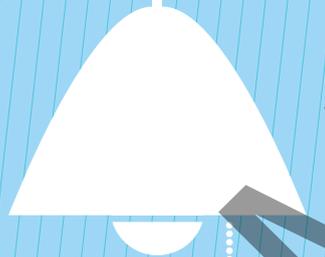


**SAVING
ENERGY**

IN THE OFFICE



**DID
YOU
KNOW...**



ENERGY IS THE SINGLE LARGEST OPERATING EXPENSE IN OFFICE BUILDINGS

A typical commercial building in the United States wastes 30% of its energy. Your business pays for that energy, so getting smart about energy use makes a lot of sense. In fact, most organizations can save between 2% and 10% annually through better energy management.

Even better, you don't have to spend money to save energy. This booklet is full of no- and low-cost opportunities to avoid wasting energy. If you haven't done anything yet to save energy, you'll find plenty of ways to save just by improving what you already have.

WHAT YOU CAN DO:

EQUIPMENT

Electronics and computers are the energy users you come into contact with the most, making them prime candidates for energy savings. You may not be aware of it, but many of these devices are sucking energy all day and night. Simply powering down and unplugging computers at the end of the day can lead to noticeable savings.

Turn off computers and office equipment when they're not in use.

If you're going to be away from your computer for more than two hours, turn off both the CPU and the monitor. You'll save energy—and because they produce heat, you'll reduce the need for air-conditioning, too.

Use your computer's power saver settings.

Most computers have a sleep mode or power management feature, but it's up to you to turn it on. A single computer can save \$30 annually on electricity bills by using the power saver feature.

Plug into power strips.

Your electronics can use a small amount of electricity even when they're turned off. Plug computers, monitors, and electronics into a power strip, and turn it off at the end of the day to completely disconnect from the power supply.

Unplug laptops and cell phones when they're done charging.

Even when devices are done charging, the charger can still draw power. Unplug your chargers, or plug them into a power strip and turn it off when you're done charging.

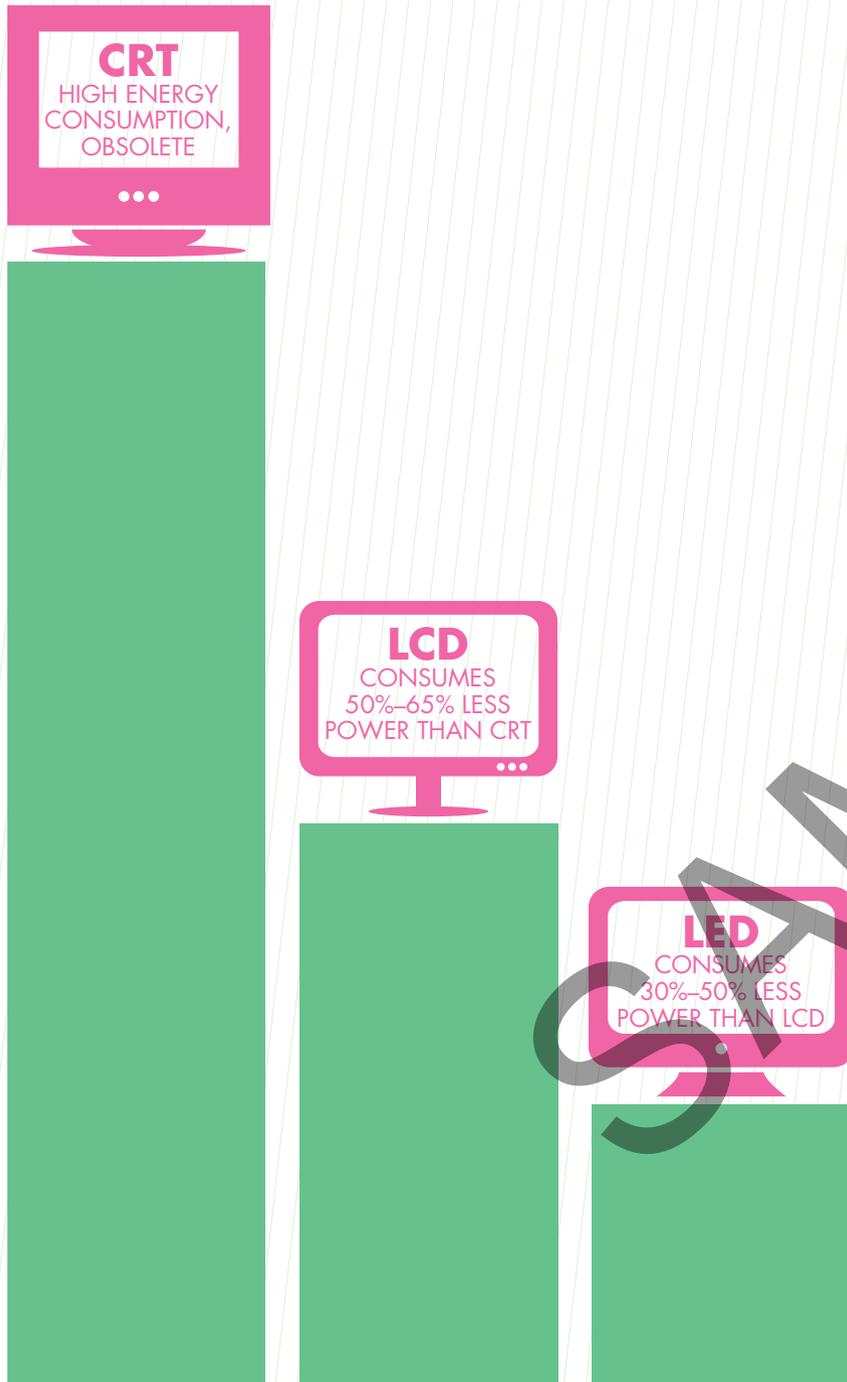
Choose multifunction devices.

These devices combine several capabilities (print, scan, copy) into one machine, saving the energy required to power multiple devices. (They save space, too.) Be sure to enable the power management features for extra savings.

Buy Energy Star equipment.

Everything from printers to water coolers to lightbulbs can be certified by Energy Star, a label that identifies energy-efficient products that don't sacrifice performance.





Energy Use of Computer Monitors, by Type

Source: Energy Star

SCREENSAVERS DON'T SAVE ENERGY

How many times a day does this happen to you: your computer goes to sleep and up pops a colorful light show, virtual fish tank, or a floating logo. It's your screensaver, and you might think it's a necessary (and fun) way to keep an image from getting "burned" into your monitor. But the fact is it's not necessary at all. Leaving a static image up on the screen doesn't harm today's LCD monitors. And your screensaver is using energy to make all those fish swim around. If you're going to be away from your computer for more than 20 minutes, switch off your monitor for real savings.

WHAT YOU CAN DO:

LIGHTING

Lighting can account for as much as 50% of electricity use in a typical commercial building in the United States. And even more energy goes to removing the waste heat generated by that lighting. The good news is that reducing your lighting use is really easy—just flip the switch.

Turn off the lights.

It's one of the simplest steps you can take. Turn off the lights when you leave a room and in areas where natural daylight is sufficient. Also consider timers and motion sensors. You'll save 10% to 40% on lighting expenses.

Replace lightbulbs with CFLs or LEDs.

Compact fluorescent lightbulbs (CFLs) and light-emitting diodes (LEDs) produce more light with less electricity. CFLs last up to 10,000 hours—10 times longer than an incandescent bulb—and use a fraction of the energy.

Maximize natural lighting.

Open the blinds and let in some sunlight. Windows, skylights, and other natural light sources reduce the need for artificial lighting during daytime hours. And studies have shown that occupants in daylight buildings are in better health, miss less work, and are more productive.

Remove unnecessary lamps.

In well-lit areas, look for and remove extra lamps. They're using energy without providing any benefit.

Use task lighting.

When general lighting isn't enough, add lights to task areas. Mount lights under cabinets or invest in CFL or LED desk lamps.





INCANDESCENT

25 WATTS



FLUORESCENT

17 WATTS



LED

3 WATTS



EXIT SIGNS SHOW THE WAY TO EFFICIENCY

Illuminated exit signs operate 24 hours a day, and that means they can use a lot of energy—especially if they're lit with older incandescent or CFL lamps. Replacing older exit signs is a low-cost, low-labor opportunity to achieve some energy savings. Today's ultra-low-energy LED exit signs are 3 to 8 times more efficient, and their bulbs last 10 or more years.

Source: Energy Star

Energy Use of Lighted Exit Signs, by Type

WHAT YOU CAN DO:

HEATING & COOLING

Together, heating and cooling account for 40% to 60% of a commercial building's energy use. But a few simple steps, such as programming your thermostat and caulking drafty windows, can greatly improve efficiency and cut down on the use of heating and cooling equipment.

Control sun exposure.

It depends on the season and your local climate, but generally you'll want to keep blinds open in winter to help with heating, and close them in summer to help with cooling. Window coatings, awnings, and automatic blinds can also help reduce your cooling costs.

Adjust the thermostat when the seasons change.

In the winter turn down the thermostat to 68°F and ask people to put on sweaters if they're cold. In the summer set the air-conditioning temperature to 78°F. Use fans and ask people to dress accordingly.

Keep air vents clear.

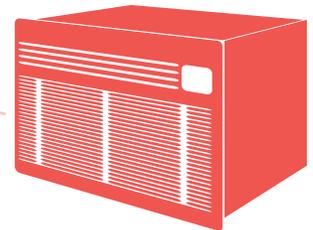
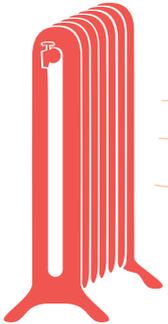
Check your windowsill vents for paper, files, and office supplies that are blocking airflow. It takes 25% more energy to distribute air if your vents are blocked.

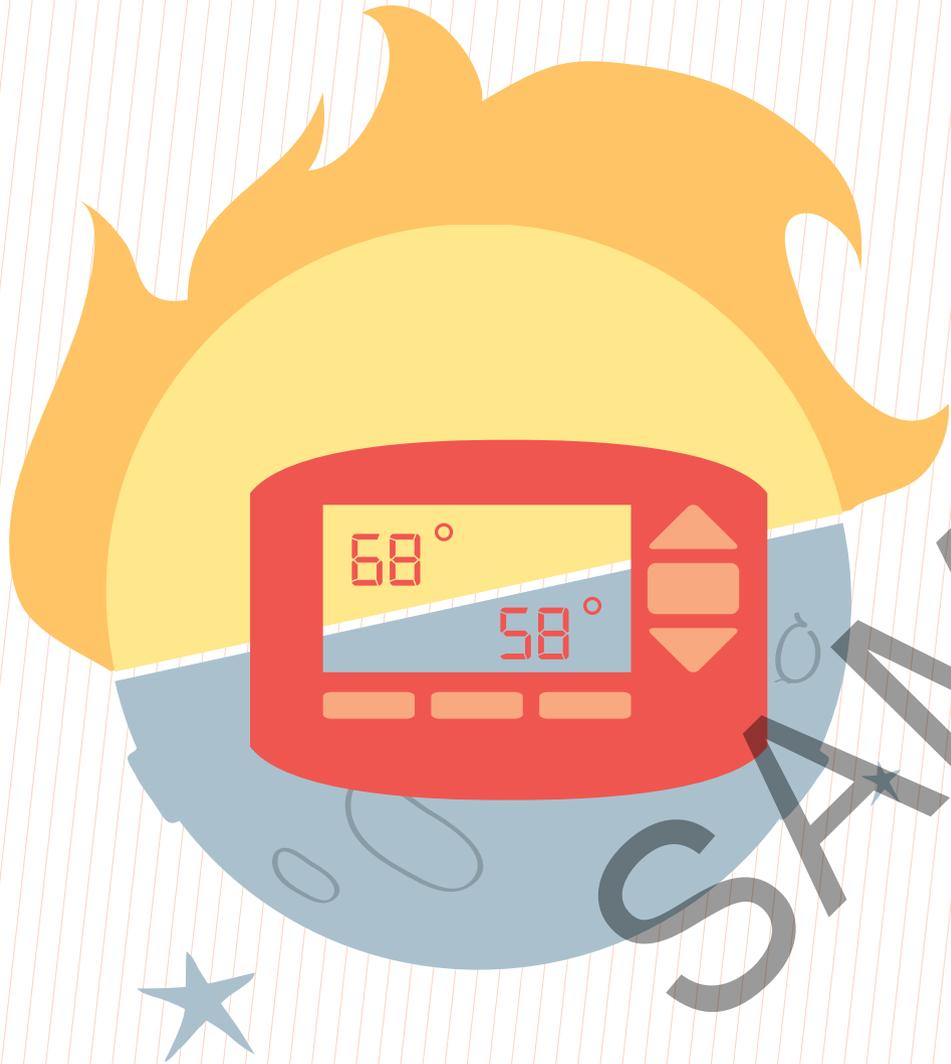
Close the door!

Don't let your money go out the door. When you're running your HVAC system, keep exterior doors closed.

Change HVAC filters monthly.

Regular maintenance ensures your equipment is running efficiently, and it's even more important during peak heating and cooling season. Dirty filters make HVAC equipment work harder and use more energy while lowering indoor air quality.





WITH A PROGRAMMABLE THERMOSTAT, YOU CAN SET IT AND FORGET IT

Programmable thermostats automatically adjust the temperature in the building to maximize savings. When using a programmable thermostat, make a schedule and stick to it. Program the thermostat to turn back the heat or air-conditioning 10 to 15 degrees at night and on weekends when the office is empty.

WHAT YOU CAN DO:

KITCHEN

Kitchen appliances, especially the fridge, use a lot of electricity. Save money by using your appliances more efficiently and keeping them well maintained.

Check fridge and freezer temperatures.

The temperature should be between 36°F and 38°F in your fridge, and between 0°F and 5°F in your freezer. To check the temperature, put a thermometer in a glass of water in the center of the refrigerator and another between packages in the freezer. Read them after 24 hours.

Defrost manual-defrost refrigerators.

Frost makes these models less efficient and spoils food. Don't let frost build up more than a quarter of an inch.

Check the door seals on your fridge.

Here's how: close the refrigerator door on a dollar bill, and then try to pull it out. If it slides out easily, cold air is escaping, and you should replace the seal.

Mind the gap.

Make sure there's an air gap of at least 3 inches between the wall and the back of refrigerators, water coolers, and freezers. Clean condenser coils regularly to improve efficiency.

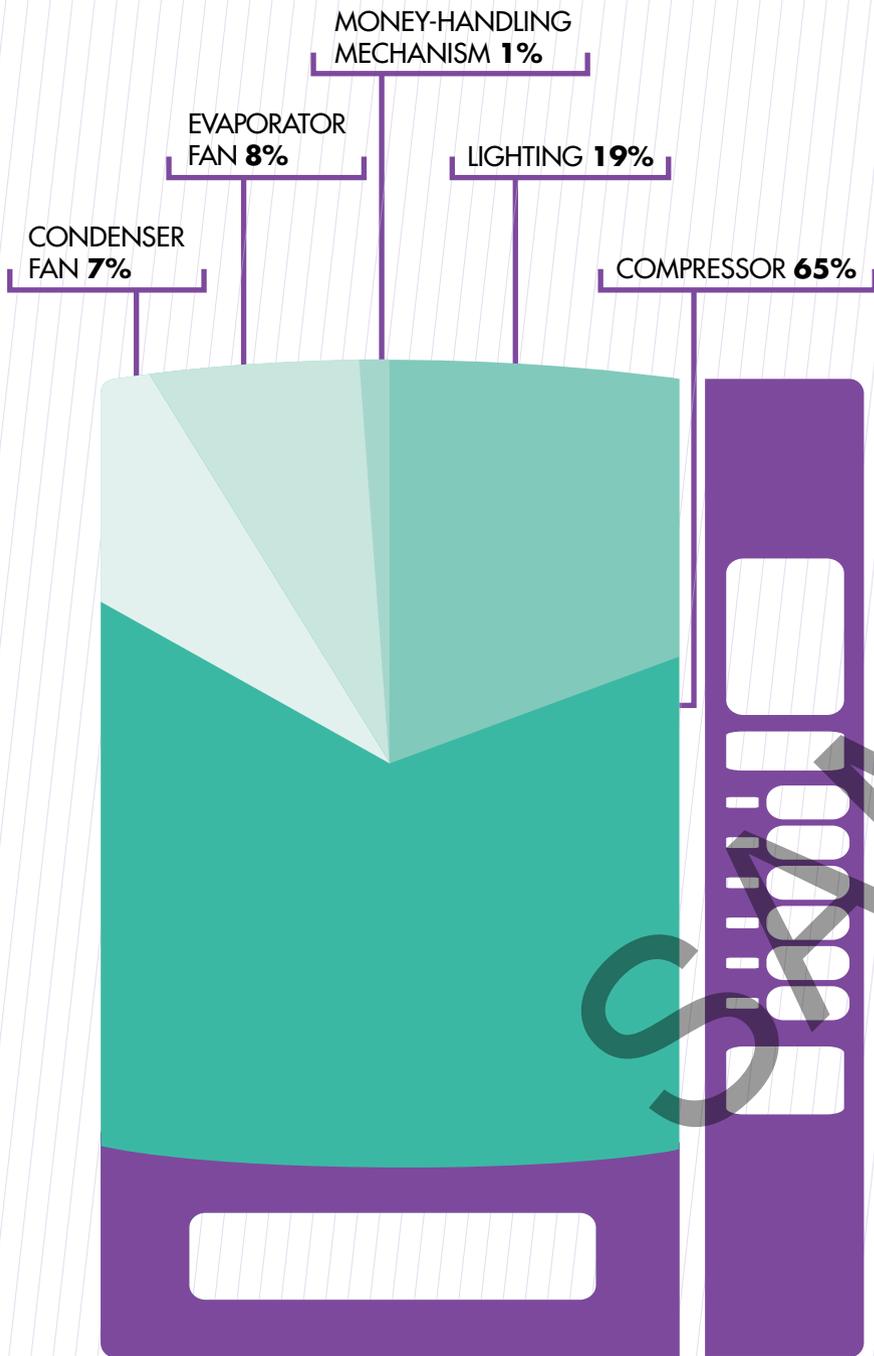
Clean the microwave.

Keep the inside of your microwave clean to improve efficiency.

Choose Energy Star appliances.

Products with the Energy Star label meet strict energy efficiency guidelines. Look for the label on refrigerators, freezers, air conditioners, televisions, and many more appliances and electronics.





IT'S GOOD TO BE A MISER

A vending machine uses a lot of energy to light its sign and keep beverages cool. You can cut down on those expenses by installing a vendor miser, a device that senses motion and automatically powers down the machine when no one is around. These low-cost devices plug directly into the machine and can reduce operating costs by hundreds of dollars per year. If you're considering a new vending machine, choose an Energy Star model, which is 50% more energy efficient than a standard model.

Source: Southern California Edison, Vending Machine Energy Guide

Energy Use of Vending Machines, by Component

WATER & ENERGY

What does water use have to do with energy? A lot, actually. Not only does heating water require a lot of energy, water utilities use energy to pump, clean, and deliver water to your building. So part of your water and sewage bills are actually energy bills. Once you make the connection, saving water becomes a smart business choice.

WHAT YOU CAN DO:

Replace old toilets and fixtures.

New, high-efficiency faucets, showerheads, toilets, and urinals use a fraction of the water of older models.

Find and fix leaks.

Leaky pipes and fixtures waste thousands of gallons of water per year.

Read your water meter every month.

Compare the results to the same month of the previous year to help identify leaks.

Use a broom to clear outdoor areas.

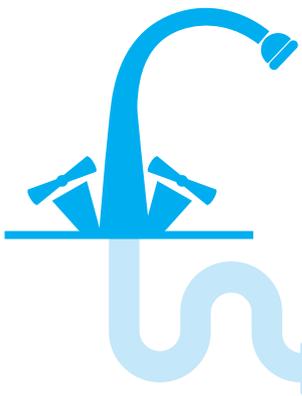
Instead of a hose, use a broom to sweep sidewalks, driveways, loading docks, and parking lots.

Wash windows less often.

Many window washers arrive on a fixed schedule, whether or not windows are dirty. Change the schedule so they only show up when needed.

Look for the WaterSense label.

Products with the WaterSense label, including toilets and faucets, save water without sacrificing performance. All WaterSense-labeled products have been rigorously tested for water efficiency and performance.



NEXT STEPS

Once you've taken care of the low-cost fixes in this book, consider reinvesting the money you've saved into larger projects. High-quality lighting design, extra insulation, and new equipment upgrades all pay for themselves through energy savings. And because energy prices might go up, investing in energy efficiency is a good hedge against future operating costs.

You may be eligible for tax breaks or rebates when you make energy efficiency improvements. Check with your local government and utilities to learn about programs in your area.

WHAT YOU CAN DO:

LIGHTING DESIGN

Because lighting systems can account for as much as 50% of your electricity consumption, upgrading them usually provides the highest return on investment. Here are some common upgrades:

- **Replace T12 fluorescent lamps** and electronic ballasts with T8 lamps and magnetic ballasts. (Manufacturers have already begun phasing out T12 lamps and ballasts to comply with federal law.)
- **Install lighting controls**, such as bi-level switching, dimmers, occupancy sensors, and daylight sensors. Controls should be highly flexible and automatically eliminate light use whenever possible.
- **Upgrade high-intensity discharge (HID) lighting systems** in warehouses, garages, and exterior areas. Many older HID systems use mercury vapor lamps, which are extremely inefficient. Switch to metal halide or high-pressure sodium vapor lamps.

WHAT YOU CAN DO:



AIR LEAKS AND INSULATION

If your building's walls, windows, roof, and foundation aren't properly sealed, conditioned air is leaking out and costing you money. Start by caulking and weather-stripping around doors and windows, then move on to larger projects.

- **Insulation** keeps your building cool in the summer and warm in the winter. For retrofits and new construction, always insulate to building codes. And don't forget slabs and foundations—they need insulation, too.
- **Roofing** upgrades can go a long way toward reducing your heating and cooling bills. In addition to insulation, consider other improvements—such as radiant barriers and cool roofing—that reflect heat away from the building.
- **Windows** should always have double- or triple-paned glass and insulated frames. Also look for tinted or coated windows that block light and reduce cooling costs.



HVAC

Upgrading your HVAC system should always be the last project you undertake. That's because increasing efficiency in other areas will allow you to reduce the operational hours of your HVAC equipment.

When it's finally time to replace your HVAC equipment, you may be able to purchase a much smaller unit that's significantly cheaper to operate. Proper sizing also reduces noise, lowers up-front costs, and optimizes equipment operation, which means lower maintenance costs and a longer unit life.

- Before buying, compare life cycle costs for standard-efficiency and high-efficiency HVAC units.
- Purchase Energy Star-qualified room air conditioners or light commercial heating and cooling units.
- Consider energy recovery ventilation systems and other equipment that captures waste heat.
- Install dehumidification equipment to increase comfort and decrease the need for air-conditioning.
- In dry climates, evaporative coolers can eliminate the need for costly compressors.
- Install radiant heating—which warms objects instead of the air—in large open areas, such as warehouses and garages.

T12 1½-INCH DIAMETER
LESS EFFICIENT
BEING PHASED OUT

T8 1-INCH DIAMETER
COMMON SINCE THE 1980s
MORE EFFICIENT

T5 5⁄8-INCH DIAMETER
UPDATED IN THE 1990s
MOST EFFICIENT

Types of Fluorescent Light Tubes

FIFTEEN YEARS IS OLD ... FOR A LIGHT FIXTURE

Lighting equipment deteriorates over time. Fixtures older than 15 years should almost always be replaced rather than retrofitted. Always buy Energy Star light fixtures and lamps. They use 75% less energy than traditional fixtures.

SOURCES

Energy Star

www.energystar.gov

U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy

www.energy.gov/eere

U.S. Environmental Protection Agency

www.epa.gov

For more information about Project Energy Savers, visit www.projectenergysavers.com

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