CELEBRATING A DECADE OF ENERGY STAR BUILDINGS

1999-2009

The Environmental Protection Agency awarded the first ENERGY STAR® to a building in 1999, an innovation that has helped bring thousands of organizations in the commercial building marketplace to the forefront of energy efficiency and climate stewardship. The evolution of ENERGY STAR for buildings is a compelling story of eliminating barriers, driving demand, and delivering excellence. Celebrate a decade of ENERGY STAR buildings with this historical retrospective of how it all began, where we are today, and a glimpse of the exciting future that lies ahead.

EPA
United States
Environmental Protection
Agency

A DECADE OF ENERGY STAR BUILDINGS
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A Common Story, A Revolutionary Solution

The new director of business administration for a local school district furrowed his brow as he took his first look at his district's budget. Officials in the district predicted that rising fuel costs would push annual energy expenditures upward by more than 20%. There was no way, with increasing costs for textbooks, supplies, and classroom technology improvements, that his school district could afford an energy bill of that size. Together with their energy service provider, they found help from the Environmental Protection Agency's (EPA) ENERGY STAR program.

Through ENERGY STAR, the district official soon discovered that his school buildings were significantly less energy efficient than their peers in the United States and were adding unnecessary costs to that huge energy bill. As district officials evaluated performance building-by-building in the portfolio, they found ways to take action and save energy at the whole building level, address poorly operating systems, and make necessary capital investments. After two years, the district had spent $150,000 on capital upgrades but its energy costs, rather than rising to the predicted $4.5 million, came in at $3 million. Within another two years, the school district would become the first in the country to be recognized by EPA for reducing overall energy use by 40 percent.

This is the true story of Council Rock School District in Newtown, Pennsylvania. It's a common story of a common problem. EPA's ENERGY STAR program offers a powerful solution that has revolutionized energy efficiency in the commercial marketplace.

ENERGY STAR partners in the commercial building marketplace have helped prevent emissions equal to the electricity used by more than 60 million American homes per year.

Dawn of the EPA Partnership Program

The 1990s marked an important shift in the United States toward greater collaboration on pollution prevention. It was a time when both business leaders and environmentalists recognized that economic progress and environmental protection can, and must, go hand-in-hand. It was an era of market incentives and flexible, common-sense, cost-effective strategies. EPA's decision to approach the momentous problem of climate change through a voluntary, public/private energy efficiency partnership program reflected a new generation of environmental protection. This innovative approach took shape in 1991 under the banner of EPA's Green Lights program.

Through Green Lights, EPA promoted the use of efficient lighting systems in commercial buildings in situations where

1991 — EPA introduces the Green Lights Program, a partnership program designed to promote efficient lighting systems in commercial and industrial buildings.

1992 — EPA introduces the first ENERGY STAR labeled products, including personal computers and monitors.

1993 — EPA pilots the ENERGY STAR Buildings program with 23 building owners to showcase the ENERGY STAR approach.

1994 — Green Lights merges with ENERGY STAR Buildings, a program to help businesses simultaneously improve their energy performance and increase their bottom line.

1995 — EPA launches ENERGY STAR labeled new homes that are 30 percent more efficient than the model energy code.

they maintained or improved lighting quality and were also profitable. It was a novel idea built around an important reality: energy efficient lighting could significantly reduce the pollution caused by buildings. But organizations were not taking advantage of these investment opportunities because they did not have objective information, assessment tools, or an understanding of the benefits to their bottom line. Green Lights offered tools and resources to overcome these barriers to efficiency and profitability.

The foundation of the program was a partnership between EPA and public or private organizations, which outlined a method for participants to follow, required annual reporting of energy savings, and offered a package of technical and marketing tools at no cost. The emphasis on the commitment to energy efficiency by organizations—not just individual buildings—would become one of the key attributes and successful elements of the future ENERGY STAR program. Other important attributes that would carry on from the Green Lights program include assessing performance and setting goals, creating and implementing action plans, evaluating progress, and recognizing achievements.

Whole Building Evolution

With the momentum established by Green Lights, EPA moved beyond lighting to capture substantial additional savings by improving the energy efficiency of the whole building. Through its work with Green Lights participants, EPA realized that the real savings lay not just in technologies but in the interaction of the various building systems. Modeling software had shown that buildings could reduce their energy use by 30 percent through efficiency improvements.

Two dozen showcase buildings were selected to test that hypothesis over the course of a year. Measurements were taken before and after the trial period, and participating organizations used a uniform strategy provided by EPA as the basis for improvements. The study results showed that despite using the same whole building approach, some buildings logged 50 percent savings, while others only showed 12 percent. But what did that mean?

Debut of the Building Benchmark

To interpret the results, EPA needed an objective measure by which all buildings could be evaluated. It was obvious that saving energy was good, but there was no way to objectively compare—or benchmark—the performance of one building to another. EPA turned to an existing inventory of commercial building energy use available from the Department of Energy to develop comparative metrics for evaluating performance.

Using these comparative metrics, program officials realized that the "very successful" building that cut its energy use in half still had above-average energy use. Even more surprising, the "less successful" building with the modest 12 percent savings was actually performing well above the average building. Moreover, the inventory revealed a wide distribution of energy performance between the best and

1999 — ENERGY STAR label extended to office buildings that perform in the top 25 percent of the market.

2000 — Portfolio Manager, an online energy tracking and management tool for buildings, is released.

2000 — ENERGY STAR label extended to schools that perform in the top 25 percent of the market.

2001 — ENERGY STAR label extended to supermarkets and grocery stores that perform in the top 25 percent of the market.

worst performers—making a comparative metric even more important given such a large spectrum.

The results of the showcase building study represented a major turning point that helped EPA transform the view of energy use in commercial buildings. It was clear that organizations needed to measure energy use in order to manage it and to make sense of those measurements within an objective context. The results strengthened EPA's position that the business-as-usual approach of estimating savings based on calculations—rather than actual energy consumption—needed to change. With the global climate at risk, damage to the environment caused by greenhouse gas emissions was not going to be prevented by theoretical predictions of how a building was intended to operate, but rather by real-world reductions in energy use.

From Green Lights to ENERGY STAR

As the Green Lights program began to eliminate barriers and deliver results, EPA launched a new generation of pollution prevention initiatives that reflected the realities of the 1990s: the importance of environmental issues to consumers, the increasing cost of energy, and the intensely competitive world marketplace. Among these initiatives was ENERGY STAR, EPA's flagship voluntary labeling program designed to identify and promote energy-efficient products in order to reduce greenhouse gas emissions.

ENERGY STAR labeled products were top performers in terms of energy efficiency, without sacrificing performance, quality, or cost-effectiveness. After the ENERGY STAR program introduced the first labeled product lines—including personal computers, monitors, printers, and fax machines—the Green Lights program evolved into EPA's new whole-building program: ENERGY STAR for Buildings.

New Tools of the Trade

Consistent with the guiding principles of ENERGY STAR as well as the findings of the showcase building study, the need for a better way to accurately measure and compare the energy performance of buildings resonated with EPA. Approaches were introduced, tested, and modified with valuable input from the growing network of influential ENERGY STAR partners. By 1999, EPA emerged with an entirely new method and three new tools to encourage and assist organizations in their efforts to reduce carbon emissions:

- The Portfolio Manager software tool, which would become the engine of the ENERGY STAR Buildings program, allowed organizations to measure, track, and compare the energy use of all of their buildings online with just a few clicks using their own private account.
- The ENERGY STAR energy performance scale assigned a score between 1 and 100, which indicated how a building performed relative to similar buildings nationwide. The scores were automatically adjusted using standardized methods to take into account differences in building attributes, operating characteristics, and weather variables.

ENERGY STAR label extended to hotels that perform in the top 25 percent of the market.

2001 | **2002** | **2003**

ENERGY STAR label extended to acute care hospitals that perform in the top 25 percent of the market.

Nearly 1,100 buildings have earned the ENERGY STAR label.

- The ENERGY STAR label provided recognition from EPA for those buildings that scored a 75 or higher, meaning that they performed better than 75 percent of similar buildings nationwide. Certifications of performance and adherence to indoor air quality standards were also required to earn the ENERGY STAR label.

These new tools marked a fundamental shift in how the market came to define energy efficient buildings. Most people were still relying on more complex approaches, one of which was to feed energy bills into complicated building simulation models that would calibrate the bills based on other factors. They were expensive and difficult to use, most people did not understand how they worked, and there was no standardization across organizations. A less expensive and equally well-intentioned method was to perform an upgrade, install technology, and then consider the building high-performing. Yet research showed that neither the age of a building nor the presence of technologies alone were good indicators of performance.

With the debut of its three new tools, EPA introduced an entirely new way of testing efficiency and defining performance. This new approach allowed organizations to gauge the performance of all of their buildings easily and at low cost, prioritize investment opportunities, learn from the best, and verify the savings of their actions.

An ENERGY STAR is Born

With nearly 5 million commercial buildings in the United States, introducing this new energy efficiency framework required a sound strategy, a reasoned approach, and the availability of information to provide relevant performance benchmarks. A look at the carbon picture (Fig. 1) made office buildings the obvious place to start; they emit the greatest amount of greenhouse gas emissions among the various types of commercial buildings and therefore offer the greatest opportunity for greenhouse gas reductions. However, with diverse owner/operator/occupant relationships, the office building market presented unique challenges.

By segmenting the market and understanding the business models of the organizations it was trying to reach, EPA

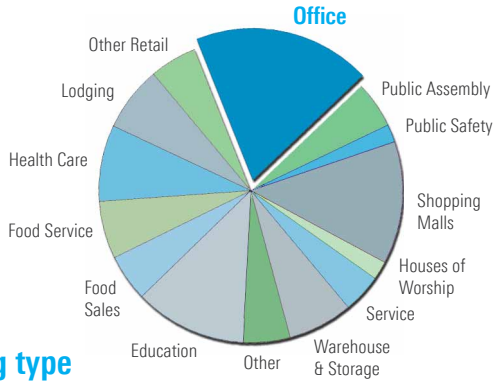

Fig. 1. **Carbon Emissions by building type**

2004

ENERGY STAR recognition extended to commercial new construction with the "Designed to Earn the ENERGY STAR" designation.

Almost 1,400 buildings have earned the ENERGY STAR for superior energy performance.

ENERGY STAR label extended to dormitories, bank branches, financial centers, and warehouses that perform in the top 25 percent of the market.

2005

Almost 2,000 buildings across the U.S. have earned the ENERGY STAR.

ENERGY STAR Challenge is announced: EPA challenges US organizations to improve the energy efficiency of buildings at least 10 percent.

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was able to create synergies. Transforming the market demanded a focus on how energy was important to the organization—not just a focus on the buildings themselves. Investor-owners in the commercial real estate market began to understand how they could not only recoup their energy efficiency investments, but also reap financial rewards in the form of higher net operating income and asset value, and possibly attract and retain tenants with greater ease.

History was made in January of 1999 when EPA awarded the first ENERGY STAR to a 17-year-old, 74,000-square-foot municipal office building in San Diego, California. Over the following decade, thousands of buildings followed suit, and today more office buildings have earned the ENERGY STAR than any other building type, resulting in substantial greenhouse gas emission reductions.

Early analyses of ENERGY STAR office buildings proved their financial and environmental value. Studies documented significant direct financial savings from reduced energy use and persistent savings from improvements in energy performance. At a time of rising energy costs, the presence of EPA's ENERGY STAR on a commercial building was increasingly recognized as the hallmark of a fiscally and environmentally sound corporate energy management strategy.

EPA was making significant progress with a green building approach that was smart from both a financial and pollution prevention perspective. The passing of time would confirm early studies and reveal that ENERGY STAR labeled buildings consistently use, on average, 35 percent less energy than their peers and emit 35 percent less carbon dioxide. The results began to speak for themselves.

A Decade of Growth

Following EPA's early success in the office building market, the Agency tackled more than a dozen new commercial sectors. Over the years, the ENERGY STAR energy performance scale was expanded to provide scores for K-12 schools, supermarkets, hospitals, hotels, retail stores, and many other types of buildings (Fig. 2). EPA also established energy performance indicators for various manufacturing industries, and facilities such as automobile assembly plants began to earn the ENERGY STAR label. Early champions, such as Hines, Arden Realty, Food Lion, Giant Eagle, JCPenney, Marriott, and the Cities of San Diego and Louisville were instrumental in the program gaining wider acceptance.

The transparent, web-based method EPA built to deliver the ENERGY STAR energy performance scale has enabled a new industry of service and product providers to help deliver the program and improve the performance of the market. Utilities retrieve and transfer important commercial building consumption information. State and local governments, energy efficiency program sponsors, and industry groups use it to evolve policies, voluntary programs, and frameworks that might never before have been possible.

2006

ENERGY STAR label extended to auto assembly plants that perform in the top 25 percent of the market.

More than 2,500 buildings have earned the ENERGY STAR.

2007

ENERGY STAR label extended to petroleum refineries that perform in the top 25 percent of their size class.

ENERGY STAR label extended to cement manufacturing plants and corn refineries that perform in the top 25 percent of the market.

More than 3,200 buildings have earned the ENERGY STAR.

EPA's Portfolio Manager tool is updated to include greenhouse gas emissions tracking.

ENERGY STAR label extended to retail buildings that perform in the top 25 percent of the market.

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In 2008, nine years after introducing the ENERGY STAR energy performance scale and the ENERGY STAR label for commercial buildings, EPA witnessed a huge explosion in participation across market sectors. Seventy-five percent of consumers were aware of ENERGY STAR and the number of buildings that earned the ENERGY STAR increased more than 50 percent in just one year (Fig. 3).

The value of an ENERGY STAR score has grown with the passage of time and the delivery of energy efficiency to the commercial building sector. An ENERGY STAR score is a quick, objective assessment, easily understood by the marketplace as well as all corners of an organization. As long as EPA delivers performance-based recognition, the integrity of the scores is critical. This integrity demands rigorous statistical standards when developing energy performance models—a benefit to both the organizations who want an accurate reflection of their buildings' energy performance and to EPA in accounting for carbon reductions.

ENERGY STAR energy performance scores are not currently available for those building types for which insufficient statistical data is available (stadiums, for example) due to the rigorous data requirements of the ENERGY STAR program. However, any building, regardless of size, age, or type, can still gauge progress using EPA's Portfolio Manager tool. In fact, more than 20 percent of the buildings whose energy performance is being tracked in Portfolio Manager are not able to obtain an energy performance score. In the future, better information and data will help expand the ENERGY STAR energy performance scale to more space types without sacrificing the rigorous standards that are a defining characteristic of the program.

Fig. 2

Facilities Eligible to Earn the ENERGY STAR*

Commercial Buildings	Industrial Plants
Bank branches	Auto assembly
Courthouses	Cement plants
Dormitories	Container glass manufacturing
Financial centers	Flat glass manufacturing
Hospitals	Frozen fried potato processing
Hotels	Juice processing
Houses of worship	Petroleum refineries
K-12 schools	Pharmaceutical manufacturing
Medical Offices	Wet corn mills
Offices	
Retailers	
Supermarkets	
Warehouses	

* As of Dec. 2009

Success by the Numbers

Over the past decade, the ENERGY STAR Buildings program has experienced staggering growth by every measure. As the end of 2009 approaches, the energy performance of more than 120,000 buildings representing nearly 14 billion square feet has been measured through ENERGY STAR. More than 5,000 organizations have joined the ENERGY STAR buildings program as partners. Nearly 9,000 buildings have earned the ENERGY STAR across all 50 states. And perhaps

2008

Nearly 4,100 buildings have earned the ENERGY STAR.

ENERGY STAR label extended to pharmaceutical manufacturing plants that perform in the top 25 percent of the market.

EPA releases first-ever ranking of US cities with the most ENERGY STAR buildings.

ENERGY STAR label extended to houses of worship that perform in the top 25 percent of the market.

2009

More than 6,200 buildings have earned the ENERGY STAR—more than a 50 percent increase over the prior year.

ENERGY STAR label extended to flat and container glass manufacturing, frozen fried potato processing, and juice processing plants that perform in the top 25 percent of the market.

Nearly 9,000 buildings have earned the ENERGY STAR.

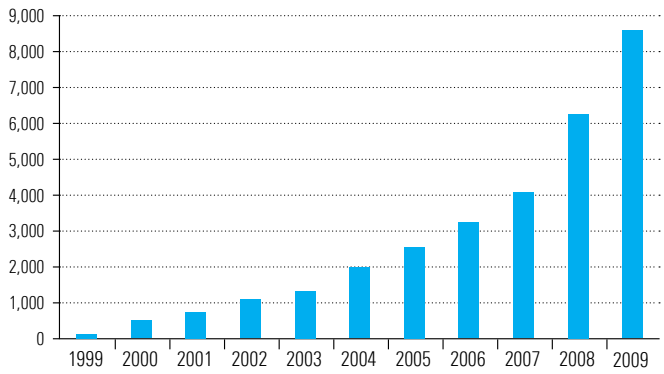
most importantly, over the past decade, ENERGY STAR partners in the commercial marketplace have helped prevent greenhouse gas emissions equal to the electricity use of 60 million American homes every year.

A Bright Future

Now, 10 years since the introduction of the ENERGY STAR label for buildings and 18 years since the inception of Green Lights, the ENERGY STAR approach to energy efficiency and greenhouse gas emissions reductions remains unchanged. It is still rooted in the power of collaborative partnerships, the importance of high-level organizational commitment, the value of a good plan, a consistent and objective way to measure real-world consumption and savings on a continuous basis, and recognition. These core values will continue to be of great importance to the commercial building marketplace as it encounters the challenges of an economic recession, growing concern about climate change, consumer skepticism of green claims by U.S. corporations, and differing approaches to evaluating a building's energy performance.

An exciting future lies ahead for the ENERGY STAR program. Improvements to Portfolio Manager will enhance its value both as an energy management tool and as an important nexus of climate, energy, and green building policies. The use of Portfolio Manager by a growing number of organizations and localities—as well as the first international partner—will enrich this extensive pool of real world commercial building data.

Fig. 3. ENERGY STAR Labeled Buildings (cumulative)



ENERGY STAR will continue to expand to new markets and address new building types, including data centers, thereby creating greater opportunities for carbon savings. Organizations will continue to use ENERGY STAR as a platform for their energy efficiency efforts and will be better positioned as a result to address future climate policies, reporting requirements, and regulations.

Finally, a new emphasis on the role everyone plays in improving the energy efficiency of the places where we work, play, and learn will deliver valuable employee engagement opportunities and greater consumer awareness, thus driving increased demand for energy efficiency over the long term. As the next decade dawns, more and more buildings in communities across America will proudly bear EPA's ENERGY STAR label, marking a greater future for us all.

Green Buildings and ENERGY STAR

When someone refers to a building as "green" it can mean many things, including a reasonable assumption that a building is energy efficient. The surprising truth is that many buildings identified as green may be no more, and perhaps even less, energy efficient than "average" buildings. The terms "sustainable" and "high performance"—words often used to denote environmentally friendly buildings—do not necessarily offer a guarantee of energy efficiency.

To determine a building's energy efficiency relative to the marketplace, explicit energy efficiency goals should be set based on how real buildings perform. Then, once the building is constructed and operational, its actual energy performance should be measured and tracked against the same market-based data. This is exactly what ENERGY STAR allows designers, architects, and building owners to do—create an energy target for specific types of buildings, grounded in real energy data from a large sample of existing buildings.

As the discussion of green building continues, it's important to keep in mind that among its many attributes, for a building to be green, it must be energy efficient—and for the best guarantee of energy efficiency in the commercial building marketplace, look for the ENERGY STAR.

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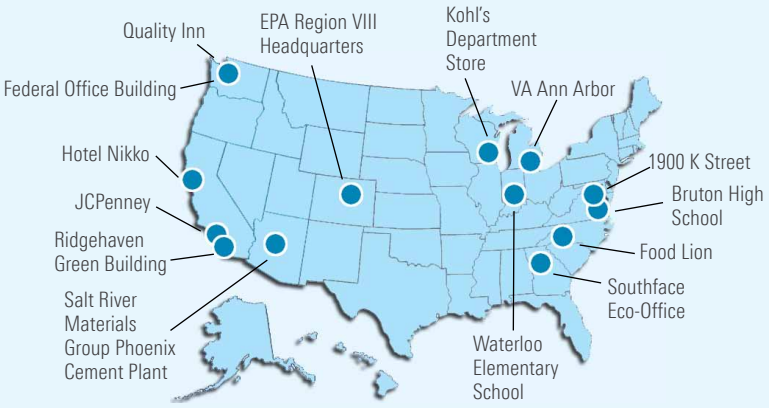
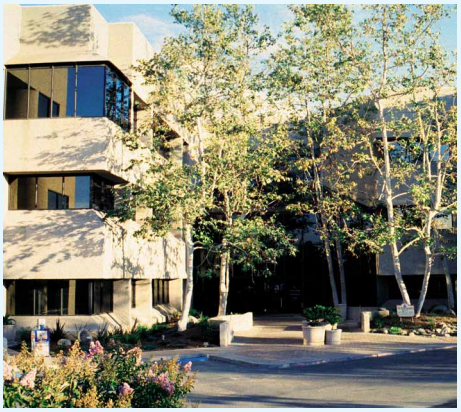
CASE STUDIES

Every building has a story to tell. The wide variety of ENERGY STAR labeled buildings shows that there are many paths to take to energy efficiency, but they all follow the same basic guidelines: Start with a organizational committment, assess performance and set goals, develop and implement a plan to improve, evaluate progress, and finally, earn recognition. The following stories show how 14 organizations made those guidelines all their own.



Ridgehaven Green Building, San Diego, CA

In 1999, the Ridgehaven Green Building in San Diego, CA, was the first building in the nation to qualify for the ENERGY STAR label. Three years earlier, the structure had been renovated by the City of San Diego's Environmental Services Department to demonstrate that green buildings can be developed within municipal guidelines and budgets, using off-the-shelf technology. The Ridgehaven Green Building's success motivated the City of San Diego to adopt a formal policy establishing the City's commitment to green building practices. More than thirteen years later, the building still serves as a model for others, leaving portions of building systems exposed so visitors can learn about energy efficiency. And it's still among the nation's most efficient buildings, having earned additional ENERGY STAR labels in 2005, 2006, and 2009.



The Ridgehaven Green Building served as a model for San Diego, earning the very first ENERGY STAR in the process.

Hotel Nikko, San Francisco, CA

Hotel Nikko, a boutique San Francisco hotel, blends Asian grace with all the modern conveniences guests expect from a luxury hotel. One thing guests might not expect, however, is an approach to energy management that makes the Hotel Nikko among the most energy efficient hotels in the nation. Through its innovative approaches, this hotel shows that it's not necessary to sacrifice comfort or style to achieve big energy savings. How do they do it? Eighty-two percent of the building's lighting is either high-efficient fluorescent or LED, the hotel has equipped all guest rooms with sensors that turn down thermostats when the rooms are vacant, variable frequency drives were installed on ventilation fans, and in-room laundry cards encourage guests to re-use linens, thereby cutting water and energy usage.

San Francisco's stylish Hotel Nikko makes it clear that energy efficency doesn't have to mean sacrificing comfort or luxury.

Through better operations and maintenance, Waterloo Elementary saved $283,000—funds that can now be used for education.

Salt River Materials Group modernized its 1950s-era plant to achieve superior energy performance.

Built in 1928, JCPenney's Huntington Park store benefitted from a long-standing corporate committment to energy efficiency.

CASE STUDIES (cont.)

Waterloo Elementary School, Waterloo, IN

This single-story school building serves approximately 600 students in grades K-5. Facing less funding from state and federal sources, and more competition for available grants, the school decided to look to low-cost options to improve the energy efficiency of its building. With help from consultant Energy Education, Inc., the school measures and adjusts energy use throughout the year. This often means periodic walk-throughs and assessments at off-hours, as well as educating staff, teachers, and students about energy-saving behaviors they can adopt during school hours. Within five years, with no large capital investments, Waterloo Elementary School was able to reduce its energy use by 31% and save $283,000. The school plans to redirect these savings to better meet the educational needs of its students.

Salt River Materials Group Phoenix Cement Plant, Clarkdale, AZ

Salt River Materials Group produces Phoenix Cement® at its plant in Clarksdale, Arizona. The plant was built in the 1950s and, over time, received various upgrades to improve operating efficiency. The company also modified operating procedures to reduce energy consumption. In 1999, the company initiated a major plant modernization, installing new equipment such as energy efficient roller mills for coal, raw meal, and finish grinding, and an efficient clinker cooler that captures and uses waste heat. When the plant improvements were later evaluated, significant improvements in energy efficiency had been achieved and the plant earned the ENERGY STAR in 2007 and 2008.

JCPenney, Huntington Park, CA

JCPenney's Huntington Park, California, store opened its doors in 1928 and is one of the company's longest continually operating stores in the country. It is also one of sixty-three JCPenney stores that participate in the company's Advanced Energy Management Program which involves both facility maintenance personnel and store associates in energy awareness efforts. Store managers monitor energy use on a next-day basis to catch any irregularities and problems as they occur. After a review of lighting and equipment schedules, as well as proper maintenance of heating and cooling equipment, the store was able to reduce the time needed for opening and closing of the sales floor by almost 65 hours per week. JCPenney, an ENERGY STAR Sustained Excellence Award winner, continues to expand its energy efficiency efforts to its entire chain of more than 1,100 retail stores through ongoing education, awareness, and energy reduction programs.

CASE STUDIES (cont.)

1900 K Street, Washington, DC

Designed by the firm of Cesar Pelli & Associates and constructed in 1996, 1900 K Street is a distinctive 13-story office building in downtown DC. In 1999, the building received an ENERGY STAR score of 32 (on a 1-100 scale). By trying to better understand the design of the building, the building's facility team, led by Hines, was able to close the gap between design intent and actual operations. They calibrated controls, installed motion sensors and a variable frequency drive, reprogrammed the building's energy management system, improved maintenance and routing assessments, upgraded one chiller, and fine-tuned settings. As a result, within three years the building received an ENERGY STAR score of 75, making it eligible for the ENERGY STAR. The building now saves $1.09 per square foot in energy costs, and reports an annual CO2 emission reduction of 46 million pounds, and has earned the ENERGY STAR label six times.

Facility managers raised the energy performance score of 1900 K Street from a 32 to a 75 in just three years.

Federal Office Building, Seattle, WA

The Federal Office Building was the first building in Seattle specifically allocated to house federal government offices. Built in 1933, this historic structure has been showing the buildings around town what it means to be energy efficient. In addition to earning two ENERGY STAR labels, the Federal Office Building won first place for highest energy performance in the 2008 BOMA Seattle King County Kilowatt Crackdown. To achieve this level of performance, the General Services Administration (GSA) conducted an energy audit, replaced an old cooling tower, upgraded the old elevator bank and lighting systems, and replaced the control panels for the building automation system. The building's utility provider, Seattle City Light, has provided more than $100,000 in incentive funding for these projects.

Seattle's Federal Office Building partnered with a local utility to help finance energy efficiency upgrades.

Bruton High School, Williamsburg, VA

Built in 1976, Bruton High School in York County, Virginia, received a complete renovation in 2003. The renovation included lighting and equipment upgrades, new windows, a cool roof, a building automation system, and a new geothermal heating and cooling system to replace the old all-electric system. The geothermal system consists of 85 new heat pumps, six energy-recovery units, and 320 underground loops that each plunge to a depth of 200 feet. As a result of this top-to-bottom renovation, Bruton High School became the first high school in Virginia to earn EPA's ENERGY STAR. Officials often lead architects, engineers, and officials from other school districts on building tours, and report that the annual operating cost for the renovated school building is $0.67 per square foot—significantly less than average.

Bruton High School's geothermal system is helping to keep energy costs low.

After a rigorous energy efficiency program, Kohl's is now meeting much of its remaining energy needs with solar power.

CASE STUDIES (cont.)

Kohl's Department Store, Sussex, WI

Organizations often wonder about the road ahead once they have achieved substantial savings through energy efficiency. In the case of Kohl's Department Stores, which already owns more than 350 ENERGY STAR labeled stores and maintains a rigorous approach to energy efficiency and sustainability, it began looking to alternative energy sources. Kohl's Sussex store had already earned the ENERGY STAR label before solar panels were added, which ensured that the store's energy use was already relatively low. By adding on-site solar energy generation, the company minimized the remaining greenhouse gas emissions and raised its energy performance score from an 84 to a 90. Currently, 61 of Kohl's ENERGY STAR labeled stores are equipped with on-site solar generation, which provide 20 to 50 percent of the stores' already-reduced energy demands, depending on geographic location.

EPA is leading by example through a focus on energy efficiency through all operations of its Region 8 Headquarters.

EPA Region VIII Headquarters, Denver, CO

The U.S. Environmental Protection Agency (EPA) Region 8 office building represents the best in design, work environment, environmental performance, and security while providing a good value for the taxpayers. During the design phase, the design team achieved "Designed to Earn the ENERGY STAR" based on intended energy use. After two years in full operation, the building proves that it is indeed performing as intended, earning an ENERGY STAR and proving that good design and operations must go hand-in-hand. Simultaneously, EPA staff members who work in the building are maintaining its energy- and cost-saving potential through good behaviors. EPA takes its role as an environmental leader one step further by hosting educational tours of the building, participating in green events and conferences, and maintaining project details and a robust case study online.

The Food Lion in Stanley, NC, represents a new energy-efficient prototype for a company that already has 900 ENERGY STAR labeled stores.

Food Lion, Stanley, NC

The ENERGY STAR labeled Food Lion supermarket in Stanley, North Carolina, represents a new energy-efficient prototype for the company. It is also one of more than 900 Food Lion stores that have earned the ENERGY STAR. Opened in May 2007, the store received an initial energy performance score of 78. Not satisfied, Food Lion's energy team analyzed the store's energy use in EPA's Portfolio Manager and prioritized improvements. Within two years, the store's energy performance score had increased to an 83, and is helping Food Lion fine-tune the operations of future prototype stores. A leader in corporate-wide energy management, in 2008, Food Lion saved more than 45 billion BTUs across all of its buildings.

CASE STUDIES (cont.)

Southface Eco Office, Atlanta, GA

The Southface Eco Office was conceived of as a replicable, cost-effective model of sustainable commercial construction. In 2006, while still in its design phase, project architects achieved the "Designed to Earn the ENERGY STAR" designation based on intended energy use. These models took into account proposed design features such as daylighting, solar angles and shading, electrochromic glass, insulated concrete form wall systems, photo sensors, dimming ballasts, occupancy sensors, and green roofing. After construction was completed in 2008, building engineers began analyzing actual energy use and fine-tuning systems and equipment in order to ensure that the building was operating as intended. Their commissioning paid off, and after 12 months of operation, the Southface Eco Office earned the ENERGY STAR for superior energy performance. The building's average daily energy cost is $25.

Copyright Jonathan Hillyer, Atlanta, GA

Originally designed to earn the ENERGY STAR, the Southface Eco Office fulfilled its design intent when it earned the ENERGY STAR label.

Quality Inn & Suites, Sequim, WA

Constructed in 2005, the Quality Inn & Suites is a 60-room hotel that had been designed and built with energy efficiency in mind. But as a mid-scale hotel brand, it did not have access to the in-house engineers or outside consultants that many high-end hotels rely on. Instead, the owner and staff turned to ENERGY STAR to learn about energy efficiency. It also partnered with its local electricity provider, Clallam County Public Utility District, to take advantage of several energy saving programs. Their first joint project was a building lighting retrofit of which the District agreed to reimburse the hotel for 70 percent of the cost. As a result of this and other measures, the hotel managed to raise its ENERGY STAR score from an 87 to a 96. The Quality Inn & Suites' resourcefulness and persistence serve as an example for other mid-priced hotels to follow.

The Quality Inn & Suites proved that superior energy performance isn't out of reach for mid-range hotels.

Veterans Affairs Ann Arbor Healthcare System, Ann Arbor, MI

The VA Ann Arbor Healthcare System is a 1.2 million-square-foot campus that provides high-quality care to veterans. In addition to performing standardized operations and maintenance, the energy team has conducted a series of energy efficiency upgrades as well as led the training and education of staff in order to improve the energy performance of the facility. As part of the Department of Veterans Affairs' national initiative, the energy use of the VA Ann Arbor is benchmarked in EPA' s Portfolio Manager tool and reports to the Department on a quarterly basis. It has earned more ENERGY STAR labels than any other VA hospital.

The VA Ann Arbor is participating in the Department of Veterans Affairs' national energy benchmarking initiative.

A DECADE OF ENERGY STAR BUILDINGS
1999-2009

EARLY CHAMPIONS

Some organizations saw the value of earning the ENERGY STAR right away. They wasted no time in benchmarking their energy use, receiving an energy performance score, and then applying for the ENERGY STAR label. The next two pages showcase some of the first buildings in each category to earn the ENERGY STAR. They are leading the way for others in their industry, and deserve recognition for their pioneering spirit.

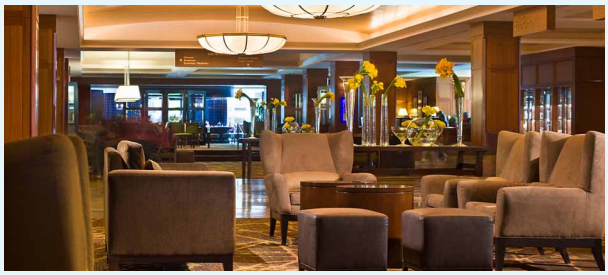
First ENERGY STAR labeled building:
City of San Diego's Ridgehaven Green Building, San Diego, CA

First ENERGY STAR labeled financial center:
114 West 47th Street, New York, NY

First ENERGY STAR labeled hospital:
Memorial Hospital of Carbondale, Carbondale, IL*

First ENERGY STAR labeled retail store:
JCPenney, Burlington, WA*

First ENERGY STAR labeled dormitory:
Congreve Hall, University of New Hampshire, Durham, NH



First ENERGY STAR labeled hotel:
Sheraton Boston, Boston, MA*

First ENERGY STAR labeled house of worship:
Plantation Baptist Church, Plantation, FL

** Building is one of several that earned the first labels simultaneously.*

A DECADE OF ENERGY STAR BUILDINGS
1999-2009

EARLY CHAMPIONS (cont.)

First ENERGY STAR labeled embassy:
Embassy of Finland, Washington, DC

First ENERGY STAR labeled building that had also achieved "Designed to Earn the ENERGY STAR"for its design plans:
Kinard Junior High School, Fort Collins, CO

First ENERGY STAR labeled warehouse:
Four Seasons Produce, Ephrata, PA

First ENERGY STAR labeled wireless store:
Verizon Wireless, Toldeo, OH*

First ENERGY STAR labeled drugstore:
Rite Aid, Harrisburg, PA

First ENERGY STAR labeled hardware store:
True Value Hardware, Red Lodge, MT

First ENERGY STAR labeled sporting goods store:
Dick's Sporting Goods, Mentor, OH

First ENERGY STAR labeled office supply store:
Staples, Crossville, TN

** Building is one of several that earned the first labels simultaneously.*

A DECADE OF ENERGY STAR BUILDINGS
1999-2009

OLD and NEW, BIG and SMALL: EPA HAS GOT THEM ALL

ENERGY STAR buildings can be old or new, big or small, high-tech or more modest in appearance. It doesn't matter what they look like, as long as they perform in the top 25 percent of comparable buildings nationwide. The following buildings show the rich variety of our country's most energy-efficient buildings.

Oldest ENERGY STAR building: Cambridge Savings Bank, Cambridge, MA. This building was constructed in 1820, the same year in which Maine became the 23rd state in the Union.

Newest ENERGY STAR building (that had been Designed to Earn the ENERGY STAR): Southface Eco-Office, Atlanta, GA. Designed in 2006; constructed in 2008; labeled in 2009.

Tallest ENERGY STAR building: Aon Center, Chicago, IL. At 1,136 feet high, the Aon Center is higher than three stacked football fields and is the fifth-tallest building in the United States.

Largest ENERGY STAR building: USAA McDermott Building, San Antonio, TX. At 4.5 million-square-feet, USAA's headquarters building is larger than the Mall of America.

Smallest ENERGY STAR building: Cambridge Savings Bank's Burlington Banking Center, Burlington, MA. At 2,313-square-feet, it is about the size of the average American home.

FAMILIAR FACADES

Many people will recognize these buildings, but they might not realize that they are among the nation's most energy efficient.

Wrigley Building, Chicago, IL

Prudential Tower, Boston, MA

Chrysler Building, New York, NY

One Wall Street, New York, NY

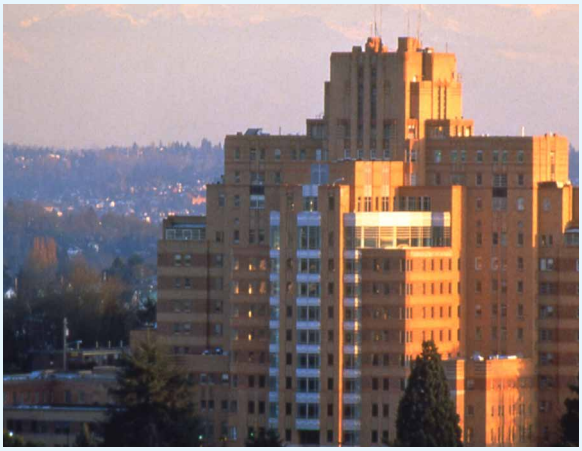
Transamerica Pyramid,
San Francisco, CA

7 World Trade Center, New York, NY

A DECADE OF ENERGY STAR BUILDINGS
1999-2009

WHO'S INSIDE ENERGY STAR BUILDINGS?

Efficient boilers and motion sensors aren't the only interesting things about these ENERGY STAR labeled buildings, all of whom have notable tenants helping to ensure that minimal energy is wasted throughout the course of business.



A former Art Deco Marine Hospital on the National Register of Historic Places, **Amazon.com's** Seattle headquarters won an award from the American Institute of Architects in 2000.

The music industry is greener thanks to **MTV,** whose headquarters at 2700 Colorado Avenue in Santa Monica has earned the ENERGY STAR label for four years running.

The television show **America's Most Wanted** operates out of 10351 Santa Monica Boulevard in Los Angeles, which has earned ten ENERGY STAR labels.

Fans of the television show *Boston Legal* may recognize this ENERGY STAR labeled building at 500 Boylston Street as the law office of the fictitious **Crane, Poole & Schmidt**.

Explorers come home to the **National Geographic Society's** energy-efficient headquarters in Washington, DC.

A DECADE OF ENERGY STAR BUILDINGS
1999-2009

A DECADE OF ENERGY STAR LABELS

Energy efficiency is not a one-time achievement, and nothing demonstrates that better than these five buildings that have each earned ten ENERGY STAR labels over the decade. Not only were these buildings early champions of the ENERGY STAR commercial buildings program, but year after year they've proven that they continue to sustain superior performance.

Phoenix Tower, Houston, TX
Earned the ENERGY STAR in 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008.

US Airways Corporate Headquarters, Tempe, AZ
Earned the ENERGY STAR in 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009.

6100 Wilshire, Los Angeles, CA
Earned the ENERGY STAR in 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2009.

10351 Santa Monica Boulevard, Los Angeles, CA
Earned the ENERGY STAR in 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008.

10780 Santa Monica Boulevard, Los Angeles, CA
Earned the ENERGY STAR in 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008.

THANK YOU

Before ENERGY STAR was a household name and before being "green" was a matter of survival in a competitive marketplace, pioneering organizations saw the value in energy efficiency and collaborative partnerships. A decade later, EPA is profoundly thankful for their confidence and for the substantial savings they have helped deliver for the environment. Today, thousands of organizations are following their lead—creating a better future for generations of Americans. Thank You.