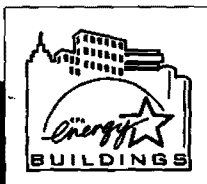




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Environmental Protection Agency

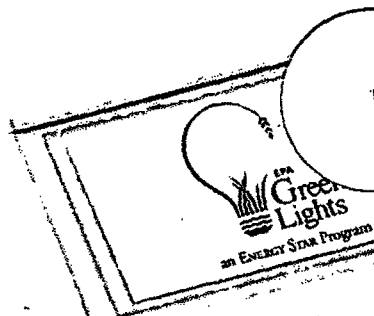
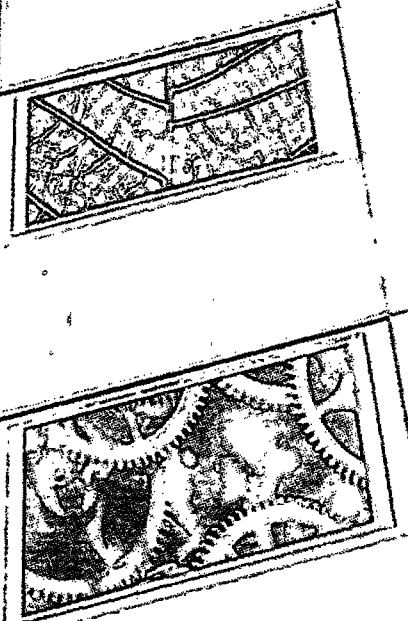
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EPA 430-R-99-002  
June 1999



## ENERGY STAR BUILDINGS™ AND GREEN LIGHTS® 1998 YEAR IN REVIEW

# Reflecting On The Value Of Energy Efficiency



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June 1999

Congratulations to ENERGY STAR Buildings<sup>SM</sup> and Green Lights<sup>®</sup> participants:

ENERGY STAR Buildings and Green Lights participants are demonstrating that it is possible to protect the global climate while simultaneously strengthening their financial performance and the American economy. We've heard many people in the U.S. and around the world say that this can't be done, that acting now to reduce carbon dioxide in the atmosphere will harm our economies. The accomplishments of ENERGY STAR Buildings and Green Lights send a different message.

Consider their success. At the close of 1998, more than 4,400 ENERGY STAR Buildings and Green Lights participants had:

- Invested more than \$2.3 billion in energy-efficient technologies in 3.8 billion square feet of facility space
- Reduced their annual energy costs by more than \$800 million
- Prevented 19 billion pounds of greenhouse gas emissions per year – the equivalent of planting more than 2 million acres of trees

By incorporating strategic energy management into their business plans, these organizations have not only helped to protect the environment, they have helped to build more competitive and profitable businesses. In fact, detailed analysis of financial performance over time suggests that participants that have made significant energy-efficient upgrades have higher operating margins than companies that have not embraced energy efficiency.

To build on these successes, the Environmental Protection Agency (EPA) and the Department of Energy (DOE) have joined forces to deliver a powerful new marketing tool that defines and recognizes energy performance. The ENERGY STAR<sup>®</sup> Label for Buildings will allow building owners for the first time to benchmark their buildings' energy performance relative to similar properties. Awarded to buildings performing in the top 25 percent of the market, this Mark of Excellence in Energy Performance will indicate that your building has outstanding energy performance, lower operating costs, and superior value. We look forward to American businesses using the ENERGY STAR Label as an important organizational benchmark – whether they have one building or a hundred.

EPA wishes to thank the ENERGY STAR Buildings and Green Lights participants for their exemplary contributions to the prevention of global climate change. These leaders serve as remarkable examples of how we can address air pollution and promote economic growth.



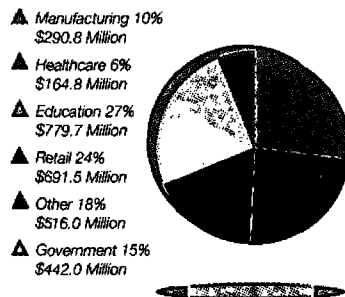
Carol M. Browner  
Administrator  
U.S. Environmental Protection Agency

# Demonstrating the value of energy efficiency

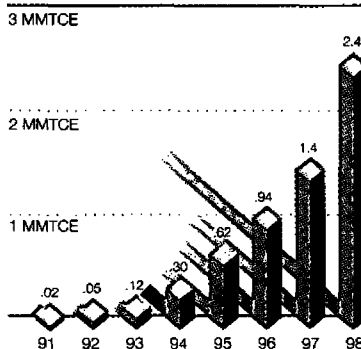
Since the launch of Green Lights in January 1991, the U.S. Environmental Protection Agency's (EPA's) ENERGY STAR programs have redefined air pollution prevention. While promoting partnership over regulation, the ENERGY STAR programs have significantly reduced carbon dioxide emissions and demonstrated the financial benefits of strategic energy management. By the end of 1998, energy investments within the ENERGY STAR Buildings and Green Lights Partnership have added \$2.9 billion of Net Present Value to U.S. businesses (Figure 1).

For every dollar of Net Present Value added to these organizations in 1998, 6.9 pounds of greenhouse gases were also prevented. Because energy is usually created by burning fossil fuels, these environmental leaders are reducing carbon dioxide emissions by 2.4 Million Metric Tons of Carbon Equivalent (MMTCE) – a metric used to measure reductions in greenhouse gases (Figure 2). The 1998 rate is equivalent to planting more than 2 million acres of trees. The accomplishments of the ENERGY STAR Buildings Partnership establish that global climate protection and economic progress are not mutually exclusive.

**(FIGURE 1) CUMULATIVE NET PRESENT VALUE OF '91-'98 UPGRADES: \$2.9 BILLION (IN '97 DOLLARS)**



**(FIGURE 2) ANNUAL CARBON EQUIVALENT PREVENTED FROM COMPLETED UPGRADES**



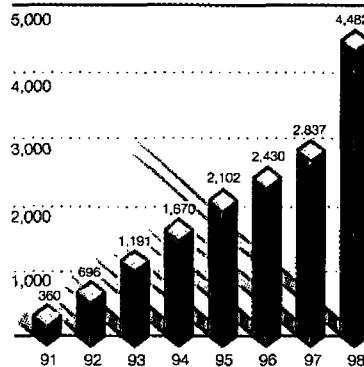
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# Linking financial performance to strategic energy management

Recognizing that efficiencies in other building systems can double the cost savings from efficient lighting alone, EPA merged ENERGY STAR Buildings with Green Lights in 1998. Through this combined partnership, the nation has the opportunity to save more than \$130 billion in energy costs by 2010, while drastically reducing carbon dioxide emissions.

By the end of 1998, more than 4,400 organizations benefit from ENERGY STAR Buildings and Green Lights, which represents 13 percent of U.S. commercial and industrial building space. Participants are diverse and include 120 retailers, 209 healthcare organizations, 372 schools and universities, and more than 1,598 small businesses through ENERGY STAR Small Business (Figure 3).

(FIGURE 3)  
GROWTH OF PARTICIPANTS



By the close of 1998, ENERGY STAR Buildings and Green Lights participants had invested \$2.3 billion in energy-efficiency upgrades. Collectively, these businesses save 11.9 billion kWh and \$802 million annually in energy costs.

Although the value of energy efficiency begins as cost savings, it strengthens businesses in the form of higher net

(FIGURE 4) NET PRESENT VALUE OF 1998 UPGRADES: \$763 MILLION (IN '97 DOLLARS)

- ▲ Manufacturing 2% \$12.7 Million
- ▲ Other 6% \$44.0 Million
- ▲ Retail 36% \$282.8 Million
- ▲ Healthcare 4% \$32.8 Million
- ▲ Education 17% \$127.0 Million
- ▲ Government 35% \$263.9 Million

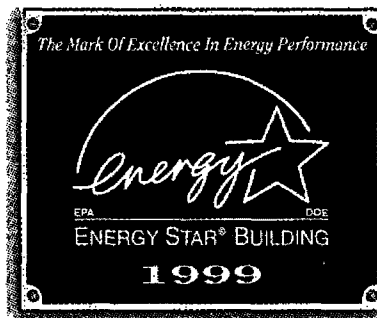


operating margins and increased organization value. In 1998 alone, ENERGY STAR Buildings and Green Lights participants experienced an increase of \$763 million to their organizations' Net Present Value as a direct result of their energy-efficient upgrades (Figure 4).

To further highlight the link between energy investments and financial performance, EPA compared and analyzed the Net Operating Income (NOI), over an extended period of time, of ENERGY STAR Buildings participants. This analysis suggests that the NOI of participants who complete 50 percent of their lighting upgrades increases over time (Figure 5). Although many variables affect the ultimate success of an organization, the strategic energy management of ENERGY STAR Buildings participants indicates a link between energy savings and enhanced financial performance.

In addition to preventing pollution, improving a building's efficiency is an effective way to lower operating costs and thereby increase asset value. EPA estimates that utility costs make up nearly one-third of a typical office building's operating expenses. As a result, a 30 percent savings in energy costs can translate into a six percent increase in net operating income. At a capitalization rate of 10 percent, each dollar of incremental income can raise a building's asset value by 10 percent.

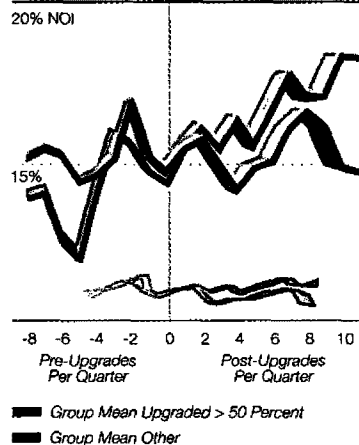
To assist the commercial real estate market in evaluating ways to capture this value, EPA released new ENERGY STAR Buildings software and tools in the fall of 1998. By year's end, real estate managers and owners had already committed more than 100 million square feet to strategic energy management. By partnering with EPA, these business leaders will be equipped to realize increased asset value.



In the fall of 1998, EPA and the Department of Energy (DOE) also piloted a new initiative: the ENERGY STAR Label for Buildings. Like other ENERGY STAR-labeled products, such as office equipment and homes, the Label for Buildings represents the mark of excellence in energy performance.

Increasing asset value through energy management requires the ability to set goals, track costs and consumption, and communicate building performance to others. Assessing the comparative performance of a building against this goal can be accomplished by the ENERGY STAR Benchmarking Tool. This simple-to-use, Internet-based tool, located at [www.epa.gov/buildinglabel](http://www.epa.gov/buildinglabel), catalogs all energy uses in a building, calculates an energy intensity, and benchmarks a building's energy performance against all similar-use buildings in the United States. The building is assigned a benchmark score from 0 to 100. Buildings that perform in the top 25 percent and satisfy indoor environmental requirements may apply for the ENERGY STAR Label.

(FIGURE 5)  
NET OPERATING INCOME  
INCREASES WITH UPGRADES



Source: Compustat

## Recognizing environmental and business leadership

EPA is dedicated to recognizing its participants' efforts to increase their energy performance, adopt strategic energy management, and help to protect the earth's climate. As a result of their environmental and business accomplishments, "Partners and Allies of the Year" are spotlighted in national editorial outreach, public service announcements, and newsletters. Congratulations to EPA's 1998 award winners.

### ENERGY STAR Buildings Award Winners:



**Broward County, Florida's** investments in energy efficiency have resulted in savings of more than \$600,000 in 1998. The county also annually prevents the release of more than 14 million pounds of carbon dioxide – the equivalent of planting 1,918 acres of trees.



CEC Consultants, Inc.



Consulting Engineers

**CEC Consultants, Inc.,** actively promoted strategic energy management through ENERGY STAR Buildings seminars, ads on local buses, and direct mail. Additionally, CEC helped Partners by performing energy audits and making upgrade recommendations.



Johnson Controls World Services Inc.

As a performance contractor, **Johnson Controls Inc.** has measured, monitored, and managed energy usage for more than 1,400

organizations, helping maximize cost savings (more than \$1 billion to date) and enhancing building performance through strategic energy management.

**mervyn's®** During its store upgrades, **Mervyn's** took the opportunity to increase the lighting level of its retail space by 88 percent and improve merchandise visibility. Even with this lighting increase, the average annual energy consumption per store was lowered by 171,000 kWh through strategic energy management.



**New York State Office of Mental Health (OMH)**

has reduced the agency's energy consumption by nearly 55 percent. Realizing an internal rate of return of 36 percent, OMH has amassed \$55 million in savings through energy-efficiency upgrades.

**Polaroid** Since partnering with EPA in 1991, **Polaroid** has upgraded nearly 5 million square feet of facility space with energy-efficient technologies. As a result of its strategic energy management, Polaroid saves more than \$3 million per year in energy costs.



**Wake County Public School System (WCPSS)** uses part of its \$600,000 in annual energy savings to help educate schools

on strategically managing energy use. WCPSS's efforts include conducting workshops and publishing a handbook that provides suggestions on how to improve energy performance.

## Green Lights Award Winners:

### **AMTECH** Lighting Services

Since becoming  
an Ally in 1991,  
**Amtech Lighting**

**Services** has not only completed Green Lights, but also helped ten partners complete their lighting upgrades. To further build its business, Amtech has integrated the ENERGY STAR Buildings Partnership's message into its marketing materials.

### **BOEING**

Through  
strategic energy

management, **Boeing** has reduced its energy use by more than 25 percent, reducing its annual energy bill by \$7 million. This 200-million-kWh reduction also prevents the release of more than 40 million pounds of carbon dioxide.



**Mercer County, N.J.**, has upgraded more than 2.5 million square feet in office buildings, schools, and higher-

education institutions. As a result, the county annually saves more than \$1.7 million and prevents the release of more than 10.5 million pounds of carbon dioxide.



### **Northern Illinois Medical Center**

In order to  
prioritize  
comfort,

**Northern Illinois Medical Center's** nursing staff was consulted on each lighting upgrade decision. Additionally, the hospital saves \$82,000 per year in

reduced energy costs. The Center communicated its success through a temporary display in the hospital and through editorial outreach.



To reduce up-front financial burdens, the **State of Ohio** used performance contracting combined

with air quality bond financing to fund energy-efficiency investments. The state's efforts reduce its energy use by 32 million kWh and prevent the release of 68 million pounds of carbon dioxide per year.



In addition to upgrading 880 stores, **Staples** built 150 new

stores, each incorporating the latest energy-efficient building technologies. One hundred thirty-five will follow in 1999 – all part of "Staples 28," an effort to reduce Staples' energy use and operating costs by 28 percent.



While studying the ENERGY STAR Buildings Manual, students in the **University of Virginia's (UVA's) Engineering Design** course conduct

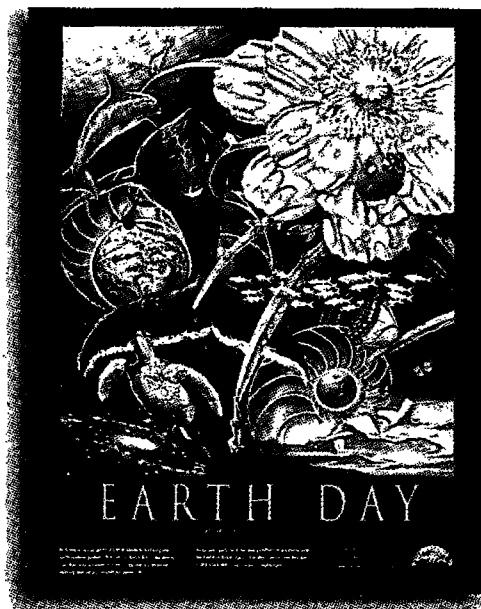
energy analyses on campus buildings and prepare reports. The students' and other UVA projects have reduced the university's energy use by more than 23 million kWh.

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## Gaining an enhanced environmental image

Many organizations have recognized the value of working with EPA to develop an image of environmental responsibility and sound financial management. Many ENERGY STAR participants convey to their employees a culture of commitment to environmental and financial well-being. They communicate to the public their voluntary efforts to protect the environment. And they share with their stakeholders the financial success that results from strategic energy management. Working closely with participants, EPA has helped with communications efforts across a variety of media and venues, including the examples below.



### Hartsfield Atlanta International Airport

Hartsfield Atlanta International Airport, a Green Lights Partner, is plugged into energy efficiency. To educate staff and customers about its energy-efficiency efforts, Hartsfield worked with EPA to create dioramas featuring

information about the Partnership. Measuring 3' x 5', these 10 backlit dioramas are displayed in each of the airport's main terminals and are viewed by travelers approximately 32 million times per year.

### Kinko's

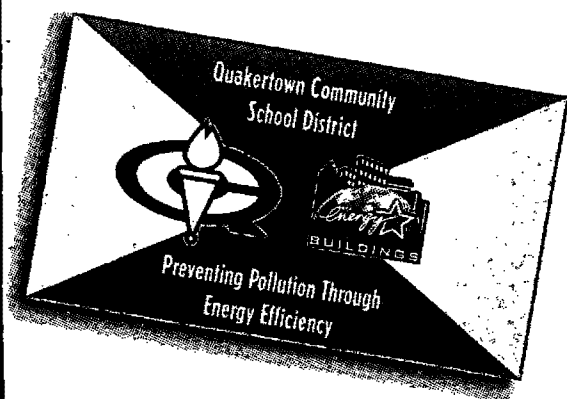
In April 1998, Kinko's worked with EPA to create artwork for an Earth Day poster that Kinko's displayed in its 859 stores during the last two weeks of the month. Based on positive customer feedback, Kinko's also displayed screen savers for its rental computers, counter cards, and window decals – all promoting the environmental benefits of energy efficiency. These materials were distributed to 250 Kinko's branches that had installed energy-efficient lighting.

### Quakertown Community School District

In order to highlight its participation in ENERGY STAR Buildings, Quakertown Community School District worked with EPA to design flags featuring



both the school district's logo and the Partnership's logo. These colorful flags are flown outside of nine upgraded facilities and remind people daily of the district's energy-efficiency efforts.



### McDonald's

To share the company's experience with ENERGY STAR Buildings and Green Lights, McDonald's launched a nationwide awareness campaign to commemorate Earth Day Month. McDonald's bags and cups carried the ENERGY STAR label, a description of what the label means and of McDonald's progress in upgrading restaurants with energy-efficient technologies, and contact information for customers to learn more.



*"This promotion fit the bill for McDonald's. Our customers like to know what we're doing to save resources, and they like to see that McDonald's is an environmental leader."*

— Bob Langert,  
Director of Environmental Affairs, McDonald's

### The Goodyear Tire and Rubber Company

Goodyear, an ENERGY STAR Buildings Partner, lit up one of its blimps with the ENERGY STAR Buildings logo. This blimp flew over baseball fans in Chicago and Los Angeles in the spring of 1998 and was viewed by spectators more than 500,000 times.



These environmental image-building efforts are reinforced by the ENERGY STAR Buildings and Green Lights outreach campaign that generates broad awareness of the benefits of energy efficiency and the Partnership. ENERGY STAR Buildings and Green Lights articles and public service announcements (PSAs) often feature the energy-efficiency successes of participants. In 1998, placements of PSAs and articles were made in high-profile publications such as *Business Week* and *The New York Times*, with total circulation of more than 14 million readers.

## Building on ENERGY STAR Buildings' success

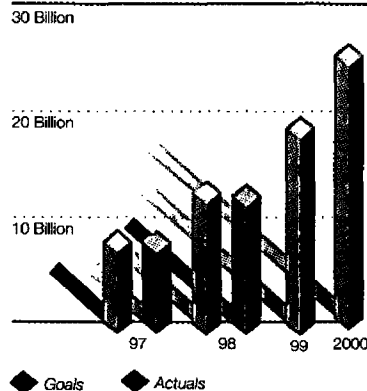
*"ENERGY STAR proves we can meet challenges like global warming through the marketplace, through new technology and innovation, and through good business sense.... Together, we can build a 21st century that is stronger, healthier, and more prosperous than any time in human history."*

— Vice President Al Gore

ENERGY STAR Buildings and Green Lights is steadily positioning the commercial and industrial market to cost-effectively reduce air pollution levels (Figures 7 & 8). By the year 2010, EPA expects ENERGY STAR Buildings and Green Lights participants to reduce annual greenhouse gas emissions by at least 24 MMTCE, close to 10 percent of the projected emissions from commercial buildings. By the end of 1998, ENERGY STAR Buildings and Green Lights participants were preventing the release of 2.4 MMTCE and saving more than \$800 million in energy costs. These investments in strategic energy management have added \$2.9 billion of Net Present Value to participants.

ENERGY STAR Buildings investments (Figure 9) demonstrate the strong link between strategic energy management and enhanced financial performance. However, the majority of the nation's high-level financial decision-makers in private and public organizations still view electric energy costs as the least controllable category of business costs. In fact, most are still not involved in their company's decisions regarding energy use. In 1999, EPA will continue its focus on investigating the extent to which energy efficiency provides a competitive advantage and on helping bridge this information gap.

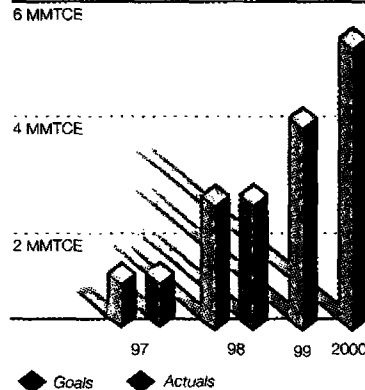
**(FIGURE 7) GOALS FROM COMPLETED UPGRADES ENERGY SAVINGS (kWh)**



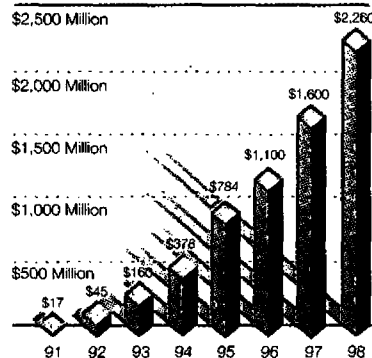
Within the next year, ENERGY STAR Buildings will provide new organizational tools to give these decision-makers the information they need to understand the link between strategic energy management and financial performance. EPA will launch One-2-Five™ Energy, a tool that will help businesses evaluate their organization's ability to implement strategic energy management. To help public institutions, retail establishments, and healthcare organizations assess their buildings' energy performance and to increase the reach of the ENERGY STAR Label for Buildings, EPA's ENERGY STAR benchmarking tool will be expanded to evaluate industry-specific energy use.

Finally, in an effort to reach out to corporate and financial decision-makers,

**(FIGURE 8) GOALS FROM COMPLETED UPGRADES CARBON EQUIVALENT PREVENTED**



**(FIGURE 9) TOTAL INVESTMENTS IN ENERGY-EFFICIENT BUILDING UPGRADES**



EPA will work with them to develop new methods to communicate the financial benefits of energy efficiency. Early results of EPA research suggest that organizations that strategically invest in energy efficiency increase their net operating income. To provide the financial community with relevant, credible, and comparable measures of performance, EPA will introduce new methods of evaluating organizational risk relative to an organization's energy expenditure. By establishing such links between energy investment and financial performance, EPA expects to continue to raise awareness of the value of energy efficiency, to transform the perception of energy efficiency, and to promote investments in building upgrades.



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