



# Energy Star Buildings



## Introducing... The Energy Star Buildings Program



*The energy to run buildings in the United States costs about \$70 billion a year. Besides being costly, producing the electricity to run these buildings contributes to a host of environmental problems: acid rain, smog, and global warming.*

*EPA's Energy Star programs promote the use of profitable, energy-efficient technologies as a way to increase profits and competitiveness, while at the same time preventing pollution.*

### What Is the Energy Star Buildings Program?

EPA's new Energy Star Buildings program is a voluntary energy-efficiency program for U.S. commercial buildings. Building on the successful Green Lights program, the program focuses on profitable investment opportunities available in most buildings, using proven technologies. A central component of the program is a step-by-step implementation process that takes advantage of the system interactions, enabling building owners to achieve additional energy

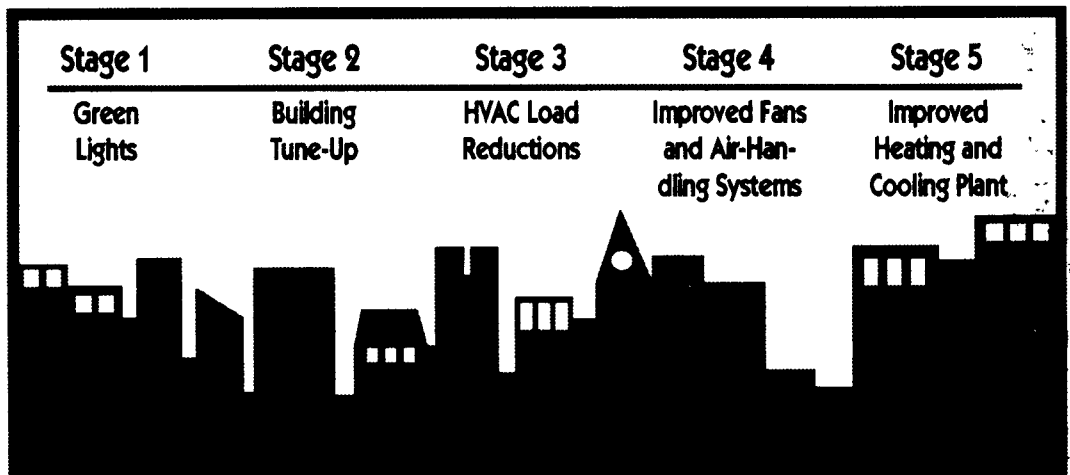
savings while lowering capital expenditures.

The five-stage Energy Star Buildings upgrade strategy is shown below. One key advantage of this approach is that it reduces equipment cost. By implementing Green Lights (Stage 1), tuning up the building's systems (Stage 2), and investing in upgrades that reduce heating and cooling loads (Stage 3), building owners can significantly reduce the size and cost of equipment associated with Stages 4 and 5. Moreover, uncertain-

ties about the proper sizing of upgraded cooling equipment (chillers and direct-expansion units) are reduced, leading to potential equipment downsizing and cost savings.

Partners are expected to follow this staged implementation strategy in upgrades of buildings they own. The Energy Star Buildings program will also seek to expand markets for emerging energy-efficient technologies, with the goal of reducing prices to make investments even more profitable.

***This staged approach provides a broad strategic framework for making comprehensive efficiency upgrades in a range of commercial building types.***



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## Savings Example: Variable Speed Drives

*Variable speed drives (VSDs) control fan and pump motor speeds precisely, greatly improving the efficiency of HVAC systems. EPA recently completed a Variable Speed Drive Demonstration Study, in which EPA and a group of nine Green Lights Partners conducted a series of tests on existing installations of variable-speed-drive controls on HVAC fan systems. The purpose of these tests, which were held in several U.S. locations, was to monitor the energy savings relative to mechanical inlet-vane airflow controls. In most cases, the observed savings were significant, averaging 53 percent. In general, VSDs are expected to save from 30 to 60 percent in retrofit applications on existing variable-air-volume systems.*

## Energy Star Showcase Buildings

Over the next 2 years, EPA will work closely with a group of 20 to 30 Green Lights Partners to complete comprehensive and accelerated single-building efficiency upgrades. These Showcase Buildings will demonstrate that the com-

prehensive Energy Star Buildings strategy works to maximize energy savings at a profit. Furthermore, the Energy Star Showcase Building projects will offer an opportunity to field-test and refine EPA's technical support materials.

## How Does EPA Help?

In addition to publicly recognizing an organization for its participation in the program and the energy savings it achieves, EPA provides a number of technical resources to help plan and implement building upgrades. These resources include:

- The *Building Retrofit Manual*, a step-by-step guide to a comprehensive commercial building upgrade.
- Software to calculate savings from upgraded fan systems.
- A data base of financing programs for building-efficiency upgrades.

- Case studies documenting monitored savings for specific technologies (such as variable speed drives or fan motors).
- Generic specifications for specific energy-efficient technologies.
- Information and guidance on indoor air quality issues.
- Guidance on how to use the CFC phaseout as an opportunity to increase building efficiency and reduce the cost of the transition to acceptable alternative refrigerants.

## How Do I Join?

To participate in the Energy Star Buildings program, organizations must first agree to join EPA's Green Lights program, committing to identify and implement 90 percent of profitable lighting upgrades in their commercial and industrial space within 5 years. EPA offers its Partners extensive technical, organizational, and publicity support for lighting upgrades.

Green Lights Partners may become full Partners in the Energy Star Buildings program by signing an addendum to their existing Green Lights Memorandum of Understanding (MOU). As Energy Star Buildings Partners, they are expected to survey all owned U.S. commercial building space to identify prof-

itable efficiency upgrades (rate of return greater than prime rate plus 6 percent), and to complete 90 percent of all profitable upgrades within 7 years.



For more information about the Energy Star Buildings program and the Green Lights program, please contact:

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