



ENERGY STAR® for K-12 Schools and Higher Education

Leslie Cook

*U.S. Environmental Protection Agency (EPA)
ENERGY STAR for Commercial Buildings
2008*



Learn more at energystar.gov



Agenda



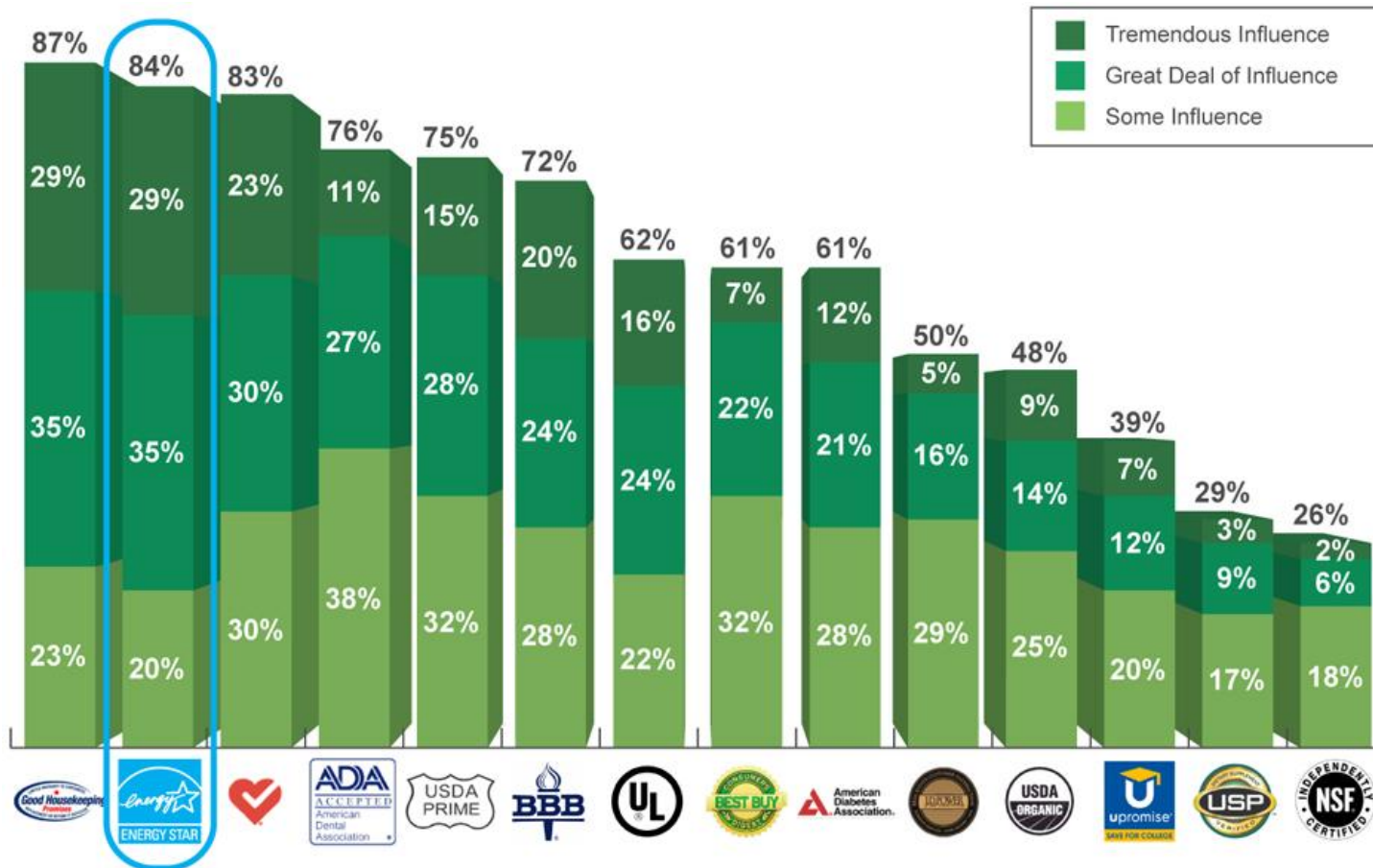
- What is ENERGY STAR
- Benefits of Improved Energy Performance
- Benchmarking Using Portfolio Manager
- Other Opportunities for Your Organization

What is ENERGY STAR?



- Voluntary climate protection partnership with EPA
- Strategic approach to energy management, promoting energy efficient products and practices
- Helps organizations save money and protect the environment
- Influential brand recognized by over 70 percent of Americans

The ENERGY STAR Brand: Recognized, Trusted, Influential



Source: Fairfield Research, Summer 2007

Why Partner with EPA?



- **Unbiased:** A trusted, unbiased source of research and technical analysis
- **Best practices:** Looks across the commercial sector supply chain to identify best practices
- **Environmental and financial benefits:** Develops market tools and resources resulting in verifiable, sustainable, and easily communicated environmental and financial benefits
- **Carbon mitigation:** Reduce your organization's environmental footprint and carbon impact

Strategic Approach to Energy Management



A roadmap to help partners –

- Assess energy performance
- Set reduction goals
- Track savings over time
- Reward improvements



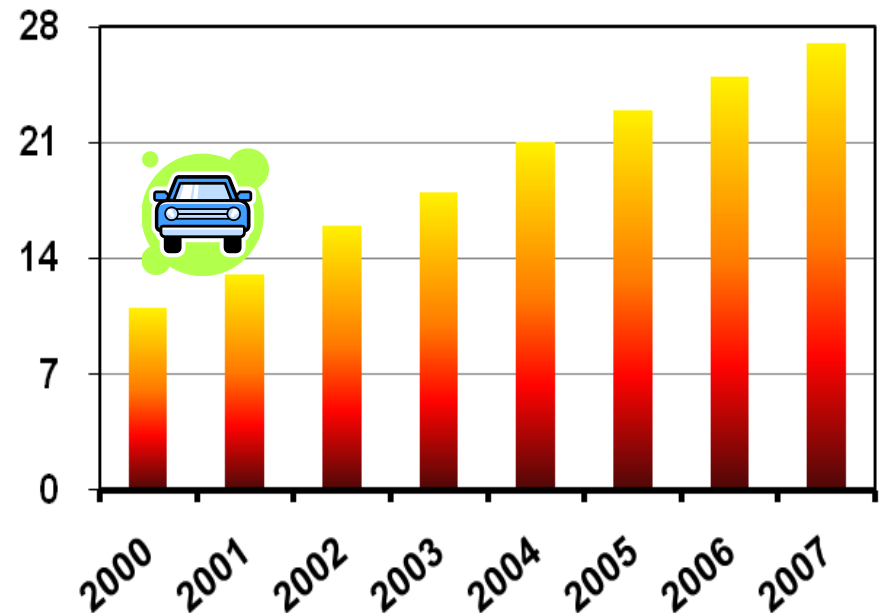
ENERGY STAR 2007 Accomplishments



Utility Bill Savings (\$ Billions)



Emission Savings (Vehicle equivalents in millions)





Agenda



- What is ENERGY STAR
- **Benefits of Improved Energy Performance**
- Benchmarking Using Portfolio Manager
- Opportunities for Your Organization

Why Green Starts with Energy Efficiency



- Organizations that are leaders in energy efficiency use 40 percent less energy than competitors
- Energy efficient buildings emit 35 percent less carbon dioxide into the atmosphere
- Energy efficiency provides financial returns that can support future “green” investments
- “Green” does not necessarily mean energy efficient!

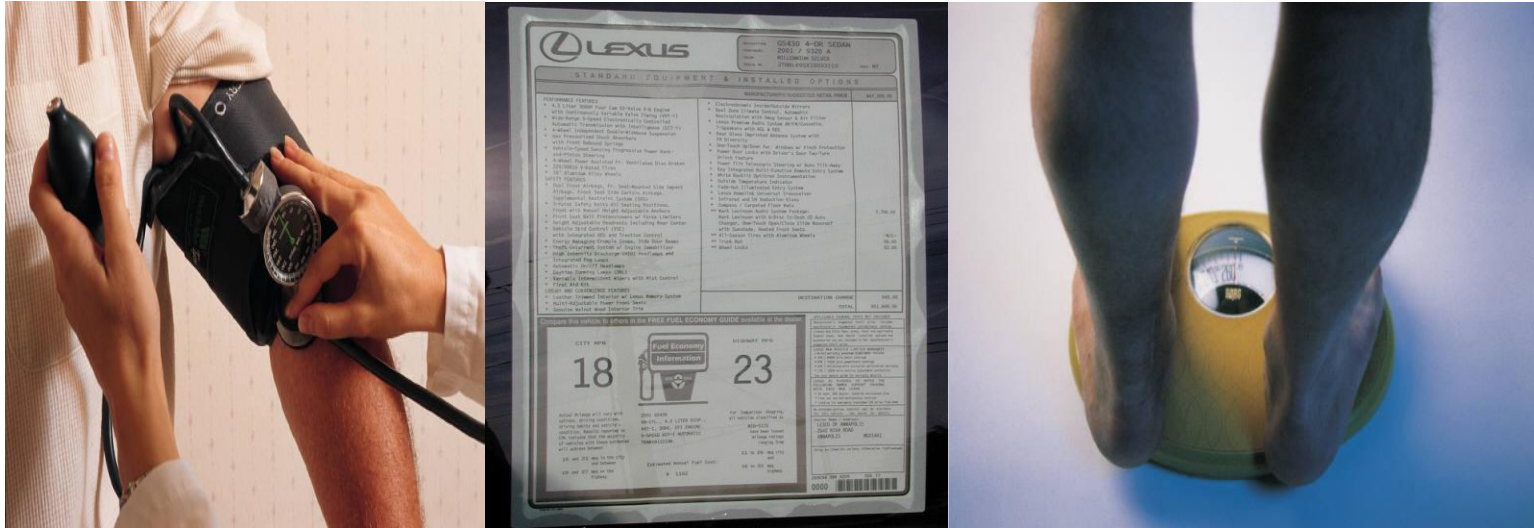


Agenda



- What is ENERGY STAR
- Benefits of Improved Energy Performance
- Benchmarking Using Portfolio Manager
- Opportunities for Your Organization

Benchmarking



A benchmark is a point of reference from which to make comparisons

Why Benchmark?



Benchmarking enables you to *make more informed decisions*:

- Identify billing errors
- Assess effectiveness of current operations, policies, practices
- Assist in planning: set goals, targets, timelines, prioritize capital improvements
- Document role in environmental stewardship and demonstrate success
- Set priorities for investments in upgrade efforts and retrofits
- Track, verify, and recognize achievements



Benchmarking

Portfolio Manager

- Benchmark the energy use of all of your buildings – receive an energy use intensity (EUI)
- Many building types, including K-12 schools, offices, and dorms can receive energy performance ratings on a 1-100 scale.
- Track changes in energy use over time in single buildings, groups of buildings, campuses, or entire portfolios.
- Track cost savings and CO₂ emissions.
- Apply for the ENERGY STAR.
- Track water usage.

www.energystar.gov/benchmark



Track Greenhouse Gas Emissions



- Direct, indirect, and total emissions
- CO₂, Methane, and Nitrous Oxide

Facility Performance Set Baseline Period Set Energy Performance Target						
Select View: Performance: GHG Emissions Create View Edit View						
12 Months Ending	Current Total Site Energy Use (kBtu)	Current Direct GHG Emissions (MtCO ₂ e)	Current Indirect GHG Emissions (MtCO ₂ e)	Current Total GHG Emissions (MtCO ₂ e)	Baseline Total GHG Emissions (MtCO ₂ e)	Change from Baseline: GHG Emissions (MtCO ₂ e)
August 2008 (Current)	871,766.00	0.00	130.37	130.37	163.79	-33.42
Select Date						
Change						
REFRESH VIEW						

Sample Statement of Energy Performance



STATEMENT OF ENERGY PERFORMANCE

Sample Non-Ratable Facility

Building ID: 1572151
For 12-month Period Ending: May 31, 2008¹
Date SEP becomes ineligible: N/A

Date SEP Gen

<p>Facility Sample Non-Ratable Facility 123 Sample Street Sample, VA 22031</p> <p>Year Built: 1980 Gross Floor Area (ft²): 20,000</p> <p>Energy Performance Rating² (1-100): N/A</p> <p>Site Energy Use Summary³</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Electricity (kBtu)</td> <td style="text-align: right;">1,095,252</td> </tr> <tr> <td>Natural Gas (kBtu)⁴</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Total Energy (kBtu)</td> <td style="text-align: right;">1,095,252</td> </tr> </table> <p>Energy Intensity⁵</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Site (kBtu/ft²/yr)</td> <td style="text-align: right;">55</td> </tr> <tr> <td>Source (kBtu/ft²/yr)</td> <td style="text-align: right;">183</td> </tr> </table> <p>Emissions (based on site energy use)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Greenhouse Gas Emissions (MtCO₂e/year)</td> <td style="text-align: right;">164</td> </tr> </table> <p>Electric Distribution Utility Virginia Electric & Power Co</p> <p>National Average Comparison</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>National Average Site EUI</td> <td style="text-align: right;">95</td> </tr> <tr> <td>National Average Source EUI</td> <td style="text-align: right;">265</td> </tr> <tr> <td>% Difference from National Average Source EUI</td> <td style="text-align: right;">-31%</td> </tr> <tr> <td>Building Type</td> <td style="text-align: right;">Entertainment/Culture</td> </tr> </table> <p>Meets Industry Standards⁶ for Indoor Environmental Conditions:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Ventilation for Acceptable Indoor Air Quality</td> <td style="text-align: right;">N/A</td> </tr> <tr> <td>Acceptable Thermal Environmental Conditions</td> <td style="text-align: right;">N/A</td> </tr> <tr> <td>Adequate Illumination</td> <td style="text-align: right;">N/A</td> </tr> </table>	Electricity (kBtu)	1,095,252	Natural Gas (kBtu) ⁴	0	Total Energy (kBtu)	1,095,252	Site (kBtu/ft ² /yr)	55	Source (kBtu/ft ² /yr)	183	Greenhouse Gas Emissions (MtCO ₂ e/year)	164	National Average Site EUI	95	National Average Source EUI	265	% Difference from National Average Source EUI	-31%	Building Type	Entertainment/Culture	Ventilation for Acceptable Indoor Air Quality	N/A	Acceptable Thermal Environmental Conditions	N/A	Adequate Illumination	N/A	<p>Facility Owner N/A</p> <p>Primary Contact N/A</p>	<p>Facility Sample Non-Ratable Facility 123 Sample Street Sample, VA 22031</p> <p>Facility Owner N/A</p> <p>Primary Contact for this Facility N/A</p>
Electricity (kBtu)	1,095,252																											
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Stamp of Certify

Based on the condition of my visit to this facility, I certify that the information contained in this statement is true and accurate.

Certifying Professional
N/A

General Information

Sample Non-Ratable Facility	
Gross Floor Area Excluding Parking: (ft ²)	20,000
Year Built	1980
For 12-month Evaluation Period Ending Date:	May 31, 2008

Facility Space Use Summary

Non-Ratable Space	
Space Type	Other - Entertainment/Culture
Gross Floor Area(ft ²)	20,000
Number of PCs*	N/A
Weekly operating hours*	N/A
Workers on Main Shift*	N/A

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 05/31/2008)	Baseline (Ending Date 05/31/2008)	Rating of 75	Target	National Average
Energy Performance Rating	N/A	N/A	75	N/A	N/A
Energy Intensity					
Site (kBtu/ft ²)	55	55	0	N/A	95
Source (kBtu/ft ²)	183	183	0	N/A	265
Energy Cost					
\$/year	N/A	N/A	N/A	N/A	N/A
\$/ft ² /year	N/A	N/A	N/A	N/A	N/A
Greenhouse Gas Emissions					
MtCO ₂ e/year	164	164	0	N/A	265
kgCO ₂ e/ft ² /year	8	8	0	N/A	14

More than 50% of your building is defined as Entertainment/Culture. This building is currently ineligible for a rating. Please note the National Average column represents the CBECS national average data for Entertainment/Culture. This building uses X% less energy per square foot than the CBECS national average for Entertainment/Culture.

How to Get Started



- Go to www.energystar.gov/benchmark
- Click *Login*
- Input user name and password
- Click *Add Facility*
- Input space and energy data



Download a Quick Reference Guide
for step-by-step instructions!

ENERGY STAR Buildings & Plants

www.ENERGYSTAR.gov



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U.S. ENVIRONMENTAL PROTECTION AGENCY • U.S. DEPARTMENT OF ENERGY

ENERGY STAR

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- For Contractors



New ENERGY STAR Specification for Set-top Boxes

ENERGY STAR Leaders Grow in Numbers

Agreement with LG Electronics: ENERGY STAR label removed from several refrigerator models

ENERGY STAR TVs Now Even More Efficient

ENERGY STAR Award Ceremony — March 31, 2009

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- Explore Buildings & Plants >
- Guidelines for Energy Management
- Tools & Resources Library
- Expert Help
- Commercial Building Design
- Green Buildings

NEW HOMES ▾

ENERGY STAR Qualified Homes



Take A Tour Behind the Walls

- Explore Qualified New Homes >
- Find an ENERGY STAR Builder
- ENERGY STAR New Home Features
- Benefits for Homeowners
- For Residential Professionals



GO TO PARTNER RESOURCES ▾

Login

Username:

Portfolio Manager



**SUPERIOR ENERGY MANAGEMENT
CREATES ENVIRONMENTAL LEADERS**
U.S. Environmental Protection Agency

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Buildings & Plants

- Guidelines for Energy Management
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- Expert Help
- Commercial Building Design
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Getting Started for...

- Commercial Real Estate
- Corporate Real Estate
- Government
- Healthcare
- Higher Education
- Hospitality
- Industrial
- K-12
- Retail
- Small Business
- Congregations
- Service & Products Providers
- Utilities & Energy

Home > Buildings & Plants



RenewAire Renovation
4510 Helgesen Drive
Madison, WI 53718

Buildings & Plants

Improving the energy efficiency of the places where we work, play and learn helps us save energy, save money, and fight global warming. Look for facilities that have earned the ENERGY STAR – the national mark of excellence in energy performance – and know with confidence that the facilities are energy efficient and have a smaller carbon footprint.

[View All Labeled Facilities](#)

New! ENERGY STAR PROGRESS SNAPSHOT

Strategy

[Guidelines for Energy Management](#)

Get started by applying our proven strategy to set performance goals, create and implement action plans, assess performance and progress, and recognize your organization's achievements.

[Commercial Building Design](#)

Make energy performance a priority in your next building's design. Use [Target Finder](#) to set your energy performance target.

[Green Buildings and Energy Efficiency](#)



Quick Finder

- [Portfolio Manager Login](#)
- [Target Finder](#)
- [ENERGY STAR Challenge](#)
- [ENERGY STAR Leaders](#)
- [Earn the ENERGY STAR](#)
- [Purchasing & Procurement](#)
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- [Find Labeled Buildings and Plants](#)
- [Communications Materials](#)





Agenda



- What is ENERGY STAR
- Benefits of Improved Energy Performance
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Target Finder: Set Energy Goals in New Buildings

➤ Energy Performance Rating

- Based on actual “whole – building” energy performance data
 - DOE-CBECS
- Normalizes for factors that affect energy use intensity
 - Climate/weather
 - Size
 - Occupancy



Designed to Earn the ENERGY STAR



www.spacecastarchitects.com

DESIGNED TO EARN THE ENERGY STAR

ENERGY STAR RATING: 100

ENERGY PERFORMANCE RESULTS:
 * Energy Use Intensity (EUI) = 78.8 kBtu/ft² (2010) (100% savings compared to an average building EUI of 150)
 * Greenhouse Gas Intensity (GHGI) = 10.5 tCO₂e/ft² (2010) (100% savings compared to an average building GHGI of 20.5)
 * Energy Savings = 2,001,307.3 kWh
 * CO₂ Savings = 317.7 tons CO₂

Odyssey Charter School – Prototype 2, FL

Sandia Vista Elementary School
Rio Rancho, NM

Bekker Perich Sabatini ARCHITECTS

DESIGNED TO EARN THE ENERGY STAR

- Expected to use 30% less energy than typical
- High efficiency rooftop mechanical system
- Increased wall and roof insulation
- Efficient glazing and good daylighting
- Dual flush toilets and waterless urinals will use 50% less water indoors
- Recycled, regional, and low-emitting materials
- Anticipating LEED Silver certification

Sandia Vista Elementary School
 * Energy Use Intensity (EUI) = 78.8 kBtu/ft²
 * Project CO₂ Intensity = 10.5
 * ENERGY STAR design rating = 100

Annual Savings Statistics (compared to an average building EUI rating of 20)
 * Energy Savings = 2,001,307.3 kWh
 * CO₂ Savings = 317.7 tons CO₂

*Sandia Vista is currently under construction. This photo is of the previous school which served as the prototype for Sandia Vista.

Sandia Vista Elementary School, NM



DESIGNED TO EARN THE ENERGY STAR

The estimated energy performance for this design meets US EPA criteria. The building will be eligible for ENERGY STAR after maintaining superior performance for one year.

Purchase Energy-Efficient Products



Energy-efficient products for your organization earn the ENERGY STAR by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the Department of Energy.





Qualified Products

Water Coolers

Commercial Kitchen Equipment

Lighting

Office Equipment

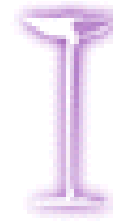
Heating & Cooling Equipment

Transformers

Ventilation Fans

Appliances

Consumer Electronics



more than 50 product categories

Quantity Quotes



A Web site created by the U.S. Department of Energy to connect large-quantity buyers with suppliers of energy-efficient products



The Quantity Quotes Concept

- Begin by visiting www.energystar.gov/quantityquotes
- The purchaser submits a purchase request to suppliers through the Web site.
- Interested suppliers respond to the purchaser through the Web site.
- The purchaser follows up with suppliers and chooses one with whom to negotiate.

The ENERGY STAR Challenge



- National call to action to improve the energy efficiency of commercial and industrial buildings by 10 percent or more
- Participants asked to:
 - Measure and track energy use
 - Develop a plan for energy improvements
 - Make energy efficiency upgrades
 - Help spread the energy efficiency “word” to others



ENERGY STAR Communications Toolkit



- Co-brandable posters and print advertisements
- Templates for press releases
- Brochures
- Fact sheets
- Key messages
- Web banners

Home > Buildings & Plants > The ENERGY STAR Challenge > Use the Challenge Toolkit

The screenshot shows a webpage titled "The ENERGY STAR Challenge Use the Challenge Toolkit". It features a blue header with the title and a sub-header "Communications Materials". Below this is a paragraph of text: "Use the Challenge Toolkit communications materials to learn about energy efficiency, find creative ways to communicate your commitment to energy efficiency, grow your participation with ENERGY STAR, and celebrate your success." A photo of a child holding a globe is visible on the right. To the right of the photo are three buttons: "Learn About the Challenge", "Take the ENERGY STAR Challenge", and "Use the Challenge Toolkit".

Take a look inside to find dozens of new communications materials! From brochures to posters to news releases to fact sheets, the new ENERGY STAR Challenge Toolkit has it all!

✦ [Get Started](#) with useful lists of resources and suggestions from ENERGY STAR

✦ [Learn More](#) about ENERGY STAR partnership opportunities and find energy efficiency facts, figures, and key points

<http://www.energystar.gov/challenge>

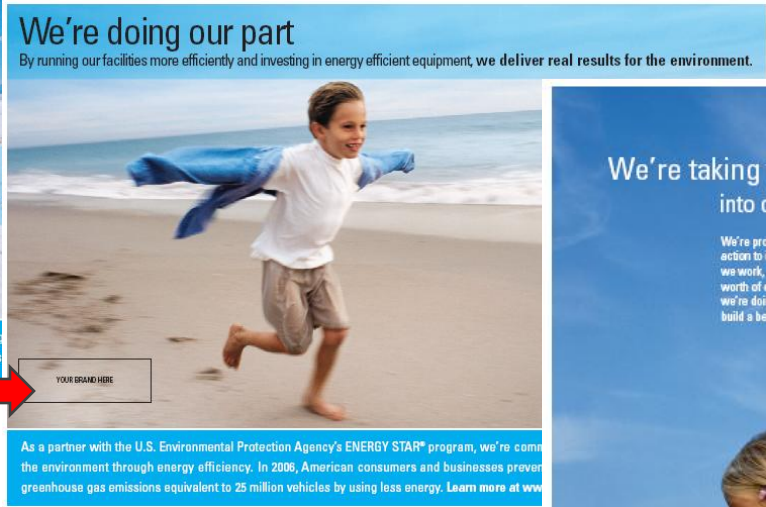
Promotional Opportunities



Our Actions Make a Difference
By saving energy at work, we help protect the environment for

YOUR BRAND HERE

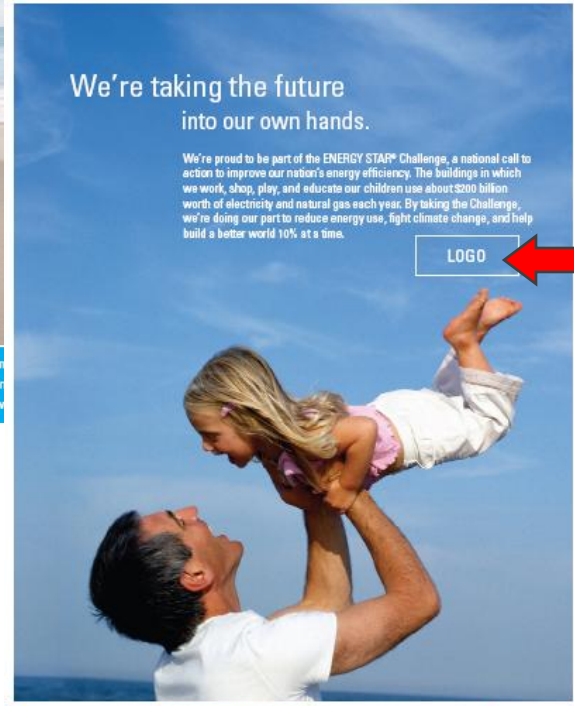
As a partner with the U.S. Environmental Protection Agency's ENERGY STAR® program, we're committed to protecting the environment through energy efficiency. In 2006, American consumers and businesses prevented the greenhouse gas emissions equivalent to 25 million vehicles by using less energy. [Learn more at www.energystar.gov](http://www.energystar.gov).



We're doing our part
By running our facilities more efficiently and investing in energy efficient equipment, we deliver real results for the environment.

YOUR BRAND HERE

As a partner with the U.S. Environmental Protection Agency's ENERGY STAR® program, we're committed to protecting the environment through energy efficiency. In 2006, American consumers and businesses prevented greenhouse gas emissions equivalent to 25 million vehicles by using less energy. [Learn more at www.energystar.gov](http://www.energystar.gov).




We're taking the future into our own hands.

We're proud to be part of the ENERGY STAR® Challenge, a national call to action to improve our nation's energy efficiency. The buildings in which we work, shop, play, and educate our children use about 200 billion worth of electricity and natural gas each year. By taking the Challenge, we're doing our part to reduce energy use, fight climate change, and help build a better world 10% at a time.

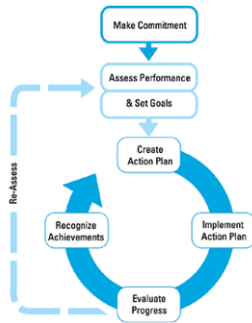
LOGO

ENERGY STAR® is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency. [Learn more at www.energystar.gov](http://www.energystar.gov).



Insert your logo to co-brand with ENERGY STAR!

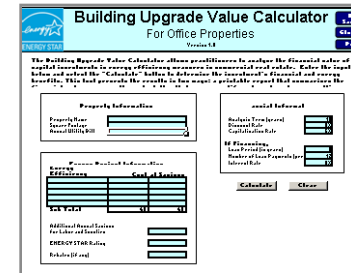
Additional Tools and Resources



[Guidelines for Energy Management](#)



[Building Upgrade Manual](#)



[Financial Evaluation Tools](#)



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Portfolio Manager:

www.energystar.gov/benchmark

ENERGY STAR for K-12:

www.energystar.gov/k12

ENERGY STAR for Higher Education:

www.energystar.gov/highered

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