

Energy and Water Efficiency Checklist for Restaurants and Commercial Kitchens



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Grab a clipboard and take this checklist along as you discover opportunities to increase energy and water efficiency at your restaurant. Focus on uncovering opportunities to save. When you find something, make notes about the location; the tools, materials, expertise needed; or further required research. Feel free to add to or modify this list to suit your needs.

Date _____



Facility Management and Benchmarking

- ☐ Managing costs starts with knowing your baseline use. Start by printing a Data Collection Worksheet for Restaurant/Bar found under Food Sales and Service at <https://portfoliomanager.energystar.gov/pm/dataCollectionWorksheet>. This Worksheet will list all you need to benchmark your property in the free, online ENERGY STAR Portfolio Manager® tool for energy use, water use, and recycling/materials management.
- ☐ With the data collection worksheet in hand, collect property use data and utility bills in preparation to set up a Portfolio Manager account.
- ☐ Create an account at portfoliomanager.energystar.gov/pm/signup.
- ☐ Learn more at www.energystar.gov/benchmark and find all Portfolio Manager training and tech support at www.energystar.gov/buildings/training.
- ☐ Portfolio Manager does not have a module to score restaurants or commercial kitchens on the 1-100 ENERGY STAR® scale. However, both can compare their EUI (Energy Use Intensity) against the national median. EUI is approximately energy use/ft². The national median EUI for Quick Service Restaurants is 402.7 and the median EUI for other Restaurants/Cafeterias is 325.6.
- ☐ Use “start-up, shut-down” scheduling for house lights, kitchen equipment and heating/air-conditioning.
- ☐ Develop an education and/or training program to encourage energy conservation.
- ☐ Educate and encourage employees to report water leaks, turn off lights that are not in use and look for energy savings opportunities.
- ☐ Adopt a purchasing/procurement policy that specifies EPA’s ENERGY STAR, WaterSense® and Safer Choice® labeled products.

Download the *ENERGY STAR Action Workbook for Small Business* (with restaurant appendices) for more strategies, action items, and ideas at www.energystar.gov/smallbiz



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- ☐ Learn how reducing, reusing, and recycling can help your restaurant and the environment by saving money, energy, and natural resources at www.epa.gov/recycle.

Lighting

- ☐ Evaluate the opportunity to upgrade to more energy- efficient lighting options:
 - ☐ Update lighting from incandescent or halogen bulbs to high-lumen LED equipment to save money and improve safety /durability. Solid state LED lights are resistant to impacts.
 - ☐ Replace T12 fluorescents and obsolete magnetic ballasts, ideally with tubular LEDs (TLEDs). Retain existing T8s or T5s with electronic ballasts through their useful life.
- ☐ During daytime and evening hours, identify where lights have been left on in unoccupied spaces (including dining areas, offices, restrooms, storage, hallways, etc.).
- ☐ During the day, look for “day-burners” – that is, exterior and parking lot lighting that is on and should only be on at night, and which has a failed or dirty light sensor.
- ☐ If upgrading your exterior lighting, consider shielded fixtures to direct the light where needed and reduce light pollution.
- ☐ Identify and assess opportunities to use automated lighting controls:
 - ☐ Occupancy/motion sensors for low-traffic areas.
 - ☐ Timers or daylight sensors to turn off exterior and parking lot lights during the day.
 - ☐ Dimming controls in locations where natural lighting (e.g., near windows, skylights, light tubes) can temporarily supplement or replace fixture lighting.
- ☐ Confirm that lighting controls are installed to “see” what they must and are operating as intended.
- ☐ Assess cleanliness of lamps/fixtures (dust, bugs, any debris) and the need to institute a regular cleaning plan for maximum light output.
- ☐ Identify where adding reflectors can amplify existing lighting.
- ☐ Consider purchasing an inexpensive light meter (under \$30) to assess whether any areas are over-lit, compared to requirements or design levels.
- ☐ Review ENERGY STAR product information, calculators and find local retailers and rebates at www.energystar.gov/products and find lighting, fans, and more lighting facts at www.energystar.gov/lighting.

TIP: Consider an “all utility audit” to look for billing errors and proper rate classification for electricity, natural gas, heating oil, water/sewer, and telecommunications. The auditing firm is paid a pre-agreed percentage only after your refund is complete. If there is no refund due, you have confirmed proper billing.

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Kitchen/Foodservice Equipment

- ☐ If you need to purchase new foodservice equipment, verify that it is ENERGY STAR certified commercial food service equipment through Product Finder at <https://www.energystar.gov/productfinder>.
- ☐ If possible, be sure heating equipment is not near cooling equipment, and turn it off when possible.
- ☐ ENERGY STAR certified commercial coffee brewers offer as much as 35% energy savings and better temperature uniformity compared to conventional models, due to efficient electrical systems and well-insulated tanks.
- ☐ Verify oven thermostat accuracy and recalibrate, if necessary.
- ☐ Establish operating procedures for cooking/baking equipment (for instance, preheating only when necessary, turning down/off equipment when not in use).
- ☐ Ensure that range hoods and exhaust fans are only running when the range is being used.
- ☐ Identify and assess opportunities to install variable frequency drives on kitchen hoods.
- ☐ Ensure that unused appliances are unplugged or on a power strip that is shut off.
- ☐ Survey water use to identify major uses; find and fix any leaks—especially hot water leaks.
- ☐ Determine if low-flow pre-rinse spray valves can be installed.

ENERGY STAR Certified Commercial Equipment: Average Annual Savings			
	kWh Energy	Utility Costs	Gallons Water
Commercial Coffee Brewers	345	\$35	
Commercial Electric Cooktops	180	\$20	
Refrigerators and Freezers	475	\$30	
Commercial Ice Makers	800	\$130	5,300
Commercial Griddles	1,300	\$130	
Commercial Ovens	2,300	\$400	
Commercial Fryers	2,390	\$245	
Commercial Hot Food Holding Cabinets	3,000	\$305	
Commercial Dishwashers	3,400	\$300	5,600
Commercial Steam Cookers	11,500	\$1,000	162,000



Refrigeration

- ☐ Your refrigeration is designed for worst-case temperatures in your climate. Floating head and suction pressure controls react to actual ambient temperatures to maintain necessary temperatures for savings.
- ☐ Electronically commutated motors can be programmed and potentially remote-controlled by an Energy Management System to speed or slow motors based on cooling needs, offering significant savings over evaporator fans in walk-in coolers and over split capacitor and shaded-pole motors in refrigerated cases.

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- ☐ Regularly check the effectiveness of refrigerated case seals and consider automatic door closers.
- ☐ Identify worn and/or leaky door seals/gaskets on refrigerators and freezers. Close the door on a dollar bill or piece of paper, and if it is easily pulled out, replace the gasket. Many websites have “DIY” videos and instructions. Some replacement gaskets claim to be “universal,” but it is best to purchase using the appliance brand and model number. Regularly clean the gasket with soapy water to keep it free of debris.
- ☐ Consider installing anti-sweat controls to monitor both humidity and temperature to activate heaters in cooler and freezer doors only when needed to prevent condensation.
- ☐ Consider installing defrost controls which use sensors to intelligently sense when evaporator coils need defrosting, and only then consume the energy necessary to perform that operation.
- ☐ Install strip curtains and keep condenser and evaporator coils clean.
- ☐ Alcohol and soft drinks don't have to be chilled to the lower temperatures required for perishable foods.
- ☐ Check whether refrigerated case lighting is LED.

Review the ENERGY STAR® Guide for Cafés, Restaurants, and Commercial Kitchens for more details on specific tips and suggestions for efficiency at:

<https://www.energystar.gov/sites/default/files/asset/document/ES%20Restaurant%20Guide%202017-2018%20v16.pdf>



HVAC (Heating, Ventilation, Air-Conditioning)

- ☐ Qualified staff or a professional should implement the full HVAC maintenance list; however, everyone can help remember to:
 - ☐ Replace filters on a regular schedule; monthly during heating/ cooling season. Ask your facility staff how often filters are changed.
 - ☐ Ensure free airflow to and from supply/return registers (clear furniture, books, papers, or other materials).
 - ☐ Ensure that electronics and heat sources are located away from thermostats.
 - ☐ Identify and prevent any instances of simultaneous heating and cooling.
- ☐ Keep windows and exterior doors closed while running the HVAC in line with your restaurant's operations.
- ☐ Install a programmable thermostat to control the HVAC system; at https://www.energystar.gov/products/heating_cooling/smart_thermostats.

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- ☐ Depending on outside temperature, programming can be set to turn off the HVAC 15-30 minutes before space use ends for additional savings.
- ☐ Ensure that HVAC system components are maintained regularly. If not by qualified staff, then consider an annual maintenance contract to “tune-up” HVAC, both pre-heating and pre-cooling seasons.
- ☐ Have a plan for HVAC failures. Right size new systems by having contractors quote equipment based on high efficiency levels and reduced demand. Do not buy a larger system than you need.
- ☐ Determine if you already have or need professional savings estimates for HVAC Economizers, Advanced Digital Economizer Controls, Demand Control Ventilation, and Enhanced Ventilation Controls.
- ☐ Ask about Variable Speed Drives to optimize the speed of motors in pumps and fans.
- ☐ See ENERGY STAR HVAC products and resources and evaluate the savings for higher SEER/IEER Rated equipment for new installations and retrofits at https://www.energystar.gov/products/heating_cooling.

TIP: Controls are available for virtually all restaurant equipment and functions: scheduling, lighting, plug loads, HVAC, refrigeration, food storage and preparation, etc. If you are not fully automated, get competing bids showing your return-on-investment from 2-3 professionals serving the industry.



Building Envelope

- ☐ Check exterior walls for leaking and proper insulation.
- ☐ Minimize as much unconditioned air flow through doors as possible.
- ☐ Ensure the roof is in good condition; consider whether a “green roof” or “cool roof” makes sense for your business. Depending on “street view” aesthetics, and safety concerns, and other issues, consider that white, reflective paint can significantly reduce heat gain and even extend the life of some roofing.
- ☐ Inspect the condition of and replace windows and window shadings, if needed. If new windows must be purchased, consider the incremental costs and savings of high-efficiency windows, which will cost more but will save more in energy and heating/cooling costs.
- ☐ With “outside-to-inside” visibility in mind, consider installing solar film on east and west windows to block summer heat gain for dollar savings, customer and employee comfort. Depending on your climate, you may even need to block winter heat gain on the south side in very warm climates.
- ☐ Consider strategic landscaping to save money on water bills and space cooling in the summer and heating in the winter. See tips and information at <https://www.epa.gov/watersense/outdoors>.

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Office Equipment

- ☐ For office equipment that needs replacing, consider ENERGY STAR certified options using the online savings calculators and available rebates. Review ENERGY STAR office products and resources at https://www.energystar.gov/products/office_equipment.
- ☐ Place computers (CPU, hard drive, etc.) into a low power “sleep mode” after a designated period of inactivity.
- ☐ Identify where power strips can be used for easy disconnection from the power source.
- ☐ Be sure staff knows to unplug rechargeable devices once charged.
- ☐ Print double-sided pages; much more energy is used in the manufacturing and distributing of paper than the actual printing at your restaurant.

TIP: Consider “load shedding” to avoid demand charges during your utility system’s “peak demand” time of day. This means understanding your utility’s time of day rates and avoiding the use of as much of your equipment as possible during this time. Ask your utility about programs and financial incentives for customers to avoid contributing to peak demand.



Water: Hot and Cold

- ☐ Survey water use to identify major uses; find and fix any leaks—especially hot water leaks.
- ☐ See EPA’s WaterSense® program for water saving labeled products and rebates, for indoor water efficiency tips, and best practices at www.epa.gov/watersense.
- ☐ Check out ENERGY STAR water heating product information and calculators; find local retailers and rebates at www.energystar.gov/products/water_heaters.
- ☐ Typically, set temperature 110 – 120 degrees or per local code to prevent scalds and to save energy and money.
- ☐ Consider “tankless” heaters (on-demand) for low-use areas.
- ☐ Insulate water heaters.
- ☐ Optimize the amount of water used in heating and cooling systems.
- ☐ Practice water efficient landscaping; find more information at <https://www.epa.gov/watersense/outdoors>.

