

Managing Energy Costs in Small Commercial Dry Cleaners



Energy costs are among the few expenses that can be decreased without negatively affecting product quality or staffing needs. By implementing energy-efficient operations and maintenance strategies, and adding features to increase the efficiency of existing equipment, you can achieve substantial energy savings while improving the indoor environment of your facility. Adopting an energy-saving agenda also attracts eco-conscious consumers who are often willing to pay more for products and services perceived as environmentally sound.

To better manage a building's energy costs, it helps to understand how you are charged for those costs. Most utilities charge commercial buildings for their natural gas based on the amount of energy delivered. Electricity, on the other hand, can be charged based on two measures: demand and consumption. The consumption component of the bill is based on the amount of electricity in kilowatt-hours (kWh) that the building consumes each month. The demand component is the peak demand in kilowatts occurring within the month or, for some utilities, during the previous 12 months. Demand charges can range from a few dollars to upwards of \$20 per kilowatt-month. If the electric bill for your facility includes demand charges, you should reduce demand whenever possible. Understanding energy consumption in a given month can also help to control costs. Utilities can provide monthly figures of your energy use, and some utilities will also assist with the analysis.

Quick Fixes

The best way to start saving energy in your facility is with strategies that are easy to implement and are free or cost very little.

Energy Audits

An on-site energy audit shows how much energy your facility consumes and reveals problems that, when corrected, could save you significant amounts of money. An audit is highly recommended as the first step toward implementing an efficiency program, and many utility companies offer the service free or at a discount.

Audits generally consist of a walk-through inspection of a facility's physical characteristics. Auditors commonly check the temperatures of air-conditioning systems, refrigerators, and water heaters; inspect weather stripping and caulking around doors and windows; check thermostat calibration; and inspect air filters and duct systems. In some cases, diagnostic equipment is used to further investigate potential savings opportunities in a facility's building shell, boiler, and reciprocating equipment. Once the audit is complete, the auditor will give specific recommendations for improving the efficiency of your facility, prioritized in order of greatest to least cost-effective savings opportunities.

Turning Things Off

The quickest and easiest way to implement load reductions is to ensure that equipment is turned off when it's not needed. By simply turning things off when not in use, facilities can achieve energy savings of up to 25 percent.

Lighting. Putting up signs in break rooms and bathrooms that remind employees to turn off lights on their way out can save as much as 8 to 20 percent on lighting energy. Alternatively, equipment such as occupancy sensors, photosensor controls that adjust indoor lighting based on natural light levels, and dimmers can be installed. These features ensure that lighting levels are appropriately maintained, and they don't require staff training. Timers installed on outdoor signage and window displays also reduce costs.

Office equipment. Printers, computers, fax machines, and coffee makers should be turned off each night, over holiday breaks, and when not in use. Employing sleep-mode settings on computer monitors can save as much as \$75 per desktop system annually.

Boilers. Optimizing steam production and distribution can improve site efficiency and performance significantly. Research suggests that losses from steam systems make up approximately 35 percent of all identified potential energy savings on a site. Consider installing timers to shut down boilers when not in use.

Turning Things Down

Some equipment cannot be turned off entirely, but turning it down to minimum levels when possible can save energy.

HVAC systems. Using a programmable thermostat properly to control temperature can save up to \$150 in energy costs per year. Other low-cost strategies to cut heating and cooling costs include installing ceiling fans to circulate air, taking weatherization steps such as sealing gaps around doors and windows to minimize air infiltration, and installing insulation on hot-water pipes to reduce heat loss.

Boilers. Boilers can account for 20 to 60 percent of total energy costs. Recommended efficiency improvements include installing controls such as vent (or flue) dampers that prevent chimney losses by closing off a boiler's vent when the boiler isn't firing, timers that allow boilers to be sequenced according to variations in the heating load, and variable-speed drives on boiler fans and circulation pumps.

Cleaning and Maintenance

Proper equipment maintenance increases overall efficiency, extends useful life of equipment, and prevents the need for early and costly replacement. In a 2007 survey issued by *American Drycleaner*, 61.5 percent of respondents reported that they had "performed maintenance to ensure the efficient operation of existing equipment."

Boilers. The amount of natural gas a facility consumes is highly sensitive to the condition of boilers and steam-delivery systems, making boiler maintenance especially important. By repairing leaking steam traps and insulating pipe work to reduce heat loss, energy savings of between 10 and 30 percent can be achieved. Inspections should include piping, joints, drain valves, and flexible hoses. A printable boiler-maintenance checklist can be downloaded from the Department of Energy's (DOE's) Federal Energy Management Program at www1.eere.energy.gov/femp/operations_maintenance/om_blrchecklist.html.

Hot water systems. To maintain optimum efficiency and prevent waste, the burners of gas- or oil-fired water heaters should be tested and adjusted annually. Fixtures should be periodically flushed with hot water to control bacteria growth. Gas water heaters should be flushed out annually to remove sediments that reduce heat-transfer efficiency. Removing sediment will trim water-heater energy use by about 5 percent.

HVAC systems. Simply keeping windows clean can save on both lighting and heating costs by letting in more natural sunlight and passive solar heat. Natural light also creates a more pleasant atmosphere for both customers and employees.

Longer-Term Solutions

Replacing old, inefficient equipment maximizes the cost-saving potential of your facility. The best time to consider replacement is when existing equipment breaks down or is over 10 years old.

Lighting. Lighting upgrades require the lowest cost investment for the returns they yield. T12 lights with magnetic ballasts should be replaced with T8 lights with electronic ballasts; incandescent lamps should be replaced with compact fluorescent lamps (CFLs); motion sensors should be installed in frequently unoccupied areas such as restrooms, storage areas, and break rooms; exit signs should be upgraded to light-emitting



diode (LED) models; and daylighting strategies should be implemented.

Wet cleaning. Although an estimated 70 percent of dry cleaners use perchloroethylene (PCE)-based cleaning solvents, there is a current trend toward “greener” alternatives. In terms of efficiency, wet-cleaning systems use just 12 kWh per 100 pounds of garments, compared to 30 kWh for PCE machines. Computer-controlled washers and dryers, horizontal cleaning drums, high-speed moisture extraction, moisture sensors, and the elimination of cooling systems are all features that enhance the efficiency of wet-cleaning systems.

Boilers. Energy Star–rated boilers have annual fuel utilization efficiency (AFUE) ratings of 85 percent or greater and can use 6 percent less energy than standard models. Exploring such options as condensing models could reduce heating costs by one-third. Made of noncorrosive stainless steel, condensing boilers have the added benefit of reduced maintenance costs.

Steam traps. Steam traps are automatic valves that release condensed steam from the boiler while preventing the loss of live steam. A steam trap with a valve stuck in a half-open position for half a year can result in an annual fuel cost of over \$4,000.

Heat recovery. Heat recovery is increasing in popularity among dry cleaners. Heat-recovery systems capture exhaust heat and transfer the heat to incoming boiler feed water, reducing the amount of energy needed to heat water.

Hot water systems. Savings opportunities exist in both electric and natural gas water heaters. Although electric water heaters generally cost more to operate over the lifetime of the equipment, a lower upfront cost and no energy waste from heat loss make these a viable option. If you are located in an area with a moderate to warm

climate, a heat-pump system is a good alternative—heat pumps do the same job as standard electric water heaters but use half the electric energy.

If natural gas rates are low in your area and your water heater is in a location where a gas vent can be installed, a gas-fired water heater can be the least expensive choice to own and operate. Ultra-efficient and condensing natural gas models are available that are 18 to 36 percent more efficient than conventional gas water heaters.

To help you choose the most cost-effective option, the DOE provides an Energy Cost Calculator for Electric and Gas Water Heaters that shows which fuel type would be the least expensive to operate based on such information as utility rates and hours of use: www1.eere.energy.gov/femp/procurement/eep_waterheaters_calc.html.

Tankless water heaters, also known as instantaneous or on-demand water heaters, can use either electricity or natural gas to operate and, because they are tankless, eliminate the heat loss associated with tank storage. One caution about electric tankless water heaters is that they have the potential to create high demand charges for the end user—especially if several are operating at the same time.

The Bottom Line

In a typical dry-cleaning facility, energy costs represent about 5.8 to 18 percent of total operating costs. According to Ann Hargrove of the Drycleaning & Laundry Institute, “Rising prices have resulted in utility bills that can represent as much as 25 percent of total operating costs.” Especially for mid-range dry cleaners that are neither discount nor high-end and do not compete on price or exclusivity, cutting costs through efficiency measures can ensure that these establishments remain competitive.

