

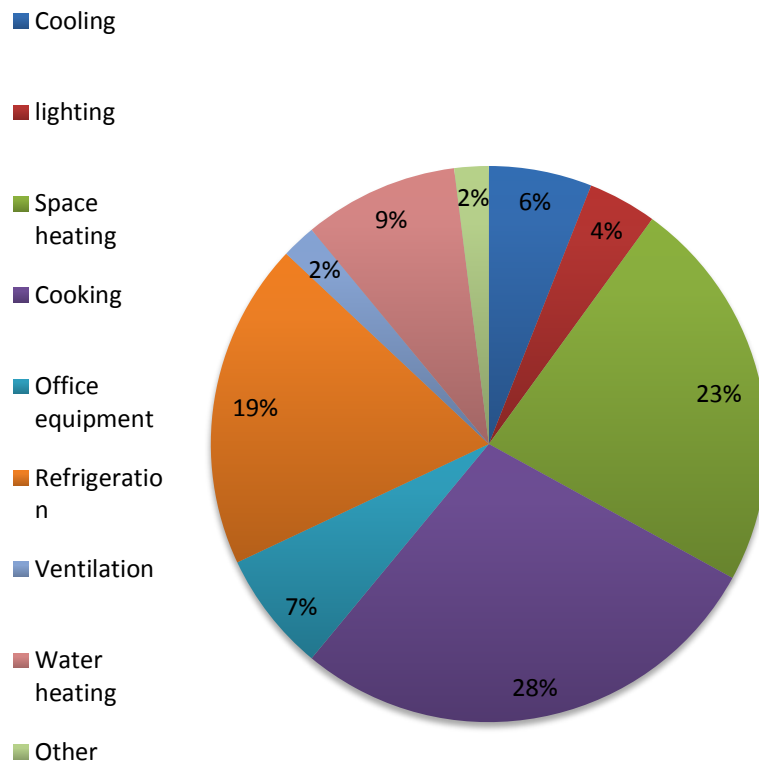
Energy Management For Restaurant

Sources: www.eia.gov/oog/info/ngw/ngupdate.asp
www.xcelenergy.com/
www.energystar.gov/

A typical Restaurant energy usage is as follows in the U.S.A.

Cooling	6%
Lighting	4%
Space heating	23%
Sub total	<u>33%</u>
Cooking	<u>28%</u>
Office equipment	7%
Refrigeration	19%
Ventilation	2%
Water heating	9%
Other	2%
sub total	<u>39%</u>
total	<u>100%</u>

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Energy cost account for 15% of a restaurant's operating budget. Restaurants in the U.S. use on average

38 Kilowatt-hours (kWh) / square foot / year
 11 Cubic feet of natural gas / square foot / year
 Based on \$.10 / kWh
 \$6.50 / mmBtu

\$3.87 / Square Foot / year
 141 kBtu / Square Foot / Year

No- and low-cost energy saving tips

Many restaurants can benefit from low- or no-cost measures to reduce energy consumption.

TURNING THINGS OFF

- * **In Storage Areas.** There are a variety of ways to turn off lights and equipment in storage area (such as walk-in coolers).
- * **In the Kitchen.** Encourage your staff to use good operating habits and turn kitchen equipment off when not in use. For example, fryers sit idle more than 75% of the time, even in busy quick-service restaurants.

TURNING THINGS DOWN

- * **Equipment.** For equipment that you choose not to turn off entirely, such as the refrigeration system or air conditioner, set controls to minimum levels during operating hours and turn down equipment just before closing each night.
- * **Lights.** In spaces where natural lighting is available, dim lights in proportion to the availability of sunlight. Daylight sensors and controls are available that can perform this function for you automatically.

REPAIR AND MAINTENANCE

- * **Keep lights clean.** Clean lighting fixtures and bulbs to ensure they continue to perform as designed.
- * **Inspect refrigerator, freezer, and hot-food holding cabinet doors.** Poorly maintained refrigerator doors can leak cool air, which means the condenser runs unnecessarily to maintain the proper temperature. The same is true for the heating element in a poorly maintained hot-food holding cabinet. Replace worn gaskets and make sure doors are aligned properly.
- * **Repair controls.** Thermostats and control systems can drift out of calibration or even fail outright. Take the time to periodically check thermostats and other controls.
- * **Inspect the water heater.**
- * **Repair water leaks.** A cold water leak that loses 0.2 gallons per minute will waste more than 100,000 gallons over the course of a year and cost a restaurant \$700 in water alone.
- * **Check the economizer.** An economizer that's stuck in the fully open position can add as much as 50% to a building's energy bill.
- * **Check air-conditioning temperatures.**
- * **Change Filters.** Change air conditioner filters every month.
- * **Clean condenser coils - Clean evaporator coils.**
- * **Check for airflow.** Hold your hand up to air registers to ensure that airflow is adequate. If there is little airflow or dirt and dust are found at the register, have a technician inspect your unit and duct work.

REFRIGERATION MEASURES

- * **Evaporator fan controllers in coolers.** The fans run continuously. Controllers are available to slow these fans.
- * **Demand-defrost kits**

LIGHTING MEASURES

- * **Switch to compact fluorescent lamps.** Replacing incandescent bulbs with compact fluorescent lamps (CFLs) not only saves energy, but the bulbs also last much longer, so they save on maintenance.
- * **Install T8 lamps and electronic ballasts.** If your facility uses T12 fluorescent lamps, relamping with the latest T8 lamps and electronic ballasts can cut 35% off your lighting bill.
- * **Use daylighting controls.**
- * **Illuminate with LEDs.**

WATER HEATER MEASURES

- * **High-efficiency water heaters.**
- * **Tankless water heaters.**

VENTILATION MEASURES

- * **Optimize makeup air.** Kitchen ventilation systems represent one of the largest uses of energy in a commercial food facility.