

# CHECKLIST OF COMMON ENERGY-SAVING MEASURES

The simple choice for energy efficiency.



April 2021

## Operations and Maintenance

### Low-Cost Measures

- Conduct a nighttime audit to find out what's on afterhours that shouldn't be.
- Improve operations and maintenance practices by regularly checking and maintaining equipment to ensure that it's functioning efficiently.
- Optimize start-up time, power-down time, and equipment sequencing.
- Revise janitorial practices to reduce the hours that lights are turned on each day. Consider switching to day-cleaning, which takes place while occupants are in the building and has shown to also reduce complaints.
- Review and emphasize the financial and environmental results of a preventative maintenance program for major systems and components.
- Set goals and a methodology to track and reward improvements.
- Visually inspect insulation on all piping, ducting and equipment for damage (tears, compression, stains, etc.).
- Ask your utility if they offer free or inexpensive energy audits.
- Retro or re-commission the building to make sure it's running the way it was intended.
- Consider energy audits to identify areas where building systems have become inefficient over time and bring them back to peak performance.
- Repair leaking faucets and equipment. A dripping hot water faucet can leak hundreds of gallons per year.

## Lighting

### Low-Cost Measures

- Maximize daylighting. After all, sunlight is free! Open or close blinds to make the best use of natural daylight and take advantage of skylights or other natural daylight sources to reduce lighting during daytime hours.
- Turn off lights when not in use or when natural daylight is sufficient. This can reduce lighting expenses by 10 to 40 percent.
- Use task lighting where feasible.
- Implement a regular lighting maintenance program.
- Remove unnecessary lamps (de-lamp) in overlit areas. Check your light levels against standards from the Illuminating Engineering Society (IES) to see if you have areas that are over- or under-lit.

### Rapid Payback Measures

- Replace old fluorescent and incandescent lighting with ENERGY STAR certified LEDs, T-8 (or even T-5) fixtures, ENERGY STAR certified LEDs, and other energy-efficient lighting systems that improve light quality and reduce heat gain. LEDs use up to 90% less energy than incandescent lighting and last 35 to 50 times longer.
- Install LED exit signs. These signs can dramatically reduce maintenance by eliminating the need to replace lamps and can save \$10 per sign annually in electricity costs.

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- ❑ Swap out incandescent light bulbs with ENERGY STAR certified LEDs in your desk, task, and floor lamps.
- ❑ Install occupancy sensors to automatically turn off lights when no one is present and back on when people return. Storage rooms, back-of-house spaces, meeting rooms, and other low-traffic areas are often good places to start. Occupancy sensors can save between 15 and 30 percent on lighting costs. And don't forget — even good equipment can be installed incorrectly, so don't install the sensor behind a coat rack, door, bookcase, etc. It must be able to "see" an approaching person's motion to turn on the light as they enter an unlit room.
- ❑ Examine the opportunity to switch from high-pressure sodium lamps to metal halide lamps in parking lots and consider upgrading to LED lighting for outdoor signage.

## Plug Load: Office Equipment

### Low-Cost Measures

- ❑ Enable the power management function on office computers, which automatically puts monitors to sleep when not in use. To learn how to enable this function, visit [www.energystar.gov/powermanagement](http://www.energystar.gov/powermanagement).
- ❑ Activate sleep settings on all printers, copiers, fax machines, scanners, and multifunction devices so that they automatically enter a low-powered sleep mode when inactive. Use the owner's manual to make the setting changes yourself or ask your service vendor to ensure your machines are configured to take full advantage of these features.
- ❑ Consolidate stand-alone office equipment to achieve a ratio of one device (typically a networked multifunction device) per 10 or more users. Typical cost savings can reach 30 to 40 percent for electricity, hardware, consumables (paper, ink, and toner), and maintenance.
- ❑ Plug electronics into a "smart" power strip that let you designate which electronics should always be on, and which ones do not need power when they're not in use.
- ❑ Purchase energy-efficient products like ENERGY STAR certified office equipment and electronics and establish a procurement policy for [energy-saving products](#).

## Plug Load: Food Service Equipment

### Rapid Payback Measures

- ❑ Purchase [ENERGY STAR certified commercial food service equipment](#). For example, certified refrigerators and freezers can save over 45 percent of the energy used by conventional models, which equals as much as \$140 annually for refrigerators and \$100 for freezers; deep fryers can save between \$60 and \$180 per year; hot food holding cabinets can save up to \$280 per year; and steam cookers can save between \$450 and \$820 per year depending on fuel.
- ❑ For existing refrigerators, clean refrigerator coils twice a year and replace door gaskets if a dollar bill easily slips out when closed between the door's seals.

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- Have large and walk-in refrigeration systems serviced at least annually. This includes cleaning, refrigerant top off, lubrication of moving parts, and adjustment of belts. This will help ensure efficient operation and longer equipment life.
- Consider retrofitting existing refrigerators and display cases with anti-sweat door heater controls, and variable speed evaporator fan motors and controls.
- If you have open refrigerator or freezer display cases, consider retrofitting them to add doors, or replacing them with new models.

## Heating and Cooling

### Low-Cost Measures

- Set back the thermostat in the evenings and other times when the building isn't occupied.
- Perform monthly maintenance of heating and cooling equipment to guarantee efficient operation throughout the year.
- Regularly change or clean HVAC filters every month during peak cooling or heating season. Dirty filters cost more to use, overwork the equipment, and result in lower indoor air quality.
- Plug air leaks with weather stripping and caulking.
- Calibrate thermostats to ensure that their ambient temperature readings are correct, and adjust temperature set points for seasonal changes.
- Use shades and blinds to control direct sun through windows in both summer and winter to prevent or encourage heat gain.
  - During cooling season, block direct heat gain from the sun shining through glass on the east and especially west sides of the facility. Depending on your facility, options such as "solar screens," "solar films," awnings, and vegetation can help. Over time, trees can attractively shade the facility, and help clean the air. Interior curtains or drapes can help, but it's best to prevent the summer heat from getting past the glass and inside.
  - During heating season, with the sun low in the south, unobstructed southern windows can contribute solar heat gain during the day.
- Make sure that areas in front of vents are clear of furniture and paper. As much as 25 percent more energy is required to distribute air if your vents are blocked.
- Clean the evaporator and condenser coils on heat pumps, air-conditioners, or chillers. Dirty coils inhibit heat transfer; keeping coils clean saves energy.
- Repair leaks and adjust pressure in compressed air systems.
- Repair steam trap leaks; replace malfunctioning steam traps.
- Repair damaged insulation and replace missing insulation with thicknesses calculated for the operating and ambient conditions of the mechanical system.
- Keep exterior doors closed while running your HVAC. It sounds simple, but it will help avoid wasteful loss of heated or cooled air! If your building is equipped with revolving doors, encourage or require their use as opposed to swinging doors.

### Rapid Payback Measures

- Tune up your heating, ventilation, and air conditioning (HVAC) system with an annual maintenance contract. Even a new HVAC system, like a new car, will decline in performance without regular

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maintenance. A contract automatically ensures that your HVAC contractor will provide “pre-season” tune-ups before each cooling and heating season. Your chances of an emergency HVAC breakdown also decrease with regular maintenance.

- Install variable frequency drives (VFDs) and energy-efficient motors.
- Balance air and water systems.
- Install window films and add insulation or reflective roof coating to reduce energy consumption.

## Occupant Behavior and Education

### Low-Cost Measures

- Create a mechanism for occupants or employees to share their suggestions with you. Make sure you respond to comments and act on recommendations when feasible. You may even offer a reward for the best energy-saving ideas.
- Educate staff members about the basic principles of energy management and empower them to establish their own departmental green teams. Check out the [ENERGY STAR Green Team Checklist](#) for steps and considerations to take into account when establishing a green team.
- Share your energy efficiency goals. Transparency is the first step to getting the people inside your building or space interested in what you’re doing. When you share your energy reduction goals and progress toward saving, employees and occupants sit up and take notice of your efforts.
- Display the past 6–12 months of energy use information in a high-traffic area or distribute it as part of a regular report. Seeing the data and any trends in energy use can inspire occupants and employees to contribute to continued savings.
- Encourage actions that apply to most of your employees’ workspaces, or that can be practiced at work and at home, like turning off lights when not in use and activating computer power management features.
- Print and hang banners, posters, and signs with energy-saving messages in high-traffic areas in your space or in areas like lobbies, elevators, hallways, over water fountains, and in break rooms.
- Create door hangers, post-it note reminders, or light switch covers to help occupants or employees remember to take action. Some K-12 schools have started energy patrols, in which students pass out “oops” and “wow” stickers to encourage behavior change.
- Hold an energy fair, conduct an energy awareness event in the lobby, or offer building tours to give occupants a sneak peek at the inner workings of the building.
- Host a brownbag, hold a webinar, or present about why it’s important to save energy at staff meetings, tenant meetings, or other get-togethers. You can also integrate information about your energy program into your organization’s orientation training.
- Give incentives and recognition. Consider starting small with something like a pizza party, ice cream social, bagel breakfast, or other food rewards for hitting goals or making progress. Depending on savings levels, you may also consider awarding cash or prizes for great energy-saving ideas or to energy champions.

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