

ENERGY-EFFICIENT OFFICE EQUIPMENT

Office equipment is the fastest growing electrical load in the business sector. With the widespread use of desktop computers, printers and other devices, an office can have hundreds of units and the energy costs can add up. Energy use from office equipment has surpassed lighting in many buildings where office equipment and miscellaneous loads can account for up to 2.5 Watts per square foot of floor space while lighting only makes up 1.5 Watts. In a recent study by APS, office equipment and other miscellaneous uses accounted for over 40 percent of electricity consumption in large office buildings with most of that by office equipment¹. Since office equipment accounts for an increasingly large share of the electricity bill, it is important to consider energy use characteristics when you are shopping for new equipment. By purchasing the most efficient products, the electric bill will be reduced, adding to the bottom line. Energy-efficient offices help to protect the environment as well.

How Much Does Office Equipment Cost to Run?

Computers, printers, fax machines and copiers consume energy even while they are not in use. The following table provides a summary of typical electrical power requirements and annual energy use for common office equipment. The table compares the annual energy cost of equipment that is turned off at night and over the weekends and equipment that is left on round the clock. By multiplying these values by the number of devices in your office you can get an estimate of how much money is spent on electricity to power these devices, and how much more it costs to leave them on all the time.

Typical Power Requirements and Energy Use of Office Equipment

Equipment	Typical Power Requirements (Watts)	Annual Energy Cost – Off at Night	Annual Energy Cost – On 24 Hours/Day
Computer	55	\$9	\$39
Monitor (15")	75	\$12	\$54
Laser Printer	60	\$14	\$44
Fax Machine	35	\$9	\$27
Copier (small)	115	\$30	\$83
Copier (large)	310	\$80	\$224

Source: Office Equipment Energy Savings Calculator, LBL.

Characteristics of Energy-efficient Office Equipment

Energy-efficient office equipment has been developed and promoted through a partnership between the U.S. Environmental Protection Agency (EPA) and the office equipment manufacturing industry. The ENERGY STAR Office Equipment Program promotes and labels energy-efficient computers, monitors, printers, fax machines, scanners, copiers and multi-function devices. This energy-efficient equipment automatically powers down when not used for a period of time and can be recognized by looking for the familiar ENERGY STAR label. With ENERGY STAR equipment, energy use can



¹ APS study of energy use in 14 different building types in the Phoenix area.

be reduced by 50 percent or more. This also helps reduce the load on air conditioning equipment and it helps to protect the environment. The power management features of different types of office equipment are summarized below.

Computers and monitors – Because of their large numbers, computers are the largest energy consumers among office equipment. ENERGY STAR computers and monitors automatically power down when not in use and are available from almost every manufacturer. Both computers and monitors power down to about 15 percent of their maximum power usage. If you use screen savers make sure they are compatible with your computer’s power management features, as many will actually prevent your computer from going into the power-saver mode. It may also be necessary to make sure that the power saving features are enabled on your computers and that you have the power-down time set to an acceptable level for your operation. Energy Star computers and monitors save about 50 percent on electricity costs.

Printers – Energy-efficient printers also benefit from power management technology which puts them into low power mode after a pre-determined period of inactivity. ENERGY STAR printers power down to 15 to 45 Watts or less depending on the type of printer, and can save over 60 percent on annual energy costs. Printers with double-sided printing capability are more energy efficient and also help reduce paper costs.

Fax machines – Because fax machines need to be available 24 hours a day, they have a huge potential for power saving technology, they also power down to 15 to 45 Watts or less when not in use, and can save over 50 percent on annual energy costs. While fax machines save energy by going into low power mode during periods of non-use, they still receive faxes at any time.

Copiers – Copiers are the most energy intensive pieces of office equipment. They take a lot of energy to keep warm so the toner can fuse to the paper. Energy consumption can be quite high, even when not in use. ENERGY STAR copiers are equipped with power saver features that allow them to go to low-power mode after 15 minutes of inactivity and to an off-mode of five to 20 Watts after two hours of inactivity. This ensures that the equipment is off in the evening and weekends. These features can reduce annual electricity costs by up to 60 percent. Copiers with double-sided or duplex copying also help to save energy and reduce paper costs.

How Much Can I Save with Energy-efficient Office Equipment?

The following table provides an estimate of the savings that can be achieved with ENERGY STAR rated office equipment. The savings can be dramatic. Multiply these values by the number of devices in your office to estimate how much money could be added to the bottom line with energy-efficient office equipment.

Energy Cost Savings with ENERGY STAR Office Equipment

Equipment	Annual Energy Cost Savings – Off at Night	Annual Energy Cost Savings – On 24 Hours
Computer	\$2	\$20
Monitor (15")	\$4	\$40
Laser Printer	\$4	\$25
Fax Machine	\$3	\$15
Copier (small)	--	\$50
Copier (large)	--	\$140

How Much More Does Energy-efficient Office Equipment Cost?

Because so many manufactures have joined the ENERGY STAR program, power saving features have become nearly standard on many types of equipment. As a result energy-efficient equipment often costs no more than standard efficiency. Ask for ENERGY STAR rated products and how they compare to the other brands of non-rated equipment they offer.

Other Tips for an Energy-efficient Office

Here are a few other tips and things to watch for in making the office an energy-efficient operation.

- Power management features reduce energy consumption, but energy is still used in the power down mode. For greatest savings, turn equipment off at the power source when not in use overnight or on weekends. Plug-in timers automatically turn equipment off at the power sources at certain times of day. They are especially useful for copiers and printers. For copiers, be sure to check with the equipment supplier to find out if the copier needs to remain on continuously.
- If the computer must be left on at night and weekends, save energy costs by turning off the monitor. Turn the monitor off if the computer will not be used for a half-hour or so. Monitors typically use more energy than the computer itself.
- Power-saver features need to be set up by the user on many products. Check the setup when you install new equipment and periodically to ensure that the power-saver functions are still working.
- Screen savers do not save energy. Their purpose is to extend the useful life of the screen and avoid images being “burned” into the screen. Make sure the screen saver is compatible with the power management features of the computer and that the settings allow the unit to go into the power saver mode.
- Laser printers consume more energy than inkjet printers. Color printers use more energy than black and white.
- Liquid crystal displays use less energy than conventional monitors.
- Laptops draw about one-tenth the power of a conventional desktop computer. You can connect a laptop computer to a conventional monitor and still save almost half the energy of a standard computer.

For More Information on Energy-efficient Office Equipment

Contact the websites of the U.S. Department of Energy’s Energy Efficiency and Renewable Energy Network, and the U.S. Environmental Protection Agency’s ENERGY STAR Program.

For general information regarding electric service for your business, call the APS Business Center at 602-371-6767 or 1-800-253-9407. For an on line analysis of your business energy use visit the APS website and take the Energy Survey at http://www.aps.com/aps_services/energysurvey/Default_BUSRES.html?type=b