



ENERGY STAR® Residential Lighting

Renewable Energy for Tribal Community
Development National Workshop

June 28-30, 2011

Patty Crow
US EPA
Denver, CO



Learn more at energystar.gov

What is ENERGY STAR?



ENERGY STAR is a government-backed program that helps consumers identify energy-efficient products.

ENERGY STAR qualified products:

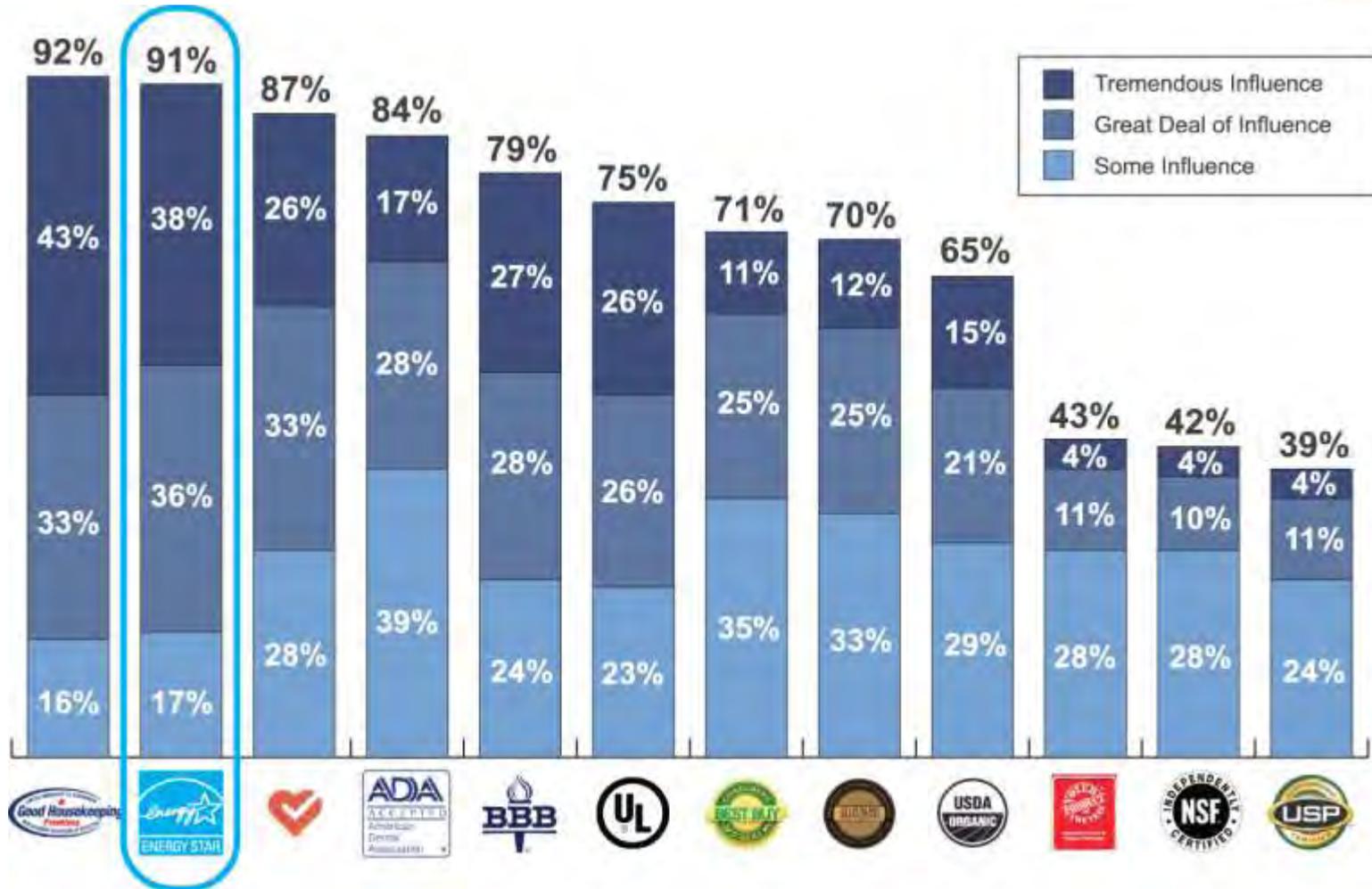
- Save energy
- Save money
- Save the environment

ENERGY STAR Highlights



- Products that have earned the ENERGY STAR meet **strict energy-efficiency guidelines** set by the US Environmental Protection Agency (EPA)
- With more than **60 product categories**, ENERGY STAR products are available in over **40,000 retail storefronts** in the US and Puerto Rico and are actively promoted by over **700 utility** programs
- These products not only **cut customers' energy costs**, but also help **protect the environment**

ENERGY STAR STANDING



Source: Fairfield Research, July 2009



ENERGY STAR Lighting Overview



- Lighting represents 12-20% of household energy bills. (More than clothes washers and dryers, dishwashers and refrigerators combined.)
- The average home has approximately 30 light fixtures. (Source: Lawrence Berkeley National Laboratory, *Lighting Market Sourcebook for the U.S.* 1997.)
- ENERGY STAR qualified lighting products
 - Use about 75 percent less energy
 - Produce about 75 percent less heat
 - Last 6-35 times longer (depending on light source & application)
 - Follow strict quality guidelines for consumer benefit
 - Are tested in a certified lab & subject to off-the-shelf testing

Fluorescent Lighting: Then and Now



Then: 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.

Then: Once was a source that produced a poor color of light, sometimes called cold, harsh, “green” or “blue” light...

Now: Available in soft warm colors that make all of the objects in a room appear just like they would under incandescent lighting

Then: Once was a source that always flickered for several seconds after turning on the switch, and buzzed when operating...

Now: Available as “instant-start” (less than 1 sec) and operates quietly



Fluorescent Then



Fluorescent Now

ENERGY STAR Light Bulbs



ENERGY STAR qualified light bulbs:

- Light bulbs that have earned the ENERGY STAR use at least 75 percent less energy than standard incandescent bulbs and last about 10 times longer (and 15-50 times longer for LED bulbs).
- A CFL that has earned the ENERGY STAR can save more than \$40 in electricity costs over its lifetime and pays for itself in about 6 months.
- New specification to take effect in 2012 will make it easy for consumers to find high quality energy efficient lighting regardless of technology and will set a bar ahead of federal efficiency standards.



Types of ENERGY STAR Bulbs



- **Fluorescent**

- Spiral
- Covered A-shaped
- Globe
- Tube
- Candle
- Indoor Reflector
- Outdoor Reflector
- GU24 self ballasted CFLs

- **LED**

- Replacements for standard bulb types per ANSI C79.1-2002
 - General service omni-directional
 - Decorative
 - Reflector bulbs
- Non-standard bulbs



Overview: Base types

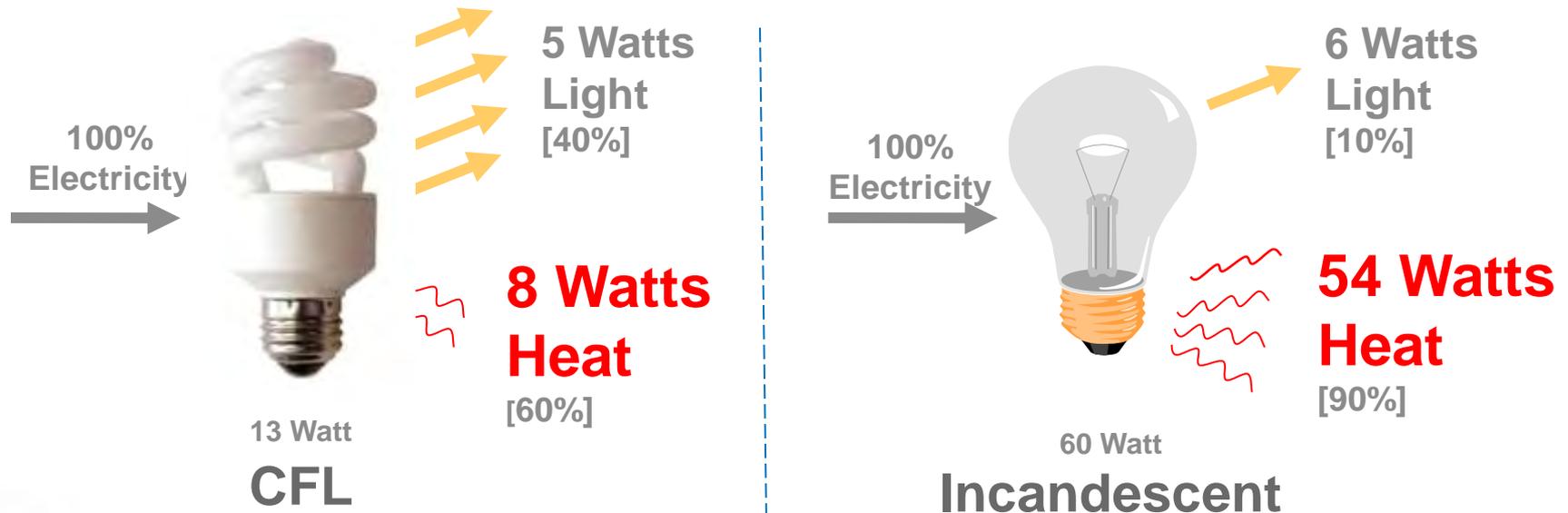
- Bi-Pin: e.g. Fluorescent 
- GU24: Compact Fluorescent LED Integrated Lamp 
- Non-ANSI base: LED Light Engine 
- E26 for HID or Halogen (only) 



ENERGY STAR CFL Benefits: Less Heat, More Light



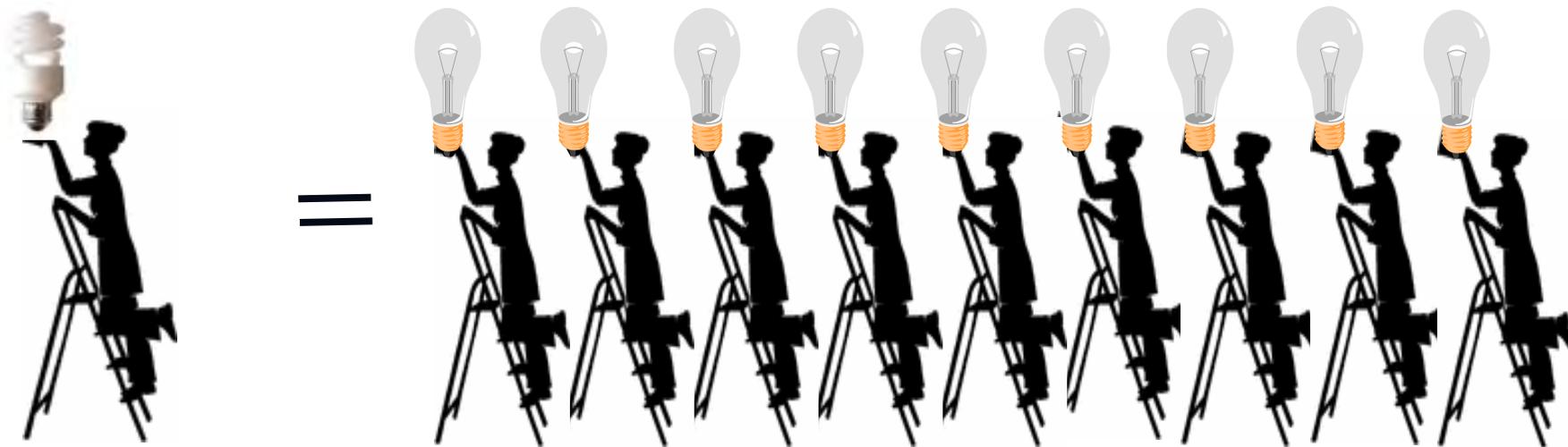
ENERGY STAR qualified CFLs generate *significantly less heat* and distribute light more efficiently than standard incandescent bulbs.



ENERGY STAR CFL Benefits: Longer Life



ENERGY STAR qualified CFLs only need to be changed *once every 7 years* on average, compared with an annual ladder-climb for standard incandescent light bulbs—convenient for hard to reach fixtures.



ENERGY STAR Qualified Fixtures



ENERGY STAR qualified light fixtures:

- Replacing a home's 5 most frequently used light fixtures or the bulbs in them with models that have earned the ENERGY STAR, can save \$70 a year. (Based on the replacement of 9 bulbs in 5 high-use fixtures.)
- Fixtures that have earned the ENERGY STAR have lights that last 10-35 times longer. Less maintenance really counts in those hard to reach fixtures.
- Energy efficiency with many decorative options using different efficient technologies (LED, fluorescent, halogen with motion sensors for outdoor)
- New specification taking effect Spring 2012 will make it easy for consumers to find high quality energy efficient lighting regardless of technology. It also sets a high bar ahead of federal efficiency standards.



ENERGY STAR Light Fixtures



Using a screw-base CFL in a standard fixture is not the same as choosing an ENERGY STAR qualified fixture for your home.

- Qualified light fixtures are typically purchased as a complete new fixture that includes the CFL bulb.
- Qualified light fixtures primarily use CFLs with a GU-24 "Twist and Lock" base, and distribute light more efficiently and evenly than standard fixtures.



Different Technologies Used



- Fluorescent



- LED



- HID



- Halogen

(outdoor with motion and photo sensor only)



ENERGY STAR Applications



Hanging Fixtures

foyer, dining, kitchen



Close-to-Ceiling

hallways, kitchens,
baths



Portable

living, bedroom
home office



Wall Mounted

baths, living



Recessed

living, kitchen,
hallway



Outdoor

yard, walkway,
facade lighting



ENERGY STAR Light Fixture Design



Benefits of a qualified light fixture design:

- **Designed for the light source:**
 - Correctly-sized bulb
 - No bulb sticking out below/above glass
 - Appropriate type of glass
 - Frosted or opaque glass hides source
 - Better distribution of light
 - No hotspots
- **Easily-serviceable ballast**
 - If the fixture needs servicing the ballast is designed to be easily accessible



ENERGY STAR Light Fixtures



Qualified Indoor Fixtures:

- Use less energy
 - ✓ Lower utility bills
- Excellent color rendering (≥ 80 CRI)
 - ✓ Colors look natural
- “Dedicated” pin-based bulbs
 - ✓ Longer bulb life
- Electronic ballast
 - ✓ Flicker-free, no hum or buzz
- 2-year warranty
 - ✓ Customer security
- Instant-on
 - ✓ Customer satisfaction
- Laboratory verified
 - ✓ Quality control

ENERGY STAR Light Fixtures



Qualified Outdoor Fixtures:

- Integral Photocell
 - Auto shut-off during daylight hours
- Use less energy with CFLs *or* incandescent bulbs with a motion sensor
- Electronic ballast, instant-on (CFL)
- 2-year warranty—double the industry standard
- Laboratory verified



CFL

Motion-Sensing Incandescent

What is NOT covered?



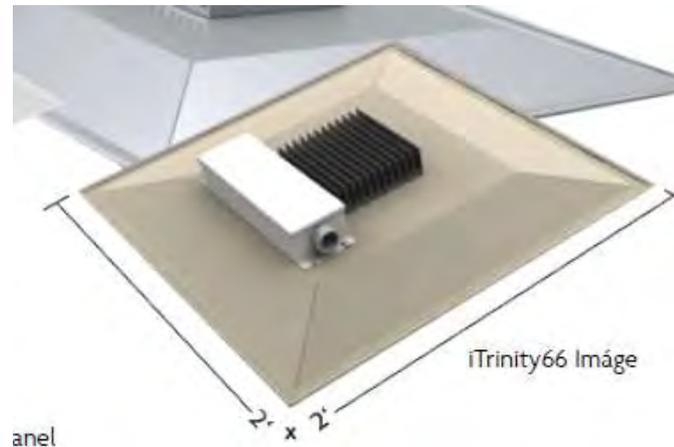
Commercial Linear Forms



Hi-Bays or Garage Lights



Troffers



anel



ENERGY STAR[®] Appliances

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Kate Gregory
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Qualified Appliances



- ENERGY STAR identifies products in **more than 60 product categories** that meet strict energy efficiency specifications, including the following appliances:
 - Refrigerators
 - Clothes Washers
 - Dishwashers
 - Room Air Purifiers**
 - Freezers**
 - Room Air Conditioners
 - Dehumidifiers
 - Water Heaters
 - Water Coolers

**2011 additional priority product categories



ENERGY STAR Guiding Principles



ENERGY STAR criteria are designed to balance a varied set of objectives, including:

- Significant energy and/or water savings
- Cost effective
- Energy consumption that can be measured and verified with testing
- Equivalent or enhanced functionality and performance
- Achievable through several technology options; at least one of which is non-proprietary
- Label provides meaningful differentiation
- *Other considerations: changes in Federal standards, technological advances in efficiency, product availability*



Stress the savings...



ENERGY STAR qualified dishwashers:

- Use less hot water than a new conventional model, saving about \$50 over the lifetime of a unit.

ENERGY STAR qualified clothes washers:

- Reduce water consumption by over 50% compared to regular washers
- Can save an average of 15-20 gallons of water per load compared to a standard machine
- Save households about \$70 a year on utility bills

ENERGY STAR qualified refrigerator-freezers:

- A new qualified refrigerator can save about \$130 on electricity bills over its lifetime compared to a new standard model
- If everyone purchasing a refrigerator in 2011 chooses an ENERGY STAR qualified model over a non-qualified model, together we would save more than \$100 million a year on our energy bills



Campaign Engagement



- “ENERGY STARs Across America”
- “Be an ENERGY STAR” Video Challenge
- Updated ENERGY STAR Pledge
- Social Media and Web Outreach
- Youth Partnerships



ENERGY STARs Across America



See ENERGY STARs Across America : ENERGY STAR - Windows Internet Explorer

https://www.energystar.gov/index.cfm?fuseaction=globalwarming.showMap

File Edit View Favorites Tools Help

See ENERGY STARs Across America : ENERGY STAR

SEE ENERGY STARs ACROSS AMERICA

Map View List View State Summaries

The ENERGY STARs are shining brightly across America. Find an event in your area where you can learn how to be more energy efficient and protect the climate with help from ENERGY STAR and friends.

The map displays the United States with numerous blue stars indicating Energy Star locations. The stars are densely packed in the Northeast and Midwest regions, with more scattered stars in the West and South. Major cities like New York, Chicago, and San Francisco are visible. The map includes a search bar, zoom controls, and a legend.

Map data ©2011 Europa Technologies, Geocentre Consulting, INEGI, MapLink, Tele Atlas - Terra et Aqua

Events

Show my:
STATE / TERRITORY

Nationwide

Individuals: 2,792,160 Dollars: \$662,482,790

Done

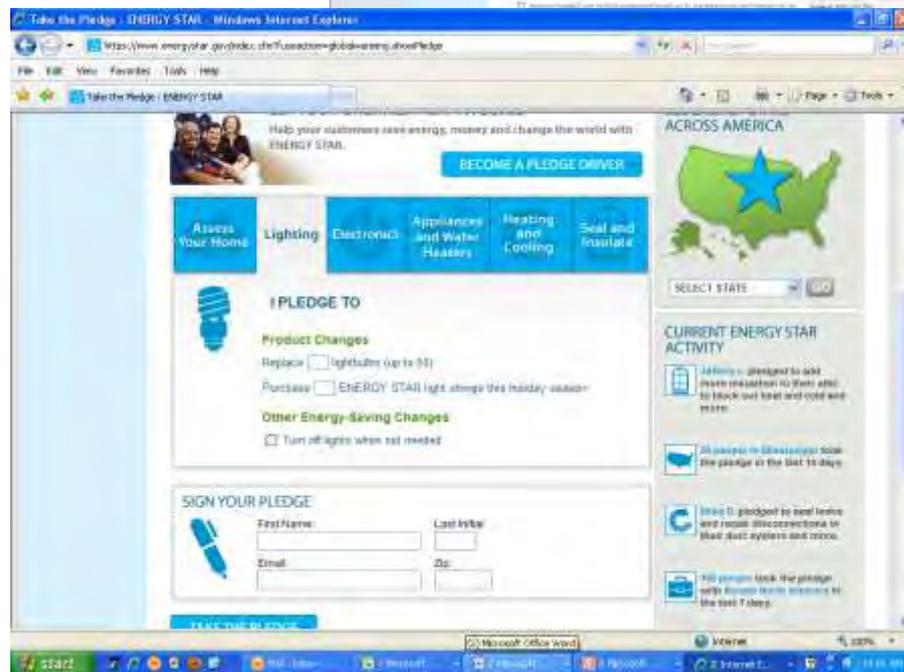
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The ENERGY STAR Pledge 2010-2011



- Number of pledges: 244,915
- Dollar Savings: 310,844,770
- KWH Savings: 2,050,495,068
- CO₂ Savings: 3,773,035,567
- BTU Savings: 4,815,789,528,629
- Number of newsletter subscribers: 302,337





New in 2011:



- Clothes Dryers
- Cooking (induction, dual cavity ovens)
- Vacuum Cleaners
- Countertop appliances
(coffee makers, toaster ovens)



Most Efficient Pilot Program



- 2011 Pilot Program launched in May 5, 2011.
- GOAL: Drive more energy efficient products into the market more quickly by identifying the few, most energy efficient products for early adopters.
- Evaluate pilot year program and analyze potential to expand to include more products in second year.

ENERGY STAR Benefits:



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



Questions / Comments

