact, but you can take it a step further by joining the EPA's Food Recovery Challenge (FRC) at <http://www.epa.gov/foodrecoverychallenge>. By registering with the FRC, you make it easy to set baselines, choose your goals, take specific action to reduce waste, and track your progress with the SMM Data Management System.

Tips for Energy Saving at Your Restaurant

Refrigeration and Other Restaurant Equipment

ENERGY STAR certification currently is available in eight product categories: commercial hot food holding cabinets, solid and glass door refrigerators and freezers, fryers, steam cookers, ice machines, ovens (convection and combination ovens), griddles, and dishwashers. These energy-efficient products offer energy savings of 10 to 70 percent over standard models, depending upon the product category. Here are some specific tips for your restaurant:

- **Maintain and repair.** Leaky walk-in refrigerator gaskets, freezer doors that do not shut, cooking appliances that have lost their knobs—all these “energy leaks” add up to money wasted each month. Don't let every day wear and tear drive up your energy bills.
- **Cut idle time.** If you leave your equipment ON when it is not performing useful work, it costs you money. Implement a startup/shutdown plan to make sure you are using only the equipment that you need, when you need it.
- **Select ENERGY STAR certified appliances.** If you're in the market for new equipment, think in terms of life-cycle costs, which include purchase price, annual energy costs, and other long-term costs associated with the equipment. While high-efficiency appliances could cost more up front, significantly lower utility bills can make up for the price difference. Be sure to ask your dealer or kitchen designer to supply you with ENERGY STAR certified equipment.



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- **Recalibrate to stay efficient.** The performance of your kitchen equipment changes over time. Thermostats and control systems can fail, fall out of calibration, or be readjusted. Take the time to do a regular thermostat check on your appliances, refrigeration, dish machines, and hot water heaters and reset them to the correct operating temperature.
- **Cook wisely.** Ovens tend to be more efficient than rotisseries; griddles tend to be more efficient than broilers. Examine your cooking methods and menu; find ways to rely on your more energy-efficient appliances to cook for your customers.

Lighting

Lighting is a significant energy user—averaging 13% of the total energy breakdown of a restaurant—and is a great place to start an efficiency upgrade. Lighting products that have earned the ENERGY STAR deliver exceptional features, while using less energy. ENERGY STAR certified lighting products combine quality and attractive design with the highest levels of energy efficiency available today. ENERGY STAR certified fixtures typically use one-quarter of the energy consumed by traditional lighting, and they distribute light more efficiently and evenly than standard fixtures. Be sure to use *ENERGY STAR Lighting Options for Restaurants and Commercial Kitchens* as a resource. Some specific tips include:

- **Employ bi-level switching.** Bi-level switching allows you to control a lighting system in groups of fixtures or lamps. For example, bi-level switching allows you to turn off half of the lights in a room off when full illumination is not required.
- **Dim the lights.** Dimmers are available for both LEDs and CFLs (ensure that you use dimmable CFLs). Daylight dimmers are special sensors that automatically dim room lights based on the amount of free and natural daylight available.
- **Try daylight sensors (photocells).** A common inefficiency of exterior lighting systems is a tendency to “dayburn,” leaving exterior lights on during the day, wasting energy and money. This problem can be prevented by installing daylight sensors that turn the lights on and off automatically based on daylight.
- **Swap old Open/Closed and EXIT signs with LED lighting for additional energy savings.**
- **Turn off lights in unoccupied areas and where daylight is sufficient.**
- **Install occupancy sensors** in closets, storage rooms, break rooms, and restrooms. Check the manufacturer’s website for compatibility with controls.



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Heating and Cooling

ENERGY STAR certified Light Commercial HVAC (LCHVAC) equipment can save a good deal of money for your facility per year—depending on your current use. To save additional energy in your facility, look for ENERGY STAR ventilating fans for bathrooms and ceilings. ENERGY STAR certified ventilating fan models use 70 percent less energy than standard models, and certified ceiling fan/light combination units are over 50 percent more efficient than conventional units. Here are some tips you can employ in your restaurant:

- **Change your air filter regularly.** Check your filter every month, especially during heavy use months (winter and summer). If the filter looks dirty after a month, change it. At a minimum, change the filter every 3 months. A dirty filter will slow down air flow and make the system work harder to keep you warm or cool—wasting energy.
- **Tune up your HVAC equipment yearly.** Just as a tune-up for your car can improve your gas mileage, a yearly tune-up of your heating and cooling system can improve efficiency and comfort. Use the *ENERGY STAR Maintenance Checklist* as a guide.
- **Install a programmable thermostat.** A programmable thermostat is ideal for spaces that are unoccupied during set periods of time throughout the week.

Although kitchen ventilation is not covered by the ENERGY STAR Program, if you are getting ready to design a new kitchen or renovate an old one, check out “Improving Commercial Kitchen Ventilation System Performance,” a two-part kitchen ventilation design guide written by the experts at PG&E FSTC and available at www.fishnick.com/ventilation/designguides.

You can also cut down on heat and smoke spillage in your kitchen by adding inexpensive side panels to hoods and turning off exhaust hood when appliances aren’t being used. Another option is a demand-based exhaust control system which uses sensors to monitor your cooking and varies the exhaust fan speed to match your ventilation needs.



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Resources and Links

This section includes online resources that can help your restaurant improve its energy use and energy efficiency.

- ENERGY STAR Guide for Cafés, Restaurants, and Institutional Kitchens:
www.energystar.gov/ia/partners/publications/pubdocs/Guide%20for%20Cafes%20Restaurants%20and%20Institutional%20Kitchens_January%202014.pdf
- ENERGY STAR Energy Use and Energy Efficiency Opportunities in Restaurants:
<http://www.energystar.gov/buildings/tools-and-resources/energy-use-and-energy-efficiency-opportunities-restaurants>
- ENERGY STAR Commercial Food Service Equipment: www.energystar.gov/cfs
- Commercial Kitchen Equipment Savings Calculator:
http://www.energystar.gov/buildings/sites/default/uploads/files/commercial_kitchen_equipment_calculator.xlsx
- ENERGY STAR for Commercial Kitchens: Helping Customers Manage Costs Through Energy Savings:
www.energystar.gov/ia/products/commercial_food_service/downloads/ES-CFS_Guide_508.pdf
- ENERGY STAR Equipment Savings Fact Sheet:
www.energystar.gov/ia/products/commercial_food_service/downloads/restaurant_equipment_savings_factsheet.pdf
- ENERGY STAR Product Savings Fact Sheets:
http://www.energystar.gov/ia/products/downloads/Sell_Sheets.zip
- ENERGY STAR Lighting Options for Restaurants and Commercial Kitchens:
www.energystar.gov/ia/products/commercial_food_service/downloads/Lighting_Fact_Sheet_for_Restaurants_FINAL_for_posting.pdf
- ENERGY STAR Product Finder: www.energystar.gov/productfinder
- ENERGY STAR HVAC Maintenance Checklist: http://www.energystar.gov/index.cfm?c=heat_cool.pr_maintenance
- ENERGY STAR Rebate Finder and the CFS Incentive Guide:
www.energystar.gov/rebatefinder and www.energystar.gov/cfs/incentives
- EPA's WaterSense Partnership Program: www.epa.gov/watersense
- SBA Information for Restaurants:
<http://www.sba.gov/content/energy-efficiency-restaurants>
- Consortium for Energy Efficiency's (CEE) Energy Efficiency Program Library:
library.cee1.org/content/commercial-kitchens-initiative-description
- The Pacific Gas and Electric Food Service Technology Center: www.fishnick.com
- Green Restaurant Association: www.dinegreen.com
- The National Restaurant Association's Conserve Program: <http://conserve.restaurant.org>
- International Council on Hotel, Restaurant, and Institutional Education: www.chrie.org