

WAYS TO SAVE AT WORK

Energy Conservation
Tips for Offices and
Commercial Kitchens



Hawaiian Electric Company

www.heco.com

TIPS FOR SMALL BUSINESSES

The calculations and cost savings are based on industry averages and \$0.30 per kWh (2008 Schedule G average).

LIGHT WISELY

ENERGY STAR® qualified compact fluorescent light bulbs (CFL) produce the same warm light as incandescent bulbs, yet use 75% less energy and can last up to 10 times longer. Changing three 100-watt incandescent bulbs to equivalent 25-watt CFLs could save a business about 657 kilowatt-hours (kWh) and nearly \$200 per year.



- Replace incandescent bulbs with ENERGY STAR qualified CFLs.**
Read the packaging carefully to select the right bulb for your fixture.
- Turn off lights in unoccupied rooms, offices, and bathrooms.**
- Dust bulbs and fixtures for consistently bright light.**
- Use natural sunlight when possible.**
Consider rearranging the workspace to take advantage of areas with natural light.
- Use “task” lighting with energy-efficient bulbs rather than lighting an entire area.**
- Install occupancy/motion sensors.**
Reduce unnecessary lighting in bathrooms, closets, storage rooms, conference rooms, and break rooms that are not in use.
- Set timers or install photocells.**
Ensure that indoor and outdoor lights are turned off automatically.
- Install electric dimmable ballasts and controls.**
Dim lights when there is sufficient natural light.
- Swap out T12s.**
Switch to more efficient T8 or T5 fluorescent lamps and fixtures. T8 lamps are up to 40% more energy efficient and produce less heat.

Use light-emitting diode (LED) signs.

LED signs use approximately 80% less electricity than incandescent signs, and the “bulbs” typically last 10 years or more (compared to about three months for incandescent signs).

Implement a shutdown schedule.

Make a list of all the lights—indoors and out—that are not necessary at night. Create a shutdown schedule to ensure unnecessary lights are shut off at the close of business.

KEEP YOUR COOL

Maintain a tight seal.

Maintaining the seals around doors and windows and keeping them closed when the air conditioner is on could reduce air conditioning usage by 10%-20%. Sealing off unused areas like storage rooms also reduces unnecessary cooling.

Avoid space heaters that force air conditioners to work harder.

Turn off the air conditioner at the close of business if possible.

Reduce or turn off air conditioning before the end of operating hours for additional savings. Use a programmable thermostat so you don't have to remember to turn off the air conditioning at the close of business.

VENDING MACHINES

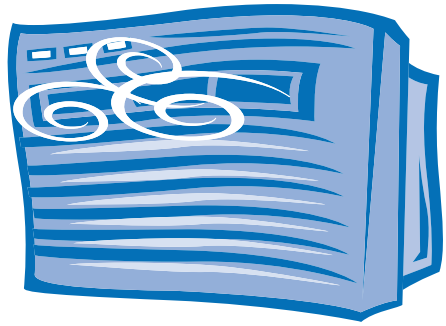
Vending machines can be overlooked when considering business energy consumption, but they can be one of the largest energy consumers in the office environment. ENERGY STAR qualified machines are 50% more energy efficient than standard models and can save more than 1,700 kWh/year. This amounts to approximately \$510 in annual savings.



- Ask the vendor company to de-lamp the advertising lights inside the machine.
- Install occupancy sensors and controllers to reduce a vending machine's power requirements during long periods of non-use such as overnight and weekends.
- Locate the machine in a shaded area.

- Set the thermostat to the warmest comfortable temperature.**

Each degree above 75 degrees saves approximately 3% of the energy used to cool the space. Remember, starting with a colder setting will not cool the office faster when the unit turns on.



- Circulate cool air with ceiling fans rather than lowering the thermostat temperature.**
- Hang blinds, awnings, or install window tinting film to block the sun's heat.**

A clear, heat-rejecting, window film can cut cooling costs and block damaging ultra-violet light that will fade carpets and furniture. A quality film should be applied by a professional and should include a warranty.

- Plant native shrubs or trees in line with windows for shade.**
- Maintain cooling system equipment to ensure efficiency.**
Have equipment serviced by a qualified professional at least twice a year and regularly replace dirty air filters that impede airflow.

SAVE WATER, SAVE ENERGY



- Don't ignore leaks.**
A faucet leaking one hot-water drop per second wastes 400 kWh or approximately \$120 per year. By conserving hot water you trim not one but two bills: one for the water, and another for the electricity used to heat it.
- Install low-flow aerators on faucets to save on water and water-heating costs.**
- Select an ENERGY STAR water cooler.**
A standard hot and cold bottled water cooler can use more energy than a large refrigerator. An ENERGY STAR qualified model requires only about half as much energy.

MONITOR YOUR EQUIPMENT

Select ENERGY STAR qualified equipment for new purchases.

Activate sleep mode.

Instead of using screen savers, activating the sleep mode on your computer and monitor will reduce their energy use by approximately 70%. Screen savers are also unnecessary for modern LCD monitors and can use more energy than not using them.

Turn off your monitor.

Turn off monitors overnight and during breaks, especially if they will be unused longer than 20 minutes.

Shut down computers overnight if it does not interfere with IT maintenance.

Turn off copiers and printers.

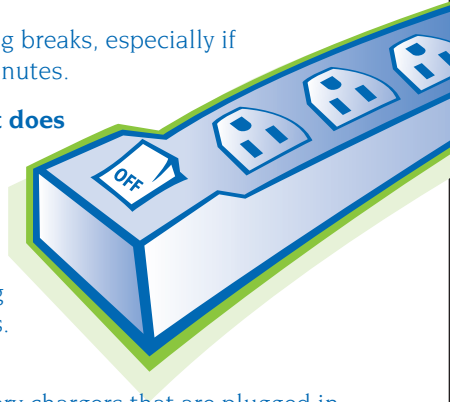
Copiers and printers can be big energy consumers in businesses because they are often left on for long periods of time—sometimes 24 hours.

Unplug unused equipment.

Power supplies, appliances, and battery chargers that are plugged in will draw power even when not in use.

Use a power strip or surge suppressor to cut power from hard-to-reach outlets.

Using a power strip to turn off the computer can save around 50 kWh, or up to \$15 per year.



SAFETY TIPS

- Choose power strips and surge suppressors that bear a product safety certification mark such as Underwriters Laboratories (UL) or ETL. Low-quality or counterfeit power strips may contain inadequate wiring for the load.
- Place power strips and surge suppressors where there is plenty of air circulation to disperse heat.
- Do not bind, kink, or knot electrical cords.
- Never run power cords under rugs or where chairs can roll over them.
- Keep cords close to walls to avoid creating trip hazards.
- When using power strips, be careful not to overload the circuit.

Source: Electrical Safety Foundation International

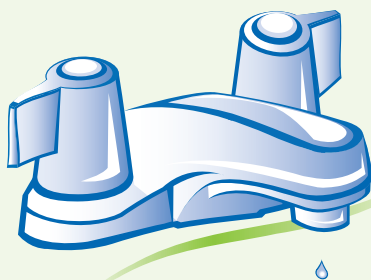
TIPS FOR COMMERCIAL KITCHENS

How you use kitchen appliances can be as important as the appliances themselves.

SAVE WATER AND ENERGY

Don't ignore leaks.

A leaky faucet or dishwasher, or a stuck solenoid valve that loses one-tenth of a gallon per minute will waste more than 50,000 gallons over the course of a year. If it's a hot-water leak, energy costs will add up.



Add aerators.

Hand sink faucets can use as much as 10 gallons of water per minute. Install aerators on kitchen and bathroom hand sinks to cut water use and save on water-heating costs.

Switch to low-flow pre-rinse spray valves.

Low-flow spray valves will reduce water and energy costs. As of January 2006, new pre-rinse spray valves are required by law to be low-flow models.



Insulate hot-water pipes.

Check your water temperature.

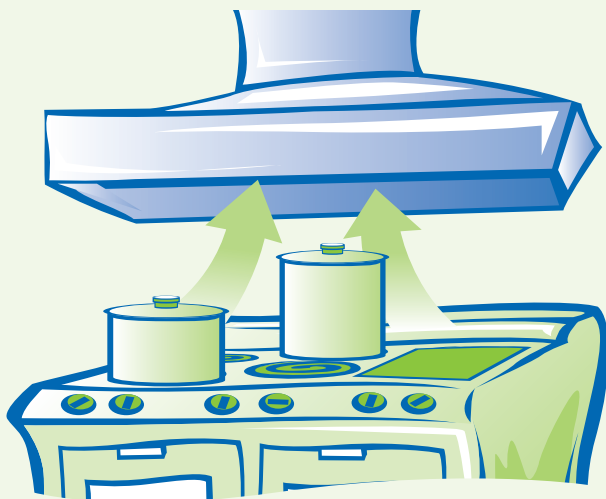
Make sure your water heater isn't working harder than it has to; hot water should be around 140 degrees at the faucet of the pot sink closest to the dishwasher.

Turn on the automatic flue damper.

Commercial water heaters with an automatic flue damper that closes when the burners are off saves energy by preventing heat from escaping.

Control the recirculation pump.

If your hot-water system includes a recirculation pump, install a timer that turns the pump off when your kitchen is closed to reduce the heat loss from your hot-water pipes.



OPTIMIZE VENTILATION

An unbalanced or poorly designed kitchen exhaust system can impact both air quality and your bottom line. Consider enlisting the help of an expert to design an optimized exhaust setup.

- Catch all that you can.**
Cross drafts and misaligned appliances allow heat and smoke to spill into the kitchen, and cause cooling costs to rise. Reduce spillage by adding inexpensive side panels to hoods and pushing appliances as far back against the wall as possible to maximize hood overhang. Consider a five- or six-foot deep hood.
- Rebalance the air.**
Time, maintenance, and broken belts lead to unbalanced kitchen exhaust systems that may move too much or too little air. This also applies to heating, ventilation, and air conditioning (HVAC) systems. Outside doors that are hard to open because of suction or that blow open by themselves are indications that it's time to rebalance the air.
- Consider variable-speed exhaust.**
Variable-speed, demand-based exhaust controls use sensors to match the exhaust fan speed with ventilation needs. They reduce the operational costs of an exhaust system by 30% to 50%, and can be retrofitted to existing hoods.

MANAGE APPLIANCES

- Cut idle and standby time.**
Shut down appliances during slow hours. Implement a startup/shutdown schedule to make sure you're using only the equipment that you need, when you need it.
- Stay on top of maintenance and repairs.**
Cleaning and replacing broken control panels or knobs enable appliances to operate more effectively.
- Recalibrate thermostats.**
Occasional thermostat checks and recalibration ensure proper cooking temperatures.
- Choose energy-efficient appliances.**
In addition to higher operating costs, inefficient kitchen appliances tend to emit more heat and raise air cooling costs.

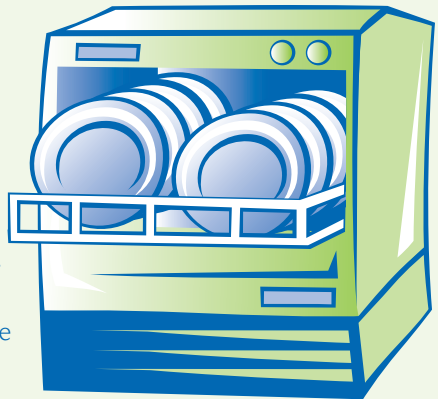
BROILERS

The Food Service Technology Center (FSTC) reported that one broiler can use as much energy as six fryers.

- Reduce preheat time.**
Few cooking appliances require more than 20-30 minutes to preheat.
- Reduce the cooking area by turning off unused sections.**
- Rely on griddles as energy-efficient alternatives to broilers.**

DISHWASHERS

- Run full loads to reduce wash cycles.**
- Turn off the internal tank heater in your high-temp dishwasher overnight.**
- Check the rinse pressure.**
Most dishwashers require water pressure settings at 20 pounds per square inch (psi). Setting the psi higher will use more water than necessary.



- Check the water temperature.**
Follow manufacturer specifications for tank and rinse temperatures.
- Operate conveyors in auto mode so they run only when needed.**
- Add and maintain wash curtains on conveyor dishwashers to help keep the heat in.**
- Consider installing a heat recovery system.**
Refrigerant heat-recovery systems use waste heat from the walk-in refrigerators and freezers to preheat water.

Fryers can spend more than 75% of the day idle. ENERGY STAR® qualified fryers use 25% less energy.

GRIDDLES

- Look for grooved surfaces.**
Consider purchasing a griddle with both grooved and flat cooking surfaces if you do a lot of broiling. Griddles use less energy than broilers, and the grooves can create broiler-like char marks.

HOLDING CABINETS

- Turn them off.**
The U.S. Department of Energy reports that holding cabinets are frequently left on overnight.
- Choose insulated cabinets—they use up to 65% less energy.**

ICE MACHINES

ENERGY STAR qualified commercial ice machines can save businesses about 1200 kWh and 2500 gallons of water per year.

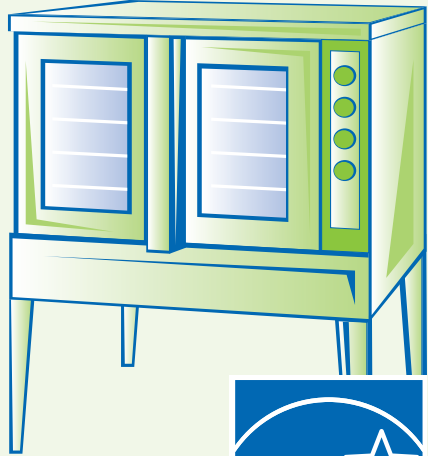
- Consider their capacity.**
Bigger ice machines can be more efficient than the smaller ones, and it may not cost twice as much for twice the capacity. Manufacturers voluntarily report water and energy use for their machines to the Air Conditioning and Refrigeration Institute (ARI); see www.ari.org.



OVENS

Ovens are often more efficient than broilers, but less efficient than steamers and pressure cookers. ENERGY STAR commercial ovens are about 20% more energy efficient than standard models.

- Consider an ENERGY STAR electric convection oven.**
- Use “combi” mode sparingly on combination-style ovens.** Combination models can provide both oven and steamer functions, but may use double the amount of energy.
- Cook full loads.**



RANGES

- Put a lid on pots to hold in heat and shorten cooking times.**



REFRIGERATORS AND FREEZERS

- Turn off door heaters on reach-in refrigerators or freezers.** However, turn the switch back on if you notice significant frost around the door or water dripping on the floor from the front of the refrigerator. Never compromise safety or performance.
- Allow ample air circulation.** Leave at least four inches between the wall and the unit. Pushing reach-ins into tight spaces causes heat to build up and makes the system work harder.
- Clean debris from condenser and evaporator coils to maintain air flow and efficiency.**
- Close the lid on food wells.** Leaving lids open on prep tables could increase energy consumption by up to 50%.

- Check and set defrost cycles.**
Defrosting is an energy-intensive process. Find the defrost setting that is right for you—in most cases it is no more than 15 minutes, four times daily. To set your defrost time clock, use the pins on the outside ring to set the number of defrost cycles and use the center dial to set how long each defrost cycle lasts.
- Keep the hot air out.**
Strip curtains and automatic door closers for walk-ins are inexpensive and easy to install. Strip curtains can cut outside-air infiltration by up to 75%. Night curtains on display cases also help keep cold air in.
- Shade remote condensers.**
Remote condensers for walk-ins are often found on rooftops. Strategically place panels to shade the condenser during the hottest part of the day, while still allowing airflow into and around the unit.
- Insulate suction lines on systems with remote condensers.**
Insulated suction lines transporting refrigerant from the evaporator to the compressor will absorb less heat.
- Recharge low refrigerant.**
A walk-in with too little refrigerant can strain the compressor, driving energy costs up and increasing equipment failure risks. Look for the small window into the refrigerant line on the condenser. Recharge it when you see bubbles while the system is running.
- Switch to efficient freezer fan motors.**
It may be wise to upgrade to newer electronically commutated models (ECM) rather than wait for an emergency service call.

STEAMERS

ENERGY STAR qualified connectionless steamers require less maintenance than boiler-based steamers and consume less energy and water.

- Close the door.**
- Use only as many compartments as you need.**
- Use the timer.**

Acknowledgements: Many of the commercial kitchen and restaurant tips were originally developed by the California Flex Your Power program for its Restaurant Best Practices Guide. Other resources include ENERGY STAR and the Foods Service Technology Center.



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