



Energy Answers for Small Offices

Electricity costs for small office buildings average \$1.40 per square foot per year. These costs account for 30% of typical operating expenses. By employing a few simple strategies, businesses can reduce energy use and lower their operating costs. These measures can also improve employee comfort and productivity. This fact sheet provides an overview of typical energy efficiency strategies and a list of resources for more information.

Value for Owners and Renters

Whether you rent or own your space, you will benefit directly from implementing energy efficiency measures. Owners will enjoy a more marketable building with fewer maintenance calls and more satisfied tenants. Renters will benefit from energy savings and comfort improvements.

Maximize Your Human Resources

Reducing energy use in small offices requires a team approach. Clear communication is the key to ensuring success.

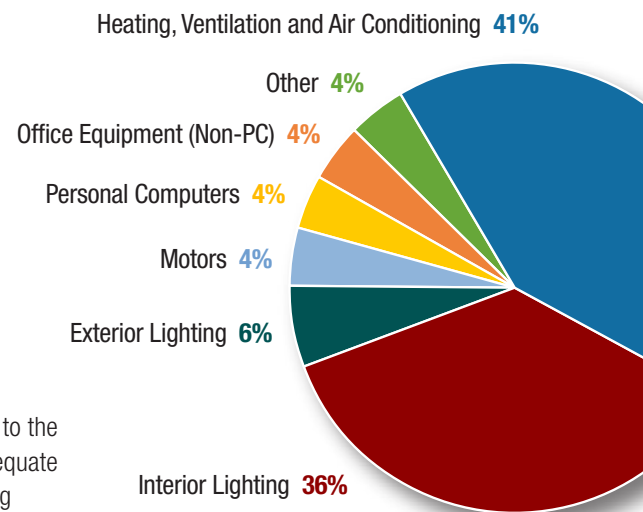
- Encourage everyone to turn off lights and equipment that are not in use.
- Explain the measures implemented, any potential impact on operations, and what actions are required to maintain energy savings.

Lighting: A Clear Choice

Interior lighting consumes 36% of the total electricity use in a typical small office. According to the U.S. Department of Energy, 50% of that energy may be wasted by obsolete equipment, inadequate maintenance or inefficient use. Quality of lighting impacts employee productivity: poor lighting can cause glare and eye strain. Replacing lighting is relatively easy and it can reduce your cooling requirements, so it's a good starting point. Measures to consider:

- Replace incandescent bulbs with ENERGY STAR® qualified compact fluorescent lamps (CFLs). By changing one incandescent bulb that burns 6 hours a day with a CFL, you can save \$9 on electricity and \$3 on maintenance costs each year. The more lamps you change, the more you save.
- Replace T12 fluorescent lamps and magnetic ballasts with T8 fluorescent lamps and electronic ballasts and reduce lighting energy use by 15-25%.
- Use occupancy sensors and timers in restrooms, conference rooms, private offices, and break rooms to save 30-60% of lighting energy. In partitioned areas, use ceiling-mounted ultrasonic sensors, which can detect motion over cubicle walls. Install photocells and timers on outdoor lighting.
- Encourage more task lighting, especially in areas with high partitions. Allow employees to focus light where it's needed, rather than illuminating a large space.
- Save \$20 per year for each incandescent exit sign you replace with an ENERGY STAR qualified model. These products also last up to 10-times longer.

Fig. 1 Typical Electricity End Use by Small Office Buildings in Arizona



Office Equipment: Add Up the Savings

From copiers, fax machines, and mailing machines to personal computers, printers, and scanners, office equipment is the engine that drives business operations. It also consumes 8% of average electricity use and adds to the cooling load. Measures to consider:

- Look for more efficient models when replacing or purchasing new equipment. ENERGY STAR qualified office and imaging products use 30-75% less electricity than standard equipment.
- Remind staff to turn off equipment at night and during long breaks.

Heating, Ventilation and Air Conditioning (HVAC): Time It Right

Cooling is the second largest energy expense for Arizona offices. An efficient HVAC system creates a comfortable and healthy work environment and it reduces maintenance demands. Measures to consider:

- Use a programmable thermostat to adjust the temperature based on occupancy. Set the thermostat at 79° F or higher during the day and use fans to feel five degrees cooler. Program the thermostat to raise the temperature even higher when your business is closed and to cool it down before employees arrive. For each degree you raise the temperature, you'll save 2-3% on your cooling costs. Inform staff about the settings and seek feedback on comfort levels.
- Check the duct system and building shell for leaks and seal gaps with appropriate materials.
- For offices that have been subdivided multiple times, it is particularly important to balance the HVAC system and ensure proper air distribution.
- Replace aging or inoperable equipment with high efficiency models. Be sure the system is properly sized. A bigger unit is not necessarily better.
- If re-roofing, consider reflective roof materials, which can reduce peak cooling demand by 15%.

Break Room: Expose the Energy Hogs

- Add energy-saving devices to beverage and snack vending machines to reduce the machine's consumption up to 80%.
- Replace old refrigerators and dishwashers with ENERGY STAR qualified products, which use 15-40% less energy than other models.
- Don't neglect the unsung hero of the office: the water cooler. A standard hot and cold bottled water cooler can use more energy than a large refrigerator. An ENERGY STAR qualified model requires about half as much energy.

Watch the Clock

Peak demand charges account for 40% of commercial building electricity expenses, on average. Minimize demand charges by scheduling energy-intensive activities for off-peak periods. Save the big copy job for the morning. Schedule major IT updates, fax blasts and equipment repairs after peak hours.

PUT THEM TO SLEEP

Activate sleep settings on computers and monitors. You can save \$10-\$30 per monitor and \$15-\$45 per computer each year just by activating these settings. Sleeping computers still draw some energy, so be sure to turn them off when done, along with other personal equipment like adding machines and shredders. Did you check the conference room for televisions and projectors? Simplify the job by plugging devices into power strips and turning off the power strip.

Can We Help?

APS offers incentives for qualified efficiency measures. Learn more about the Solutions for Business program at aps.com

Recommended Resources

APS: Solutions for Business Center, Energy Survey and "Ways to Save" Technology Fact Sheets
aps.com

ENERGY STAR: Find appliances, HVAC, lighting and office equipment
www.energystar.gov

DEPARTMENT OF ENERGY:

Cost calculators for energy-efficient products
www1.eere.energy.gov/femp/procurement/eep_eccalculators.html

Operations & Maintenance Best Practices Guide
www1.eere.energy.gov/femp/operations_maintenance/om_bpguide.html

New Buildings Institute, Advanced Lighting Guidelines
www.newbuildings.org/ALG.htm