ENERGY STAR

Welcome

To

ENERGY STAR Lighting

RESNET 2008

Why Should Raters Care

- ENERGY STAR lighting criteria now part of many homes programs
- Utilities are looking to the raters to verify lighting compliance
- Utilities are looking to the raters to verify ALP compliance
- Raters with lighting knowledge can become an asset to their builders.

What is ENERGY STAR?

What is ENERGY STAR?

ENERGY STAR is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency

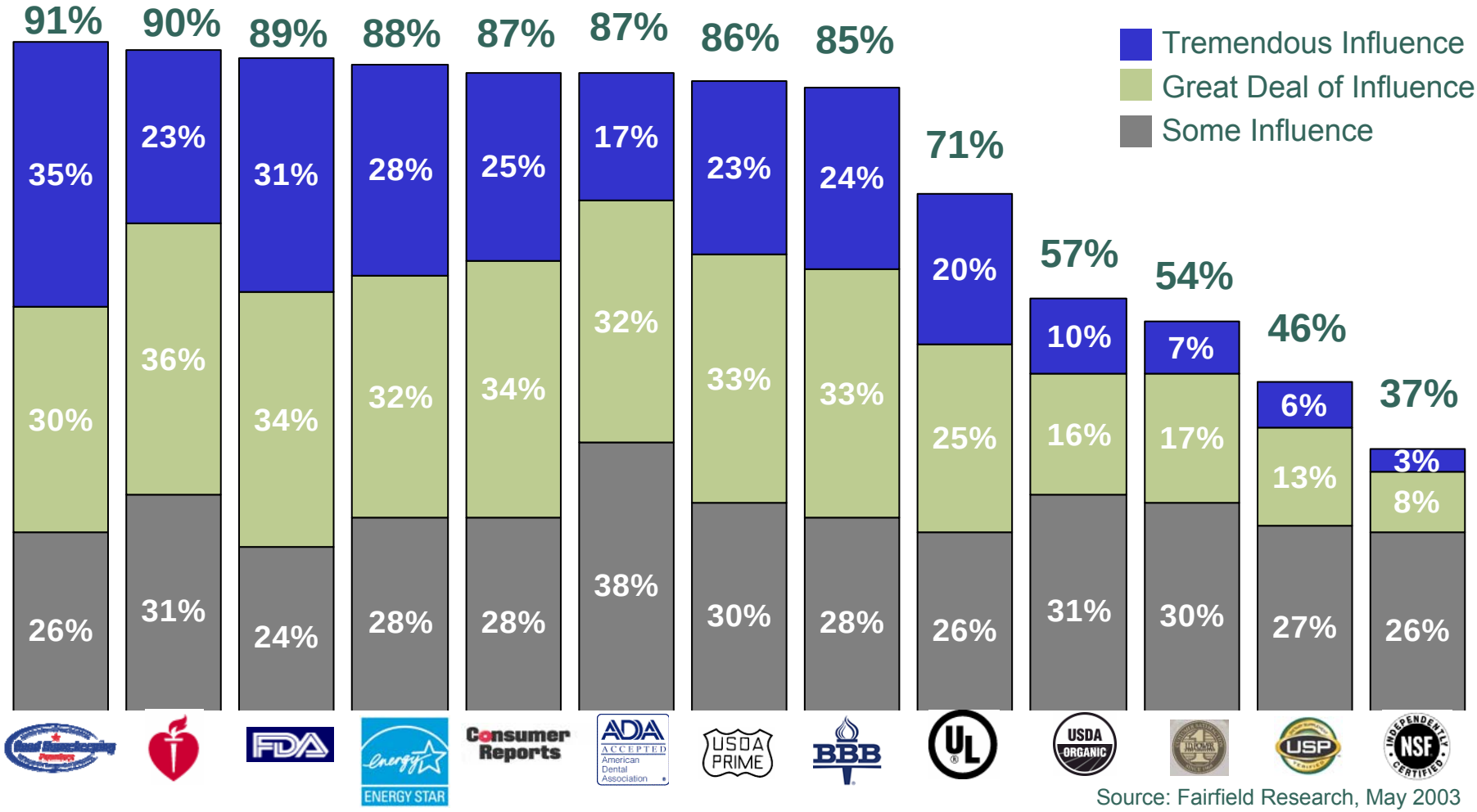
- Products must meet strict energy efficiency standards set by the US Environmental Protection Agency (EPA) and US Department of Energy (DOE)
- On a voluntary basis, manufacturers submit products for qualification. If qualified, the products can be sold with the ENERGY STAR mark.

ENERGY STAR Lighting

- Qualified ENERGY STAR lighting fixtures deliver quality lighting by using advanced technologies.
- Fixtures must meet stringent performance criteria verified by independent testing.
- Energy efficiency means lower utility bills for the owner.
- Less energy used results in a cleaner environment.

Good Housekeeping Seal Survey

ENERGY STAR mark ranks among the highest level of influence on product purchase among all consumer emblems, similar in ranking to the Good Housekeeping Seal and Consumer Reports.



Source: Fairfield Research, May 2003

Various Messages

- For the Home Builder:
  - Good for the environment –
  - Going Green –
  - Sets the builder apart from other builders –
  - Modern Home: using advanced technology –
  - Marketing Tool –
- For the Home Owner
  - Good for the environment –
  - Saves Energy: reduced utility bills –
  - Long lasting bulbs: fewer lamp changes -

The Tech Stuff

What are the
Features and Benefits of
ENERGY STAR
Qualified Lighting Fixtures?

Today: ENERGY STAR Fixtures, Not Lamps

Screw-in compact fluorescent lamps:

- Good choice for existing fixtures
- For new fixtures, ENERGY STAR fixtures with dedicated lamps is a better choice.

ENERGY STAR ENERGY STAR Performance

- Must have a high CRI so people and objects look natural
- Must have appropriate color temperature
- Must start in less than 1 second and have full light output in a relatively short time
- Electronic Ballast means no flicker or hum
- The lamp and ballast sold with the fixture must be **tested IN THE Fixture** – 10,000 hour average rated lamp life in the tested burning position.
- Lamp sold with the fixture means the right size, shape, and performance

What is an ENERGY STAR Qualified Indoor Fixture?

Complete fixture, ballast, and bulb

- **Less Heat** = reduces air conditioning costs
- **Less Energy** = lower utility bills
- **Excellent color rendering** (≥80 CRI) = colors look natural
- **"Dedicated" pin-based bulbs** = longer lamp life than incandescent
- **Electronic Ballast --** Flicker-free, no hum or buzz. Ballast must meet heat test criteria to avoid pre-mature failure. Must be easily replaceable.
- **2-year warranty** = customer security
- **Instant-on** = customer satisfaction
- **Laboratory verified** = quality control, independent third party testing.

ENERGY STAR Qualified Lighting As a Whole-House Solution

Pendant Mounted
foyer, dining

Close-to-Ceiling
hallway, kitchen, bath

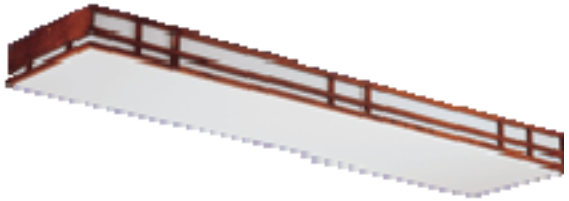
Portable
living room, bedroom, home office

Vanity
Bathroom

Recessed
Living room, kitchen, hallway

Outdoor
yard, walkway, facade lighting

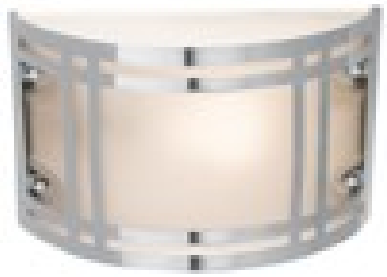
ENERGY STAR Qualified Kitchen Ambient or Decorative



ENERGY STAR Qualified Kitchen Island Application

ENERGY STAR Qualified
Dining and Entry

ENERGY STAR Qualified Sconces



ENERGY STAR Qualified Hallway

ENERGY STAR Qualified Bathroom Vanity Fixtures

ENERGY STAR Qualified Recessed Fixtures

What is an ENERGY STAR Qualified Outdoor Fixture?

Outdoor Fixtures:

- **Automatic shut-off** during daytime (photo cell) = saves energy
- **Reduced energy use at night** in one of two ways:
  - Use of an energy-efficient bulb (CFL) = saves energy

  OR
  - Use of incandescent bulb with a motion sensor = saves energy
- Lamp and ballast requirements similar to the indoor fixtures
- **2-year manufacturer warranty** = customer security

ENERGY STAR Qualified Outdoor Fixtures

What is an ENERGY STAR Qualified Ceiling Fan?

Ceiling Fans (can qualify with or without lighting):

- **Move more air**, or cubic feet, per minute (CFM per watt consumed) = 20% more efficient = saves energy
- **Less Energy =** lower utility bills
  - Additional savings through higher thermostat settings in the summer
  - Additional savings in the winter when run in reverse to heat room

- **Extended Warranty =** customer security
  - 30-year motor warranty
  - 2-year light kit warranty
  - 1-year component warranty
- **Laboratory verified** = quality control

ENERGY STAR Qualified Ceiling Fans Only

ENERGY STAR Qualified Ceiling Fans with Lighting

Ceiling Fan Lights:

- Are flicker-free with no hum or buzz
- Utilize advanced lighting technologies
- Laboratory verified

ENERGY STAR Qualified Ceiling Fans and Light Kits

What Is an ENERGY STAR Qualified Ventilating Fan?



Ventilating Fans (models can qualify with or without lighting):

- **Move more air**, or cubic feet, per minute (CFM per watt consumed) with less energy (65% less than standard models = saves energy
- **Save energy** = lower utility bills
- **Quiet operation** = customer satisfaction
- **Lighting** must meet fixture requirements = quality & savings
- **1-year manufacturer warranty** = customer security
- **Laboratory verified** = quality control

Why Include ENERGY STAR Lighting?

Why Use ENERGY STAR Qualified Lighting Fixtures?

Why Use ENERGY STAR Qualified Lighting Fixtures?

- Brand Recognition
- Customer Satisfaction
- Demand for the Products
- Good for the Environment
- Corporate Citizen Image

Brand Recognition

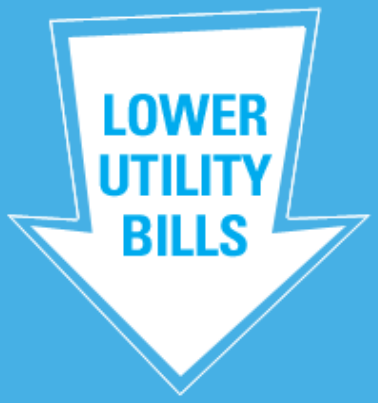
- Many products are sold on looks, style, and features rather than brand.
  - ENERGY STAR helps customers identify quality, energy-efficient products that meet their preferences for looks and features.
  - Many lighting showrooms don't even list the fixture brands
  - The ENERGY STAR mark helps identify quality and energy savings.

Customer Satisfaction

- ENERGY STAR qualified products contribute to customer satisfaction through:
  - Quality: such as long life, instant on, etc.
    - Less call backs for the contractor or builder
    - Less returns for the distributor
  - Savings: lower utility bills
  - Warranties: provide customer security when trying new technologies for the first time

SAVING ENERGY EQUALS SAVING MONEY

ENERGY STAR qualified products use less energy and cost less to operate resulting in:



Demand for the Products

- Products are being used in ENERGY STAR Homes and “Green Buildings”
- Some products are eligible for utility or governmental partner incentives
- Public Service Announcements and marketing materials help create a demand for the products (over 2 billion products sold)
- Don’t let your competition take the business away from you

Good for the Environment

- ENERGY STAR qualified products are good for the environment because they help reduce energy usage, thus decreasing the amount of fossil fuel burned, which results in less pollution.

Why Use ENERGY STAR? Summary

- Increased sales and profits while meeting customer needs and increasing customer satisfaction
- Product demand and incentives
- It is good for the environment, your business, and the future

Promoting ENERGY STAR Lighting

How to Promote ENERGY STAR Qualified Products

Become Knowledgeable

- Participate in ENERGY STAR trainings
- Visit the ENERGY STAR web site
  - w**ww.energystar.gov**
- Learn about the benefits of ENERGY STAR qualified products
- Ask your builders if their suppliers are talking to them about ENERGY STAR qualified products

The ALP

What Is The ENERGY STAR Advance Lighting Package (ALP)

What is the ENERGY STAR Advanced Lighting Package (ALP)?

The Advanced Lighting Package:

- A comprehensive set of ENERGY STAR qualified light fixtures and ceiling fans.
- Must consist of a **minimum of 60% ENERGY STAR qualified hard-wired fixtures**—indoor and/or outdoor.
- In addition to the light fixture requirements, all ceiling fans must be ENERGY STAR qualified for a lighting package to receive the ALP designation.
- ENERGY STAR qualified ceiling fan light kits can be counted toward the ALP 60% requirement.

ENERGY STAR
Advanced Lighting Package Example

If there are a total of 10 hard-wired light fixtures, inside and out...

...6 (60%) must be ENERGY STAR qualified

What are ENERGY STAR Qualified Light Fixtures?

- Qualified light fixtures are hard-wired and include indoor and outdoor fixture categories.
- Qualified light fixtures use about 75% less energy than standard incandescent lighting—saving in energy costs throughout the product's lifetime.
- The bulbs used in all indoor and many outdoor qualified light fixtures use "pin-based" technology, providing permanent energy savings.

What are ENERGY STAR Qualified Light Fixtures?

- The bulbs used in qualified light fixtures produce about 75% less heat than incandescent bulbs—reducing home cooling demands.
- The bulbs used in qualified light fixtures last up to 10 times longer than incandescent bulbs— great for hard-to-reach fixture locations.
- More than 90 fixture manufacturers have qualified decorative light fixtures available in thousands of models.

Why Include the ENERGY STAR ALP?

- Sets builders apart from the competition; leverage the nationally-recognized ENERGY STAR brand
- Take advantage of existing marketing materials produced by EPA and PR efforts by ENERGY STAR manufacturing and utility partners
- Benefits the builder, the home owner, and the environment

ENERGY STAR
ALP Consumer Benefits

- Selection
- Improved Quality
- Enhanced Comfort
- Energy Cost Savings
- Help Fight Global Warming

"We haven't had to 'sell' the ENERGY STAR lighting to customers, the lights sell themselves! The fixtures are very attractive and the lighting quality is very good."

— Rich Coyle, D.R. Horton, Sacramento, CA

ENERGY STAR
ALP Builder Benefits

- Increased Revenue
- Market Differentiation
- Design Flexibility and Fixture Aesthetics
- Enhanced Customer Satisfaction

"By installing the EPA's ENERGY STAR ALP, we have been able to offer our homebuyers a higher quality home that is more environmentally friendly. We believe this is better for our business because we are able to differentiate from the competition in the area."

— Jerry McCarn, Lennar Homes, CA- Bay Area

ENERGY STAR ALP
Tap Into Existing Momentum

- The National Association of Home Builders (NAHB) includes the ALP in their point system guidelines for a "Green Building"
- The U.S. Green Building Council (USGBC) includes the ALP in their LEED for Homes rating system.
- Built Green Colorado and several other regional and local "Green Building" programs offer points for using the ALP
- ENERGY STAR qualified fixtures meet the high-efficacy luminaire requirements of California's Title 24-2005 Energy Code
- Some utilities and government partners are offering financial incentives for model homes and new homes containing the ALP

The Technology

Introducing the GU 24

New CFL Technology Used in ENERGY STAR Qualified Fixtures

GU24 “Twist and Lock” Base

- Similar to a screw-base CFL, but instead of a screw base the ballast connects to the GU24 socket with pins
- Integrated and Modular units available
- Standardized for interchangeability between manufacturers

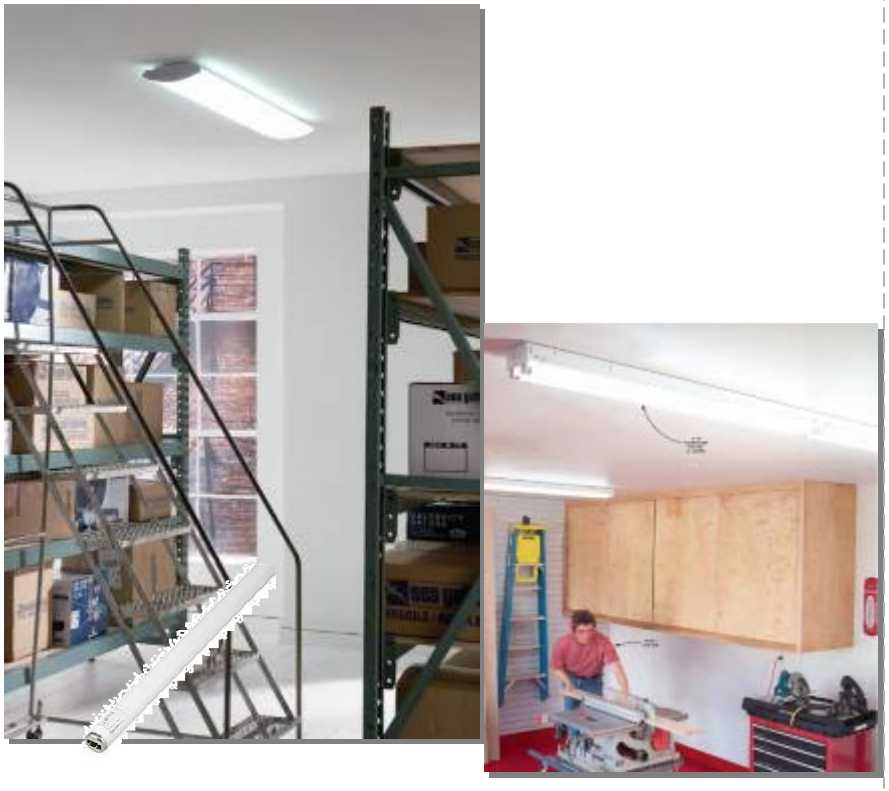
GU-24: Integrated One-Piece Bulb

Self-ballasted light bulb advantages:

- Easy, one unit replacement when either the light bulb or ballast fails
  - eliminates confusion when purchasing replacement bulbs
- Allows easy change to different wattage
- Because ballast and light bulb are integral, the overall length is shorter, allowing better fit in a variety of fixtures

Fluorescent Lighting. Then and Now

What once was a source used only in linear fixtures and **utility**-type applications…



…now includes bulbs compact enough to be used in functional and **decorative** fixtures in every room in the home

Fluorescent Lighting. Then and Now

What once was a source that produced a **poor color** of light, sometimes called cold, harsh, “green” or “blue” light….

…is now available in soft **warm colors** that make all of the objects in a room appear just like they would under incandescent.

Images provided by Lithonia Lighting

Fluorescent Lighting. Then and Now

What once was a source that always **flickered** for several seconds after turning on the switch, and buzzed when operating…

Magnetic ballast and lamp technology. Typically known to flicker and buzz.

…is now available as "**instant-start**" (less than 1 sec) and operates quietly.

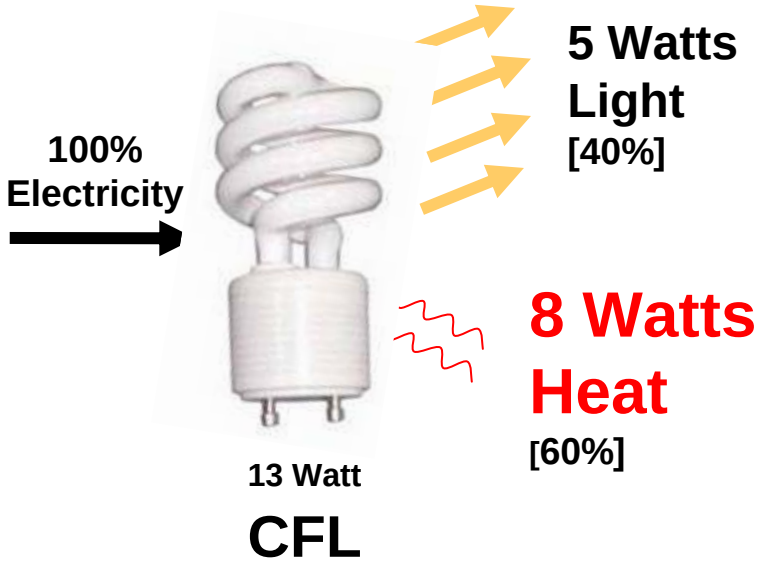
Electronic ballast and lamp technology. Typically starts instantly and operates more quietly

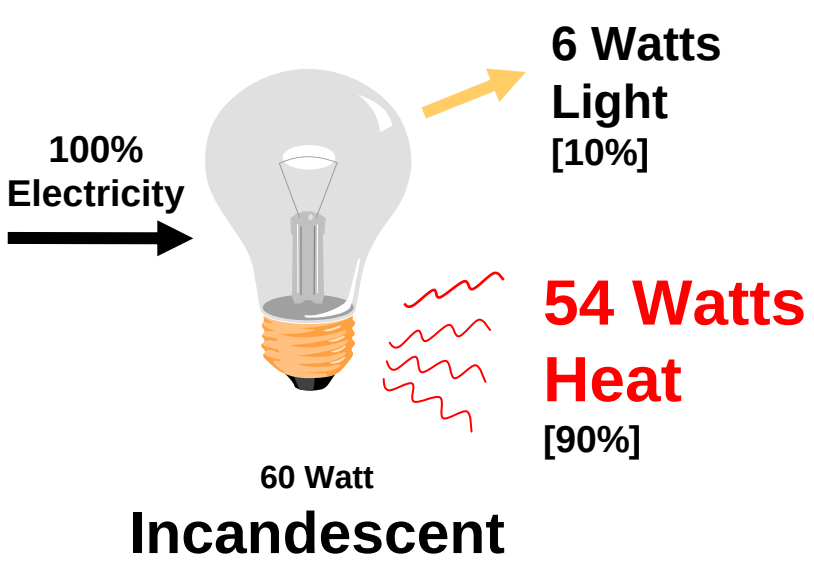
Consumer Selling Points

ENERGY STAR ALP Selling Point #1:

Less Heat, More Light

ENERGY STAR qualified light fixtures use pin-based CFL bulbs that generate *significantly less heat* and distribute light more efficiently than standard incandescent bulbs.

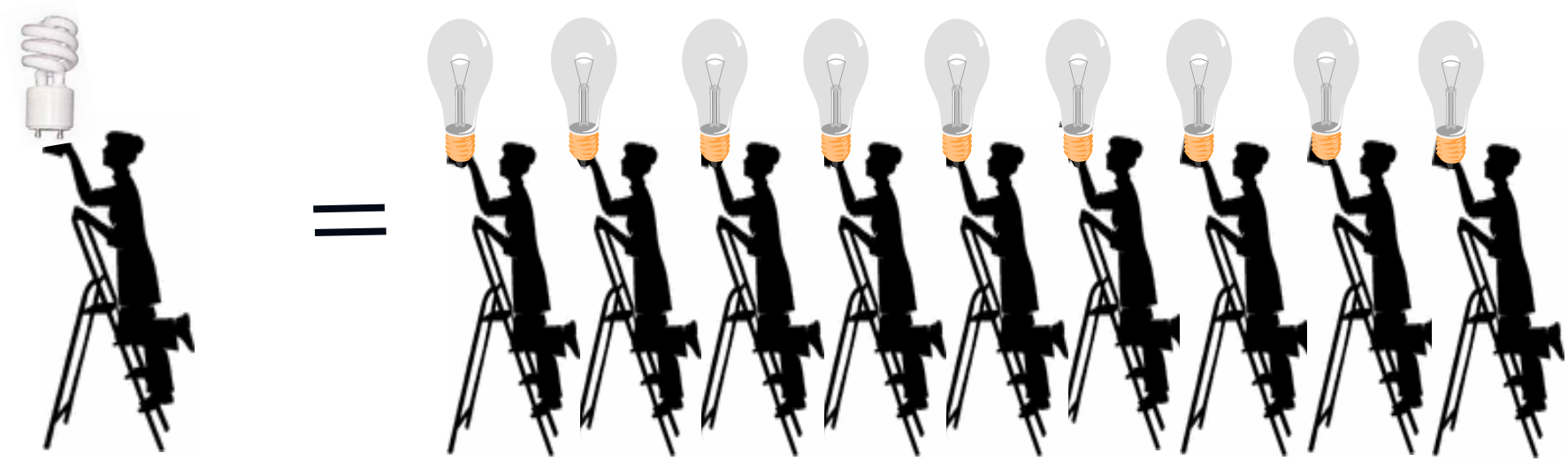




ENERGY STAR ALP
Selling Point #2:

Less Time & Effort

The CFLs in an ENERGY STAR qualified light fixture only need to be changed *once every 9 years* on average, compared with an annual ladder-climb for incandescent light bulbs.

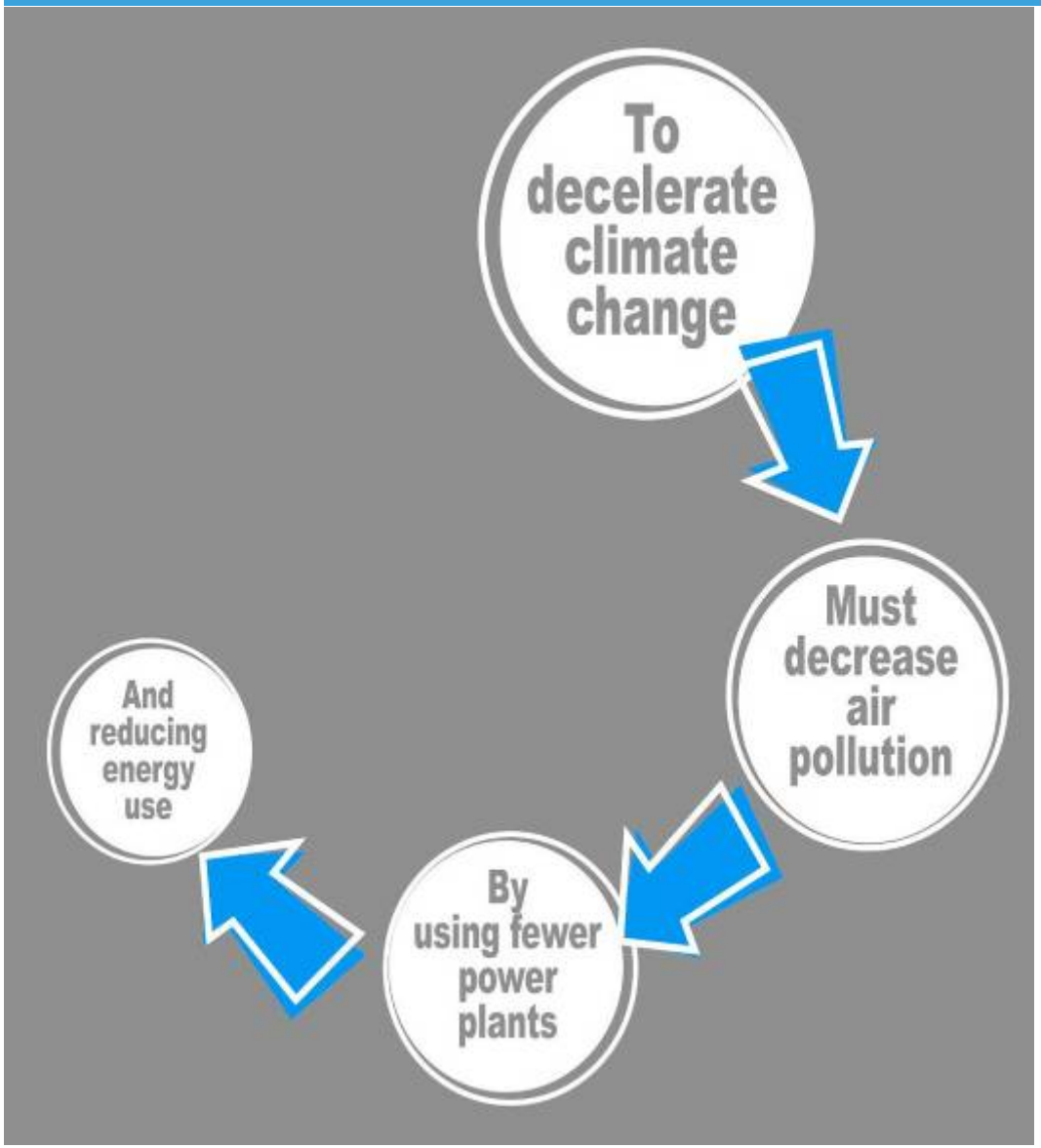


Change bulbs once every 9 years

Change bulbs once each year

*Based on CFL rated life of 10,000hrs and INC life of 1,000 hrs, operated at avg of 3hrs a day

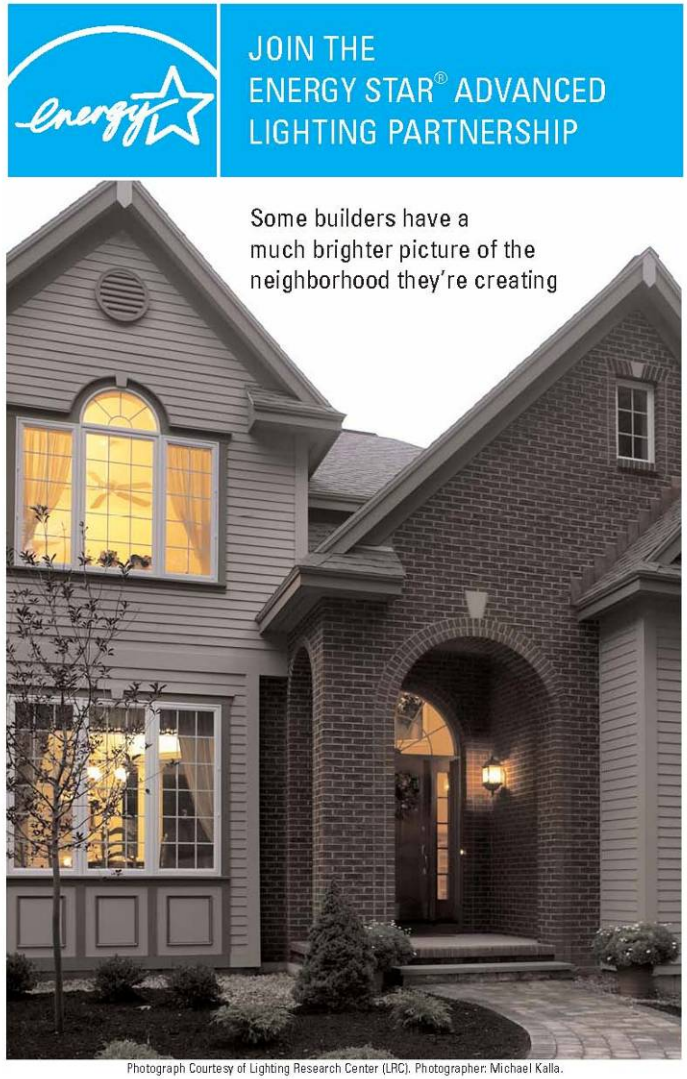
ENERGY STAR ALP Selling Point #3:



Helps Protect the Environment

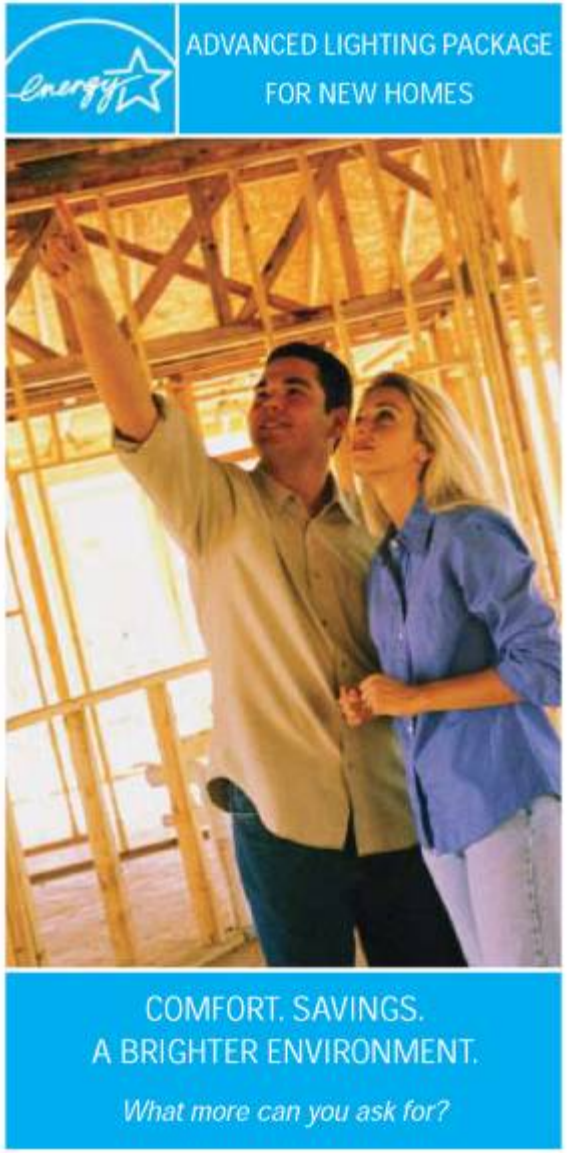
If every American home replaced their five most frequently used light fixtures with ENERGY STAR qualified models, we would prevent the greenhouse gases equivalent to the emissions from nearly 10 million cars—helping to protect our environment from the risks of global climate change.

ALP Marketing Tools Available

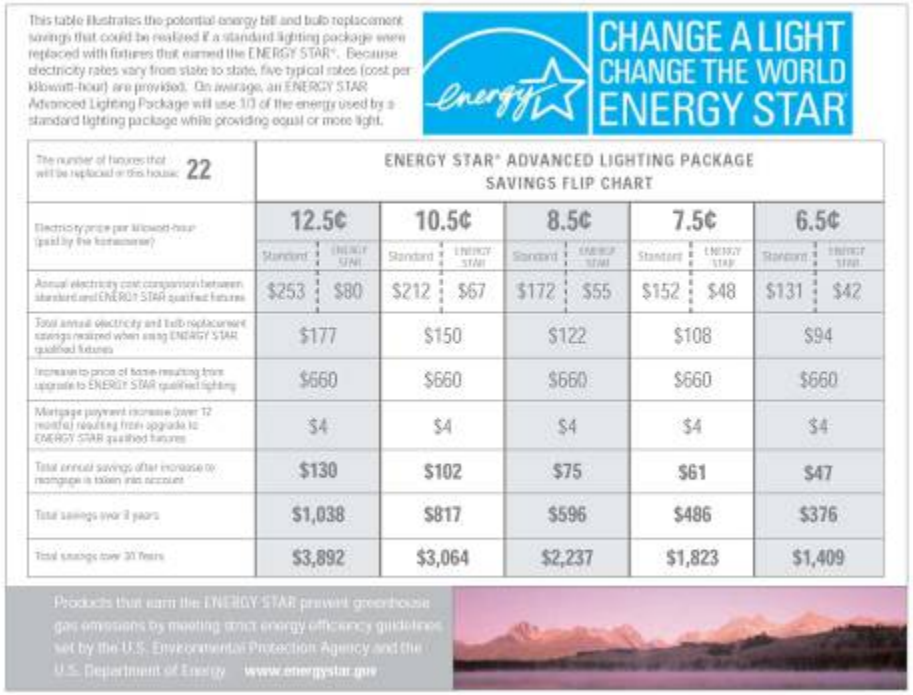


Photograph Courtesy of Lighting Research Center (LRC). Photographer: Michael Kalla.

ENERGY STAR ALP Case Studies and Brochures



ENERGY STAR ALP Tools



This table illustrates the potential energy bill and bulb replacement savings that could be realized if a standard lighting package were replaced with fixtures that earned the ENERGY STAR®. Because electricity rates vary from state to state, five typical rates (cost per kilowatt-hour) are provided. On average, an ENERGY STAR Advanced Lighting Package will use 1/3 of the energy used by a standard lighting package while providing equal or more light.

CHANGE A LIGHT CHANGE THE WORLD ENERGY STAR

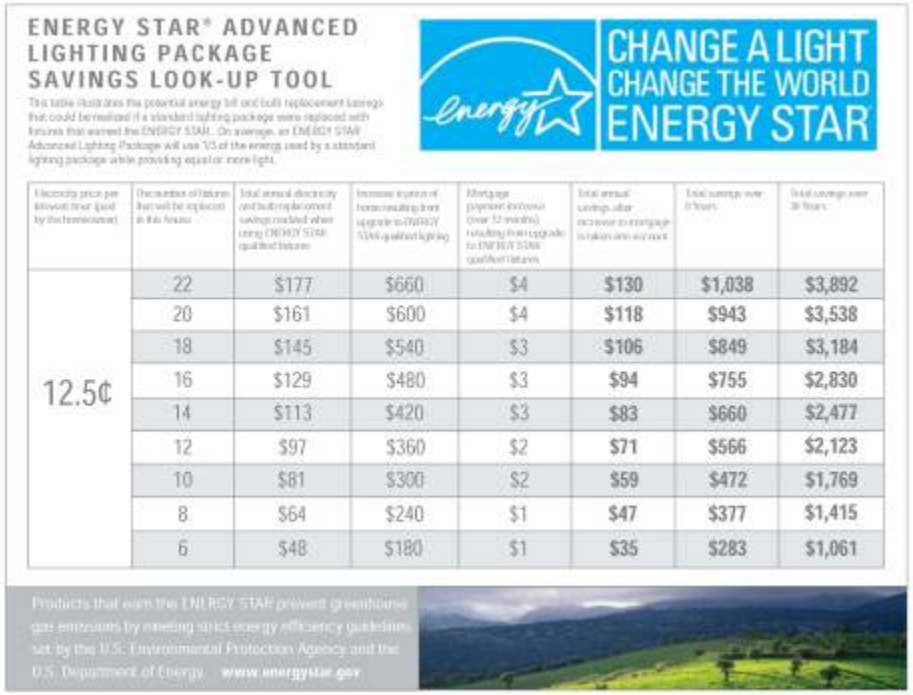
The number of fixtures that will be replaced in this house: 22

ENERGY STAR® ADVANCED LIGHTING PACKAGE SAVINGS FLIP CHART

Electricity price per kilowatt-hour (paid by the homeowner)	12.5¢		10.5¢		8.5¢		7.5¢		6.5¢	
	Standard	ENERGY STAR	Standard	ENERGY STAR	Standard	ENERGY STAR	Standard	ENERGY STAR	Standard	ENERGY STAR
Annual electricity cost comparison between standard and ENERGY STAR qualified fixtures	$253	$80	$212	$67	$172	$55	$152	$48	$131	$42
Total annual electricity and bulb replacement savings realized when using ENERGY STAR qualified fixtures	$177		$150		$122		$108		$94	
Increase to price of home resulting from upgrade to ENERGY STAR qualified lighting	$660		$660		$660		$660		$660	
Mortgage payment increase (over 12 months) resulting from upgrade to ENERGY STAR qualified fixtures	$4		$4		$4		$4		$4	
Total annual savings after increase to mortgage is taken into account	**$130**		**$102**		**$75**		**$61**		**$47**	
Total savings over 3 years	**$1,038**		**$817**		**$596**		**$486**		**$376**	
Total savings over 30 Years	**$3,892**		**$3,064**		**$2,237**		**$1,823**		**$1,409**	

Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy. www.energystar.gov

ALP Lighting Savings Flip Chart



ENERGY STAR® ADVANCED LIGHTING PACKAGE SAVINGS LOOK-UP TOOL

This table illustrates the potential energy bill and bulb replacement savings that could be realized if a standard lighting package were replaced with fixtures that earned the ENERGY STAR. On average, an ENERGY STAR Advanced Lighting Package will use 1/3 of the energy used by a standard lighting package while providing equal or more light.

CHANGE A LIGHT CHANGE THE WORLD ENERGY STAR

Electricity price per kilowatt-hour (paid by the homeowner)	The number of fixtures that will be replaced in this house	Total annual electricity and bulb replacement savings realized when using ENERGY STAR qualified fixtures	Increase to price of home resulting from upgrade to ENERGY STAR qualified lighting	Mortgage payment increase (over 12 months) resulting from upgrade to ENERGY STAR qualified fixtures	Total annual savings after increase to mortgage is taken into account	Total savings over 3 Years	Total savings over 30 Years
12.5¢	22	$177	$660	$4	**$130**	**$1,038**	**$3,892**
	20	$161	$600	$4	**$118**	**$943**	**$3,538**
	18	$145	$540	$3	**$106**	**$849**	**$3,184**
	16	$129	$480	$3	**$94**	**$755**	**$2,830**
	14	$113	$420	$3	**$83**	**$660**	**$2,477**
	12	$97	$360	$2	**$71**	**$566**	**$2,123**
	10	$81	$300	$2	**$59**	**$472**	**$1,769**
	8	$64	$240	$1	**$47**	**$377**	**$1,415**
	6	$48	$180	$1	**$35**	**$283**	**$1,061**

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ALP Lighting Savings Look-up Tool

ALP one-pager

LEARN MORE AT energystar.gov

ENERGY STAR®, a U.S. Environmental Protection Agency program, helps us all save money and protect our environment through energy efficient products and practices. For more information, visit www.energystar.gov.

EPA Revises the ENERGY STAR Advanced Lighting Package (ALP)

EPA has recently announced that they have revised the ALP definition to simplify the package to increase builder adoption. The ALP is referenced in the National Association of Home Builders' Green Home Building Guidelines and the U.S. Green Building Council's LEED for Homes rating system, and has been praised by many builders as a way to distinguish themselves and their homes in the marketplace. However, EPA felt that the criteria had caused builder confusion and slowed adoption.

ALP Definition

- Lighting packages that consist of a minimum of **60%** ENERGY STAR qualified fixtures now meet the ENERGY STAR Advanced Lighting Package. Note: All ceiling fans and ceiling fans with lighting must meet ENERGY STAR.

ALP Benefits to the Builder

- Increased Revenue
- Market Differentiation
- Design Flexibility and Fixture Aesthetics
- Enhanced Customer Satisfaction

ALP Benefits to the Consumer

- Selection
- Improved Quality
- Enhanced Comfort
- Energy Cost Savings
- Environmental Protection

***Example of New Advanced Lighting Package Definition**: If 6 out of 10 fixtures, or 60%, in a home are ENERGY STAR (and all Ceiling Fans), the home has the Advanced Lighting Package.*

Tell the EPA about your Advanced Lighting Package Installations!

- Add publicity and notoriety for your business by notifying the EPA about any of your ALP installations (60% ENERGY STAR fixtures)
- ALP installations will be featured on the ENERGY STAR website

Send any information about your Advanced Lighting Package installations to Sophia Peters @ speters@icfi.com or call 202-862-1150

ALP Verification

Oncor Electric Delivery ENERGY STAR® Homes Program

2008 Oncor ENERGY STAR Advanced Lighting Package (ALP) Builder Verification Form:

Builder Name:			
Home Address: City, State Zip:			
Date:			
Current EPA ENERGY STAR Advanced Lighting Package requirements: *The ALP designation applies to lighting packages that consist of a minimum of 60% ENERGY STAR qualified hard-wired fixtures and 100% ENERGY STAR qualified ceiling fans where installed. ENERGY STAR qualified recessed downlights, ceiling fan light kits and ventilation fans with lighting can be counted toward the fixture requirement. (http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.ALP_Builder)* I attest that the lighting fixtures/ceiling fans for the home address above meet current EPA ENERGY STAR Advanced Lighting Package requirements **and** the HERS Index reported to Oncor Electric Delivery for the home address above **does not** include the installation of the ENERGY STAR ALP. HERS Rater Company: _____ Rater/Data Collector Name: _____ Signature: _____			
Total Number of Lighting Fixtures (Indoor + Outdoor)	Total Number of ENERGY STAR Qualified Fixtures	% ENERGY STAR Fixtures of Total Fixtures	Required % ENERGY STAR Qualified Fixtures
		____%	60%
Total Number of Installed Ceiling Fans	Total Number of ENERGY STAR Qualified Ceiling Fans	% ENERGY STAR Ceiling Fans of Total Ceiling Fans	Required % ENERGY STAR Qualified Ceiling Fans
		____%	100%

Advanced Lighting Package (ALP) Summary

- The ALP provides a business opportunity to increase sales and profits
- The ALP promotes the sale of ENERGY STAR fixtures, ceiling fans, and vent fans with lighting
- The ALP is supported by NAHB, and some utilities and governmental partners
- The ALP offers the builder flexibility as to where to use ENERGY STAR qualified products
- Not promoting the ALP leaves the door open for competition

More Information

For more information about ENERGY STAR

- Visit: www.energystar.gov