



BANK YOUR POWER Energy Efficiency for Small Business

The percentage of operating costs that goes toward utility expenses for small businesses are typically 30% higher than for large firms in the same industrial classification. Energy is seen as “the cost of doing business” but what can be done to lower that “fixed” cost? Energy efficiency projects can help improve your businesses’ cash flow and bottom line.

Lighting

Use more efficient, lower heat-producing lamps to reduce direct energy costs plus reduce heat load within the building. Don’t wait until current lamps fail – you’ll be money ahead to change them now in most cases. Replace incandescent lamps with compact fluorescent lamps (CFLs) in undimmed applications. Upgrade 4’ fluorescent T-12 lamps to T8 lamps with electronic ballasts. Converting can cost \$50 - \$100 per fixture, but if lights are on 60 hours per week, you’ll save money. There are incentives from many power companies. Use LED exit signs. This proven technology saves money in energy and maintenance costs. Replacement LED lamp kits can be installed in some existing exit sign fixtures.

Use task lighting. Many offices were designed for “pen and paper” work and there is too much light and glare for computer work. Contractors can disconnect a ballast that serves two of the four lamps in a four-lamp fluorescent fixture. The right light level is important. Consult an engineer to determine what is correct for your situation. Keep existing lamps clean to get maximum output.

Install occupancy sensors in spaces which are unoccupied for portions of the day, such as restrooms, storage rooms, conference rooms and private offices.

Recycle old lamps if they contain mercury. Magnetic ballasts made prior to 1979 may contain PCBs.

HVAC – Heating Ventilation and Air Conditioning

Typically, this is the biggest user of energy in your building. Turn it off when it isn’t needed – use a programmable thermostat to adjust the temperature when the building is not occupied, such as nights and weekends. Run the system less and with more efficient temperature settings (warmer in summer, cooler in winter). Each degree of higher temperature can save about 3 percent in cooling costs.

Maintain your system – people maintain their cars better than they maintain their HVAC systems. Keep the filters and heat-transfer surfaces clean. Contract for biannual maintenance to assure the system is working in top order. Some systems have economizers that take advantage of outdoor air for cooling without using the compressor. Typically, however, these are not well maintained or are disconnected. Solid state sensors are more reliable and can be used to assure proper function of economizers. Work with a contractor committed to keeping your system in good working order.

Upgrade equipment to a more efficient system. There are many incentives for ground –source or even air-source heat pumps. Consult with an HVAC contractor or engineer to design a more efficient system for your building.

Use ceiling fans and you can reduce the air conditioning 3-5 degrees in the summer. Reverse the direction of the fans in winter to keep the warmest air down in the room where the people are. Open the windows in the spring and fall as outside conditions allow. Eliminate direct sunlight into the building – daylight is good, direct sunlight is bad.

BEST ENERGY EFFICIENCY PROJECTS

Lighting
HVAC
Building envelope
Office equipment
Motors/compressors
Renewable fuels

Building Envelope – Weatherization

The envelope is the building “shell” and includes the walls, windows, outside doors, foundation, floor, roof, and skylights. It’s your barrier between your controlled inside environment and the harsh outdoors. Stop infiltration of outside air into your building. Plug or fill cracks or leaks with caulking and weatherstripping. Typically there are gaps around windows, doors, and utility switches/outlets. Reduce heat transfer by adding insulation to ceiling, walls, and foundations. Control humidity – in the summer, the temperature can be slightly higher if the air is around 50% relative humidity. In winter, the temperature can be slightly lower if the air is around 30-40% relative humidity.

Office Equipment, Hot water

Energy-efficient office equipment reduces electric costs because it produces less heat, requiring less air conditioning as well as less power to run the equipment. Laptops use less power than desktop computers, flat screen LCD monitors use less power than traditional CRT monitors and are more environmentally friendly. Inkjet printers use less energy than laser printers. Buy fewer printers and network computers to them. This improves efficiency (printers don’t sit idle waiting for print jobs) and reduces capital cost. When purchasing new equipment, buy Energy Star labeled equipment. Typically energy star office equipment saves more than 50% of power used by other equipment.

Turn off office equipment when not in use. “Phantom” loads are power that is used by equipment to keep it in the “ready” mode. Use power strips to completely shut down energy consumption of equipment overnight or when it’s not needed. If equipment has energy-saving software, be sure to enable it. “Sleep” modes use less power than “ready” modes.

Hot water temperature is often set too high and the tank and pipes are not insulated. The amount of water used can be reduced by installing aerators or low-flow devices. Fix leaks and maintain the system.

Motors/compressors

Motors and compressors are often overlooked sources of inefficient energy use. Many times, compressed air lines leak, causing the compressor to work more than it should. Fixing air leaks is a low-cost improvement that can have significant payoff. Routine maintenance is also key for motors. Keep blades on ventilation fans clean, clean or replace rusty or corroded moving parts, replace dry or worn bearings, etc. Consider replacing higher horsepower motors that operate 2,500 hours/year or more with high-efficiency motors. Some incentives are available.

Renewable fuels

Renewable energy resources, such as biomass, wind, and solar will play a larger part in our future energy mix. They are the cleanest sources of energy available and have infinite life, versus fossil fuels. Currently, the payback period for most renewable applications is long, but there are incentives and other reasons for investing in renewable technology for your business.

Energy Audits and Benchmarking Your Building

Energy Star has a benchmarking tool on its website that provides your building a “score” based on its type of use and utility usage from the last 12 months or more. This tool provides information on your current state and allows you to track improvements. www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

If you have a score below 75 in the Energy Star benchmarking, consider getting an energy audit by a trained professional. In some cases, the utility company has auditors who can come into your business and provide you with specific suggestions for your individual situation. This is often the best way to take full advantage of the many energy savings currently available.

