Energy Efficiency and Renewable Energy
Federal Energy Management Program

How to Buy Energy-Efficient Exit Signs

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 Sources:

- Defense Logistics Agency (DLA)
  Phone: (800) DLA-2852
  www.dla.mil
  www.emall.dla.mil
- General Services Administration (GSA)
  Phone: (800)488-3111
  www.fss.gsa.gov
  www.gsaadvantage.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.eere.energy.gov/femp/procurement
- Environmental Protection Agency has ENERGY STAR product listings.
  Phone: (888) 782-7937
  www.energystar.gov
- American Council for an Energy-Efficient Economy (ACEEE) publishes the *Guide to Energy-Efficient Commercial Equipment*, which includes a chapter on lighting.
  www.aceee.org
- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation.
  Phone: (202) 646-7950

Efficiency Recommendation

Product Type	Recommended	Best Available
Exit Signs	5 watts or less[a]	0 watt[b]

a) Including built-in back-up power

b) Photoluminescent exit signs.

Where to Find Energy-Efficient Exit Signs

Energy-efficient exit signs are available from the Defense Logistics Agency (DLA) and General Services Administration (GSA). DLA sells exit signs through its electronic *Energy Efficient Lighting* catalog (www.dscp.dla.mil/gi/general/lightcat.htm) and online through *DoD EMall*. GSA offers them through the Multiple Awards Schedule program as well as through its on-line shopping network, *GSA Advantage!* Select exit signs that meet the recommended power consumption level. Both DLA and GSA sell retrofit kits, which allow conversion of existing exit signs to energy-efficient models.

For exit signs purchased through commercial sources, look for products with the ENERGY STAR label, all of which meet this Recommendation. For contractor-supplied exit signs, specify products with the ENERGY STAR label or that meet the recommended power consumption level.

Buyer Tips

Electrically powered exit signs use either incandescent bulbs, compact fluorescent lamps (CFL) or light-emitting diode (LED) arrays as light sources. Most LED and some CFL exit signs meet this Recommendation. Due to their low power draw, LED exit signs can be purchased with built-in back-up power supplies (i.e., batteries). With an estimated service life of 10 years or more, LEDs require significantly fewer lamp replacements than exit signs equipped with either incandescents or CFLs.

Non-electrically powered photoluminescent (PL) exit signs utilize a glow-in-the-dark material to provide illumination. While PL exit signs do not require a direct connection to a source of electrical power to operate, they must be charged by another light source in order to function properly. Therefore, PL exit signs are not be suitable for all applications. In locations with proper charging sources, PL exit signs can have an unlimited service life.

To ensure reliability, ENERGY STAR requires that manufacturers replace defective parts for at least five years from date of purchase and that labeled products be UL 924 listed. Be sure to check state or local codes before selecting exit signs.

Exit signs that utilize incandescent light bulbs should not be purchased by federal agencies. In federal buildings where they are still in use, facility managers should replace them immediately. In some locations, it may even be cost effective to replace exit signs that use CFLs with those that use LEDs or PLs (see example below).

Retrofits

Retrofitting existing exit signs may be more economical than replacing them, but proper installation is vital to ensuring adequate visibility. The ENERGY STAR program does not cover retrofit kits.

Exit Sign Cost-Effectiveness Example

Performance	Base Model	Recommended Level	Best Available
Power Consumption	26 watts	5 watts	0 watt
Annual Energy Use	228 kWh	44 kWh	0 kWh
Annual Energy Cost	$14	$3	$0
Lifetime Energy Cost	$110	$22	$0
Lifetime Energy Cost Savings[a]	–	**$88**	**$110**

a) Note that these savings are for energy use only do not include lamp replacement costs, including labor, which are discussed in the text below.

Definition

Lifetime Energy Cost is the sum of the discounted value of annual energy costs, based on constant usage and an assumed exit sign life of 10 years. Future electricity price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2004 to March, 2005).

Cost-Effectiveness Assumptions

In this example, the Base Model uses two 13-watt CFLs, the Recommended Level sign uses a 5-watt LED array while the Best Available product uses PL technology, which has limited applications (see above).

Annual energy use in this example is based on constant use, or 8760 operating hours per year. The assumed electricity price is 6¢/kWh, the federal average electricity price in the US. The calculations are for energy cost savings only and do not include lamp replacement or labor costs. If lamp replacement and labor cost are included, the savings will be significantly greater.

Using the Cost-Effectiveness Table

The recommended exit sign with a power consumption of 5 watts is cost-effective if its purchase price is $88 or less. The Best Available model is cost-effective if its price is no more than $110. In addition, because of the lower maintenance costs, LED and PL exit signs will be even more cost effective.

What if my Electricity Price is different?

To adjust the Lifetime Energy Cost Savings in the table above for a different electricity price, multiply the dollar figures listed by this ratio: $\left(\frac{\textit{Your price in ¢/kWh}}{\textit{6.0 ¢/kWh}}\right)$.