



Energy Efficiency and Renewable Energy
Federal Energy Management Program

How to Buy an Energy-Efficient Copier

Why Agencies Should Buy Efficient Products

- Executive Order 13123 and FAR section 23.704 direct agencies to purchase products in the upper 25% of energy efficiency, including all models that qualify for the EPA/DOE ENERGY STAR® product labeling program.
- Agencies that use these guidelines to buy efficient products can realize substantial operating cost savings and help prevent pollution.
- As the world's largest consumer, the federal government can help "pull" the entire U.S. market towards greater energy efficiency, while saving taxpayer dollars.

Federal Supply Source:

- General Services Administration (GSA)
www.fss.gsa.gov

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and World Wide Web site have up-to-date information on energy-efficient federal procurement, including the latest versions of these recommendations.
Phone: (800) 363-3732
www.eren.doe.gov/femp/procurement
- Environmental Protection Agency (EPA) has ENERGY STAR® product listings.
Phone: (888) STAR-YES (782-7937)
www.energystar.gov
- EPA provides a "Toolkit" for manufacturers, buyers, and users of ENERGY STAR copiers.
enduse.lbl.gov/esoe/CTKIntro.htm
- TCO is a labeling program for computers, monitors, and other office equipment that includes energy efficiency, environmental, and ergonomic criteria, as well as low electro-magnetic emissions.
Phone: (312) 781-6223
www.tco-info.com
- Buyers Lab, Inc. publishes detailed copier test reports, a *Copier Specification Guide*, and an electronic selection guide.
Phone: (201) 488-0404
www.buyers-lab.com
- Lawrence Berkeley National Laboratory maintains a Web site devoted to office paper reduction issues and strategies.
eetd.lbl.gov/paper
- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation.
Phone: (202) 646-7950

Efficiency Recommendation

Copier Type (copies/minute)	Recommended		Best Available		Automatic Duplex Copying
	Watts in "Sleep" Mode ^a	Watts in Off Mode	Watts in "Sleep" Mode	Watts in Off Mode	
≤ 20 cpm	N/A	5 or less	0	0	N/A
21-44 cpm	5 + (cpm * 3.85) or less ^b	15 or less	cpm * 3.0 or less	0	Default Setting
> 44 cpm	5 + (cpm * 3.85) or less	20 or less	cpm * 1.3 or less	0	Default Setting

a) "Sleep" mode refers to a low-power standby condition, which is entered automatically after a set period of inactivity. The copier's active mode is restored when the user touches a control button, or by a motion sensor.

b) For example, a 30 cpm copier can only use 120.5 watts (5 + (30 * 3.85)) in sleep mode.

The federal supply source for copiers is the General Services Administration (GSA). GSA's on-line ordering system, *Advantage!*, can be used to select and order copiers. Make sure the model you order qualifies for the ENERGY STAR® label and has default duplex (two-sided) copying (for copy speeds above 20 cpm).

When contracting or buying from a commercial source, specify or select a copier that qualifies for the ENERGY STAR® label and has automatic duplexing (if copy speed exceeds 20 cpm).

The most effective way to save energy and reduce copying costs is to copy on both sides of the paper (duplex). Look for a model with duplex speed at least 80% as fast as one-sided copying. Ask your dealer or check the product reviews by Buyers Lab, Inc. (see "For More Information").

The time needed to recover from sleep or off modes is very important to most users. ENERGY STAR copiers at 21 cpm or above must be ready to copy within 30 seconds; many low-volume copiers are even faster.

Where to Find Energy-Efficient Copiers



Buyer Tips

Select a copier that the manufacturer recommends for use with recycled paper. Federal agencies are required to use paper with at least 30% post-consumer waste.

Make sure your copier was shipped and installed with the default-duplex, auto-off, and sleep mode features enabled. Some existing copiers can be reset to default duplexing. Turn off your copier at night if it does not have an auto-off feature; this will not shorten your copier's lifetime.

It is important to inform copy-machine users about the duplex setting, including benefits from reducing paper use (e.g., cost savings). Show users how to manually select one-sided copying if needed for a specific job (e.g., for faxing or transparencies). Make fewer copies whenever possible by using electronic mail, posting documents on the World Wide Web, or by circulating a single copy. For originals with large print, use 2:1 image reduction to save paper.

Usage Tips

Copier Cost-Effectiveness Example (35 cpm, black-and-white)

Performance	Base Model	Recommended Level (with duplexing)	Best Available (with duplexing)
Annual Energy Use	1,532 kWh	1,138 kWh	974 kWh
Annual Energy Cost	\$92	\$68	\$58
Lifetime Energy Cost	\$460	\$340	\$290
Lifetime Energy Cost Savings	-	\$120	\$170
Annual Paper Use	136,000 sheets	108,000 sheets	108,000 sheets
Annual Paper Cost	\$680	\$540	\$540
Lifetime Paper Cost	\$3,650	\$2,900	\$2,900
Lifetime Paper Cost Savings	-	\$750	\$750
Lifetime Total Cost Savings	-	\$870	\$920

Definition

Lifetime Energy or Paper Cost is the sum of the discounted value of annual energy or paper costs based on average usage and an assumed copier life of 6 years. Future electricity price trends and a discount rate of 3.4% are based on federal guidelines (effective from April, 2000 to March, 2001).

Cost-Effectiveness Assumptions

Annual energy use in the above example is based on typical office operating practices, including a 9.5 hour work day with 8.5 hours of standby (inactive) time and 250 work days per year. Also, the example incorporates the assumption that 70% of all copiers are left on overnight and on weekends. Copy volume is 12,000 copies/month. With the default-duplex feature, 50% of copies are assumed to be two-sided (vs. 11% for the Base Model). The assumed electricity price is 6¢/kWh, the federal average electricity price in the U.S. The average paper cost is assumed to be 0.5 ¢/sheet.

Using the Cost-Effectiveness Table

In the example shown above, a 35 cpm copier at the Recommended efficiency level (with default duplexing) is cost-effective if its purchase price is no more than \$870 above the price of the Base Model. The Best Available model (with duplexing) is cost-effective if its price is not more than \$920 above the price of the Base Model.

What if my Electricity or Paper Price is different?

To calculate Lifetime Energy Cost Savings for a different electricity price, multiply the savings in the above table by this ratio: $\left(\frac{\text{Your price in } \text{¢/kWh}}{6.0 \text{ ¢/kWh}}\right)$. To calculate Lifetime Paper Cost Savings for a different paper price, multiply the savings in the above table by this ratio: $\left(\frac{\text{Your price in } \text{¢/sheet}}{0.5 \text{ ¢/sheet}}\right)$.

