

Specifying Energy-Efficient Products
A Guidebook for State and Local Government
Property and Facility Management Organizations

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This guidebook is designed to help property and facility management professionals in state, county and local governmental bodies learn more about the many important reasons to specify energy-efficient products when constructing a new facility or renovating an existing one. It discusses:

- The many advantages of specifying energy efficient products
- Steps to take to identify and buy these products
- How to be an “energy efficiency champion”
- Where to go for more information and assistance.

Why Specify Energy-Efficient Products?

Many of the products used in new facility construction and renovation projects – items such as lighting products, HVAC equipment, water heaters, motors, and so forth – are costly to operate. A major reason is that they use a great deal of energy (electricity, gas, or oil). You can save a lot of expense, and benefit everyone, with a properly structured program for specifying energy-efficient products. Sometimes your organization may specify these products itself, but often they are actually specified by third party architects or engineers who do the project design work. In either case, you can take the lead by requiring that energy-efficient products be used wherever appropriate.

As their name suggests, these products use less energy than their inefficient counterparts. How much less? ENERGY STAR®, a collaboration of the U.S. Department of Energy, the Environmental Protection Agency, and private companies, was created to help organizations specify energy-efficient products. Specific brands and models of products with an ENERGY STAR label exceed minimum federal standards. For example, ENERGY STAR compliant air-conditioning systems exceed federal standards by 20%, and ENERGY STAR compliant furnaces exceed them by 15%. Products without federal standards must meet specified high levels of efficiency to be labeled as ENERGY STAR compliant.

In fact, there are actually three important benefits that result when you specify energy-efficient products for new construction and renovation projects:

Cost Savings

- **Utility bills are drastically reduced.** Energy-efficient products use less energy, so utility bills decrease. For example, the City of Phoenix, Arizona used energy-efficient designs and products in its new \$84 million, 600,000 square

Toledo, Ohio upgraded to energy-efficient lighting and HVAC systems in 30 buildings, reducing annual utility bills by \$440,000.

foot City Hall. To date, the City has saved a total of \$22.8 million because of this and other energy efficiency projects. The University of California at San Francisco now saves over \$2 million annually on utility bills just because it installed energy-efficient lighting.

- **Maintenance costs are lower.** Many energy-efficient products last far longer than

Montgomery County, Maryland recoups the cost of lighting retrofits in 4 years just from reduced maintenance costs.

the typical product of their type. This results in lower maintenance costs because energy-efficient products are replaced less frequently. For example, compact fluorescent lamps typically last 10 times as long as standard incandescent lamps.

- **Special financing is often available.** Some energy providers offer rebates to customers who install energy-efficient products and equipment, and others offer 0% or low-rate financing. Furthermore, below-market financing or other financial incentives may be available from the federal government and from state energy financing programs.

Portland, Oregon received \$420,000 in rebates as a result of its energy efficiency program.

What all this means is that **energy-efficient products are very often cheaper** than their

ENERGY STAR compliant products free up substantial tax dollars for other purposes, such as teachers' salaries and more public services.

inefficient counterparts when all of the costs (such as purchasing cost, energy cost, and maintenance cost) are considered over the products' entire lifetime. This is called *life cycle cost*, and it is a proper way to compare

products to decide which provides the best value. The purchase price of some energy-efficient products may be higher, but their life cycle costs are usually lower, so you will **save taxpayer dollars** when you use them in your facilities.

Better Operating Efficiency

- **Improved operating characteristics, comfort, and quality.** Often, ENERGY STAR -compliant products work better and are higher quality. For example, energy-efficient lighting can offer more light, with better colors and less flickering. The University of Cincinnati replaced old boilers with energy-efficient ones that increased efficiency from 76% to 86%. This higher efficiency caused energy consumption to decrease by 88 million BTUs per year, reducing annual energy costs by \$300,000.

The G. Pierce Wood Memorial Hospital in Arcadia, Florida retrofitted with T8 lamps that increased lighting levels by 21%.

- **Greater reliability and longer product life.** Many energy-efficient products provide more reliable performance, often over a much longer life. LED exit signs last 10 to 20 times as long as conventional signs and are more reliable because they are less likely to burn out.

Environmental Responsibility

- **A cleaner, healthier environment.** Most energy is produced by burning coal, oil, or natural gas. Unfortunately, carbon dioxide and other greenhouse gases are created and emitted into the atmosphere during the process, and these gases are extremely harmful to the environment. Because they use less energy, ENERGY STAR compliant products are responsible for fewer of these dangerous emissions, resulting in a cleaner, healthier environment for everyone. And ENERGY STAR labeled or equivalent products save a great deal of nonrenewable energy resources (coal, oil or natural gas).

The energy saved by 100 ENERGY STAR compliant exit signs yields pollution reductions equivalent to taking 46 cars off the road for a year.

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**The bottom line:
Energy efficient products save money, work better, and are environmentally responsible.**

STEPS TO TAKE

How do you go about specifying energy-efficient products, especially when you must consider your client agencies/departments, adhere to governmental policies and regulations, and possibly work through third-party consultants who may actually specify the products used during the project? Here are some steps to follow:

1. **Access the ENERGY STAR website.**
 - Become familiar with it and the ENERGY STAR Toolkit.
 - Also, see if your governmental body's procurement organization is knowledgeable about energy-efficient products and can help you learn more about them.
2. **Share this brochure with your immediate supervisor and anyone else who would want to save taxpayer dollars, specify better products, and help the environment.**
 - Make certain that organizations responsible for building maintenance and retrofits are familiar with the value of ENERGY STAR compliant products.
 - If you outsource operations and maintenance for some facilities, tell the responsible firm that they should use energy-efficient products.
 - With more supporters, the chances of success are much greater.

3. **Contact your energy providers.**
 - See if they offer rebates, low-interest financing or other assistance to encourage the use of energy-efficient products in new and renovated facilities.
 - Ask if they can assist you in specifying energy-efficient products and selecting those that best meet your projects' needs.
 - See if they are aware of others in your area who have similar programs, and who may help you.

4. **Review your construction and renovation policies and guidelines to ensure they are consistent with specifying energy-efficient products.**
 - Appropriately modify all documents (such as a *Consultants' Handbook* or *Construction Design Guidelines*) that govern your internal and third party architects and design engineers to make certain the documents require the specification of energy-efficient products.
 - See if any environmental, "green," or energy-related legislation or resolutions apply to your organization; many governmental bodies demonstrate leadership in environmental and energy conservation, as well as in cost-containment.

Ohio House Bill #264 allows non-standard bid processes for energy-efficiency projects and permits payment to be made from the savings achieved.

5. **Determine if any recent new construction or facility renovation projects have specified energy-efficient products, and find out how successful they have been.**
 - If you aren't yet using energy-efficient compact fluorescent lamps or LED exit signs, those are excellent places to start. They save tremendous amounts of energy and have a much longer life, so their payback is very short.

6. **Consider performing **energy audits** on selected buildings to identify opportunities for retrofitting with energy-saving products.**

7. **Specify ENERGY STAR compliant products for one or two projects that have not yet begun and for which no construction budget has been established.**
 - Use the savings calculator (in the ENERGY STAR Toolkit, and also available on the ENERGY STAR website) to estimate the cost savings that would result from switching to energy-efficient products for the selected projects.
 - Show the user agencies/departments, and other involved organizations, the savings that are possible, and work with them to agree that ENERGY STAR compliant products should be specified.
 - If the initial design or schematic work is being done in-house, incorporate energy-efficient products into the preliminary design and budget.
 - If a third party is doing this work, make sure that they have

San Antonio's Convention Center was built with many energy-efficient features even though the City had no formal energy-efficiency policy. The energy saving initiatives were driven by the general contractor.

appropriate experience in designing energy-efficient buildings, and then require them to specify ENERGY STAR compliant products in these projects.

- Make certain that the energy-efficient products' high return on investment is understood and that these products survive any cost-cutting or "value engineering" process.
- Keep track of the cost savings achieved, which can be as high as a 25%-50% reduction in energy costs, and an investment payback of 1 to 7 years.

Utility management information systems can help monitor energy usage and measure energy savings generated by ENERGY STAR compliant products.

8. If some of the facilities occupied by your governmental body are leased, give preference to energy-efficient buildings in future lease arrangements.

- Such facilities should provide greater tenant comfort while still being less costly to operate, and their lease terms may be more favorable as a result.

9. If your governmental body is not ready to implement energy-efficiency on its own, consider entering into an energy savings performance contract with an Energy Service Company (ESCO).

- Although the arrangements vary, an ESCO will normally implement energy saving infrastructure projects at the selected facilities, and then be reimbursed from part of the cost savings resulting from the project.
- Once the contract is over and the ESCO has been reimbursed, all future energy savings usually accrue to your governmental body.

BECOME AN ENERGY EFFICIENCY CHAMPION

Once the process gets going, there is a lot more that can be done over the longer term.

Only you can commit yourself and get the process going. Everyone will benefit when you do.

Some governmental bodies designate an "energy manager" who is knowledgeable about energy-efficient products and their benefits, and who is familiar with available information resources. This person plays a key part in implementing a complete energy-efficiency program by, for

example:

- "Spreading the energy-efficiency word"
- Ensuring that renovation and construction policies and guidelines are appropriate
- Assisting those who want to specify ENERGY STAR compliant products
- Developing a means of providing recognition to organizations and individuals who specify ENERGY STAR labeled or equivalent products
- Representing the governmental body at

The State of Tennessee has established a full-time energy unit to promote energy-efficient products and designs with the State Architect and the State engineers involved in capital project management.

energy-efficiency meetings and conventions, or even sponsoring such a group on a local or regional basis

- Working with external associations and groups on energy-efficiency issues. The National Association of Counties, the Energy Efficient Building Association, the American Council for an Energy Efficient Economy and many others are involved in energy-efficiency and “green” programs.

ENERGY-EFFICIENCY RESOURCES

The next step is yours, but you are far from alone. Many state and local facility and property management organizations are committed to specifying ENERGY STAR compliant products, and they have overcome the same hurdles you may face. The following are some resources you can use.

The EPA’s energy-efficiency website and toll-free number are: www.energystar.gov will introduce you to the ENERGY STAR program. 1-888-STAR-YES will put you in touch with personnel involved in the ENERGY STAR program at the EPA.

The DOE has several important websites: www.eren.doe.gov/buildings the DOE’s Energy Efficiency and Renewable Energy Network (EREN). The Office of Building Technology, State and Community Programs (BTS) supports both builders (building material and equipment, design, and software tools) and building owners (energy-efficient purchasing, commissioning, and operations and maintenance).

www.energycodes.org is the website for the DOE’s Building Standards and Guidelines Program, a resource on energy codes and standards. They can also be contacted at 1-800-270-2633.

The CREST (Center for Renewable Energy and Sustainable Technology) websites are: <http://solstice.crest.org> is dedicated to energy-efficiency. It contains case studies, and discusses funding sources.

<http://gem.crest.org> also includes case studies, and has a state-by-state guide to energy efficiency resources.

The website of the Energy Efficient Building Association is: www.eeba.org which promotes education and development of energy-efficient buildings and also offers publications such as the *Builder’s Guide*.

The website of the American Council for an Energy Efficient Economy is: www.aceee.org The ACEEE promotes the development of energy-efficiency improvements in buildings and equipment. It works on standards and codes, retrofit strategies, and emerging technologies. The ACEEE also conducts summer conferences on energy-efficient buildings.

The website of the New Buildings Institute is: www.newbuildings.org This is a not-

for-profit national collaborative that encourages the efficient use of energy in buildings. It specifically supports improved codes and standards, and educates building officials, architects, and engineers about building energy-efficiency.

The website of the Building Codes Assistance Project: www.bcap@ase.org This project promotes energy-efficient construction standards. It provides assistance on developing state and local government building energy codes.

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If you have comments about this guidebook, the ENERGY STAR web site or the ENERGY STAR Toolkit, if you need more information, or if you would like to submit your own energy-efficiency “success story,” please call: 1-888-STAR-YES (1-888-782-7937).