



# ENERGY STAR® Lighting Update

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December 5, 2013

Part of the  
2013 ENERGY STAR® Products Partner Meeting  
Webinar Series



Learn more at [energystar.gov](http://energystar.gov)

# Outline

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- ENERGY STAR lighting update
  - Market share & market trends
  - What's new for ENERGY STAR Lighting
    - Specification update
    - LED Challenge
    - New resources
  - Utility programs for lighting



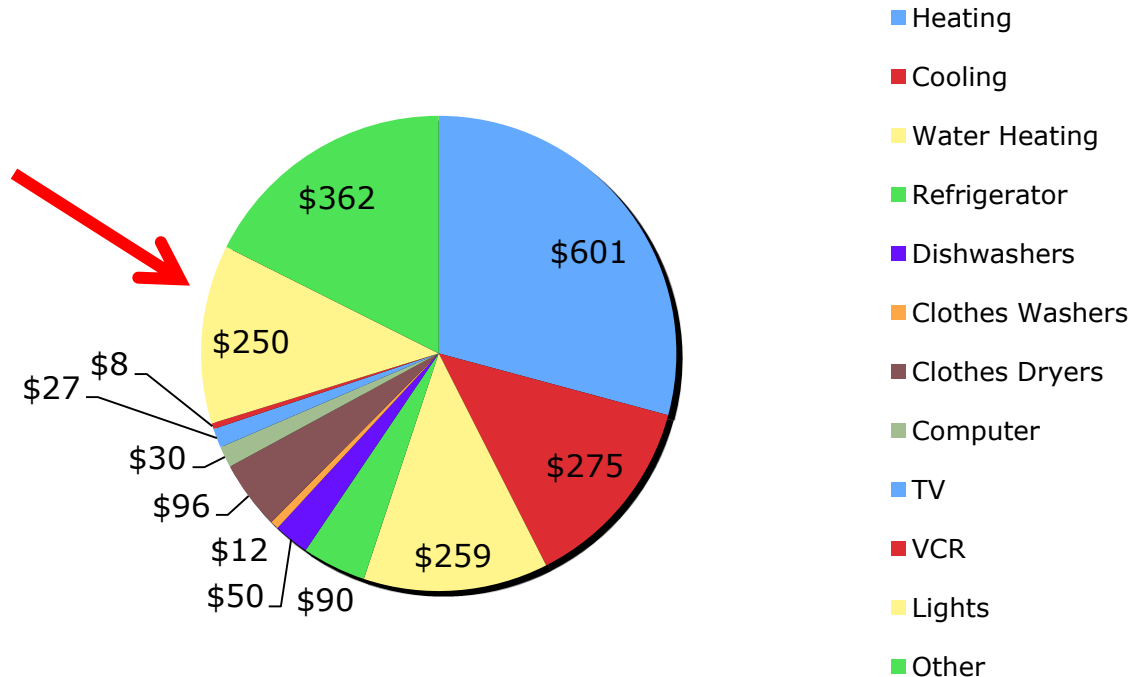
# ENERGY STAR & The Lighting Market

# Typical Household Energy Use



- While heating and cooling comprise the largest portion of annual household energy use, lighting accounts for approximately 12%

**Estimated Annual Utility Bill, Typical House**

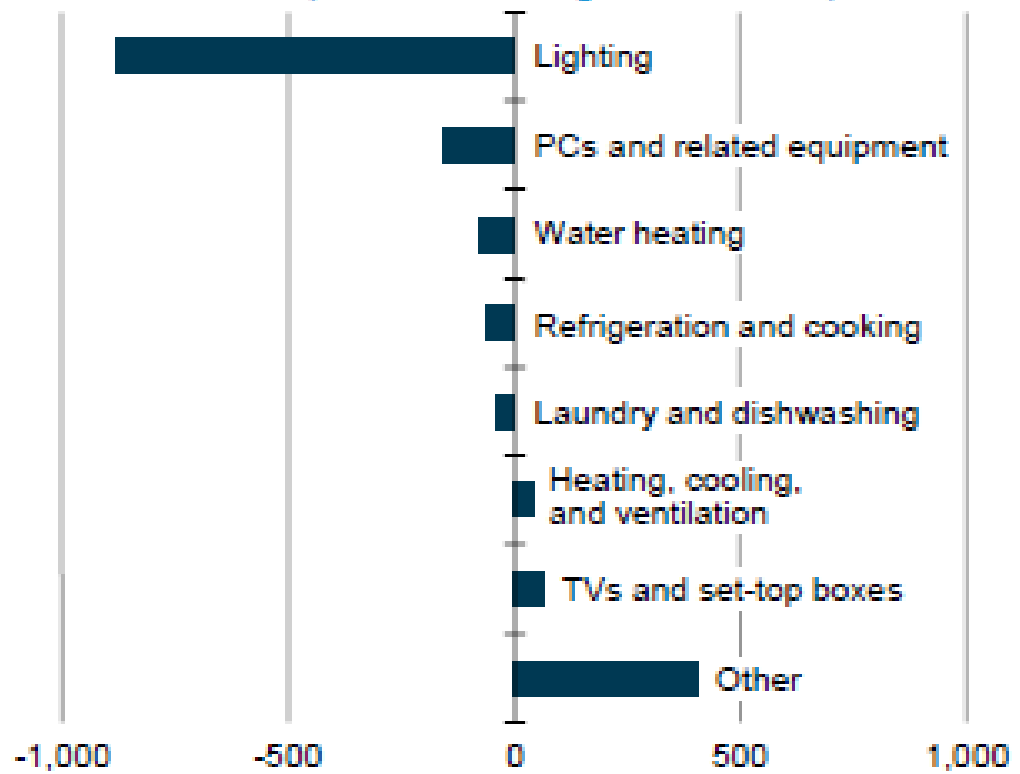


# Energy Use Outlook



- Electricity demand by U.S. homes is forecasted to increase 24 % by 2040
- Largest reduction in residential energy use is expected to come from lighting

Figure 56. Change in residential electricity consumption for selected end uses in the Reference case, 2011-2040 (kilowatthours per household)



# Number of Certified Lighting Products

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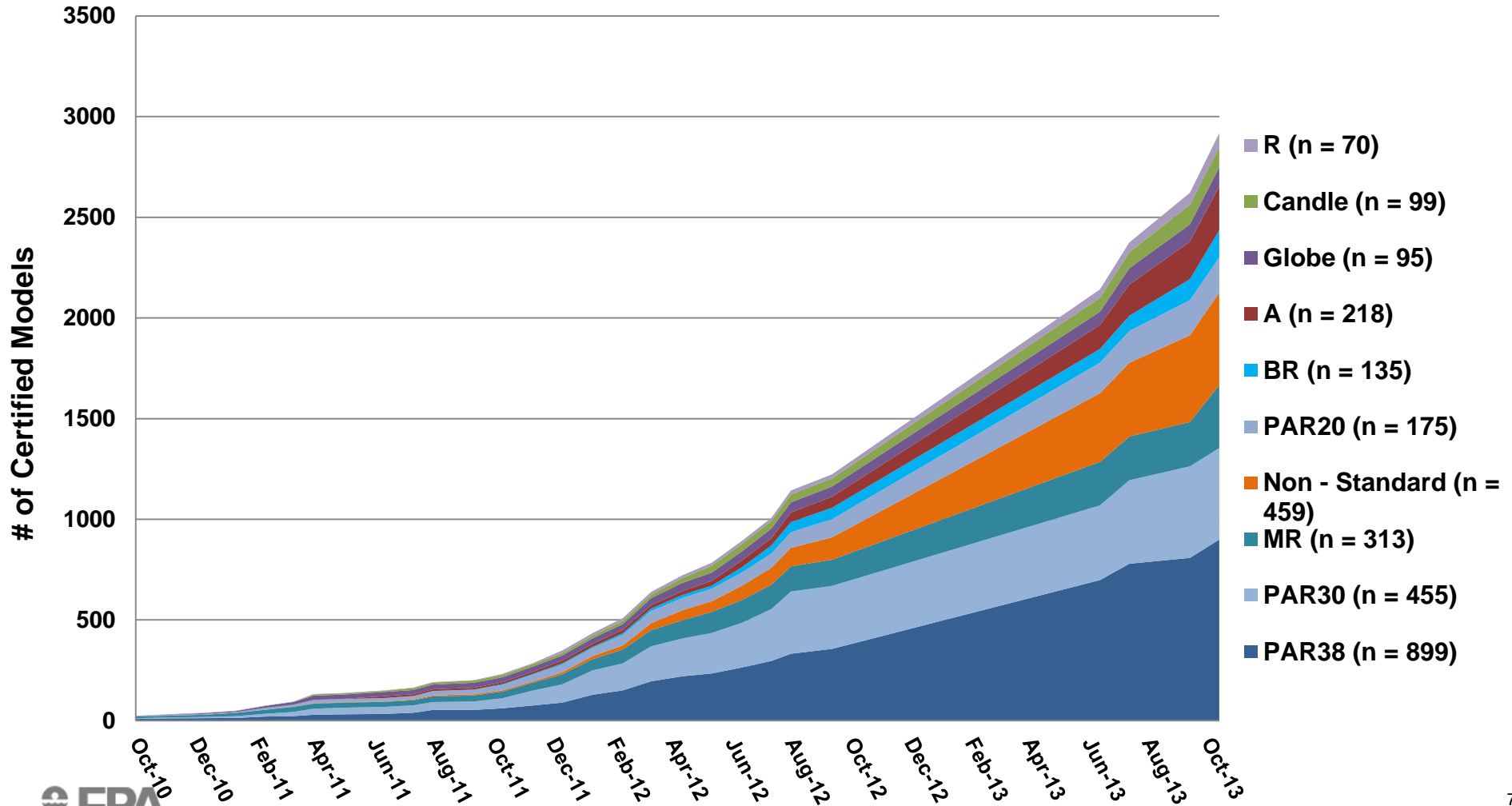
- CFLs: **~6,200 models**
- LED Lamps: **~2,900 models**
  - (increase of 115% from October 2012)
- Luminaires: **5,900+ models**

(as of 11/22/13)

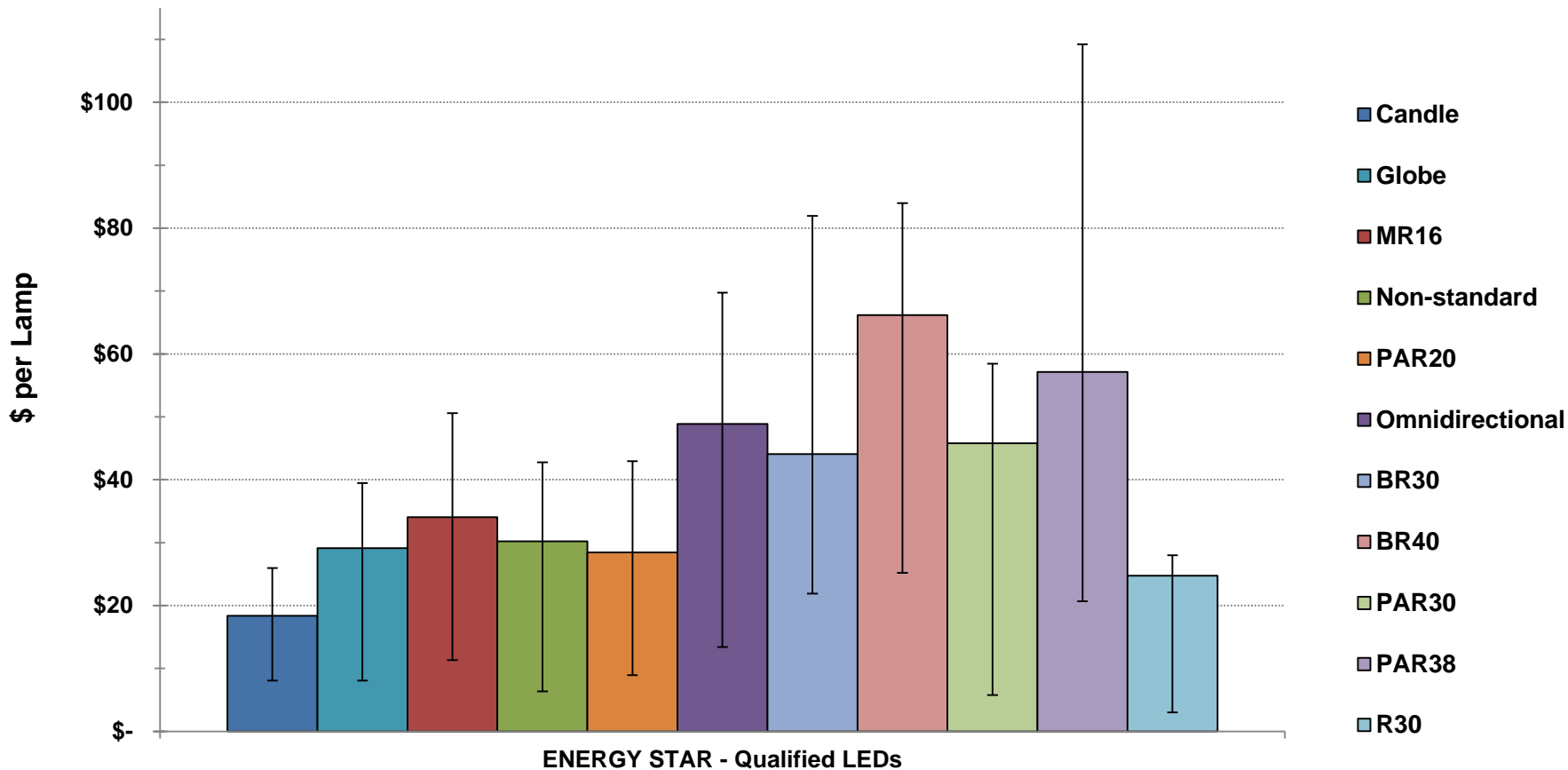
# ENERGY STAR LED Lamps Certified over time by Type



ENERGYSTAR LED Lamps - As of Oct 2013



# ENERGY STAR Certified LED Light Bulb Prices Q3 2013



\* Note: Range reflects absolute minimum and maximum prices collected per lamp type



# Lighting Shipments

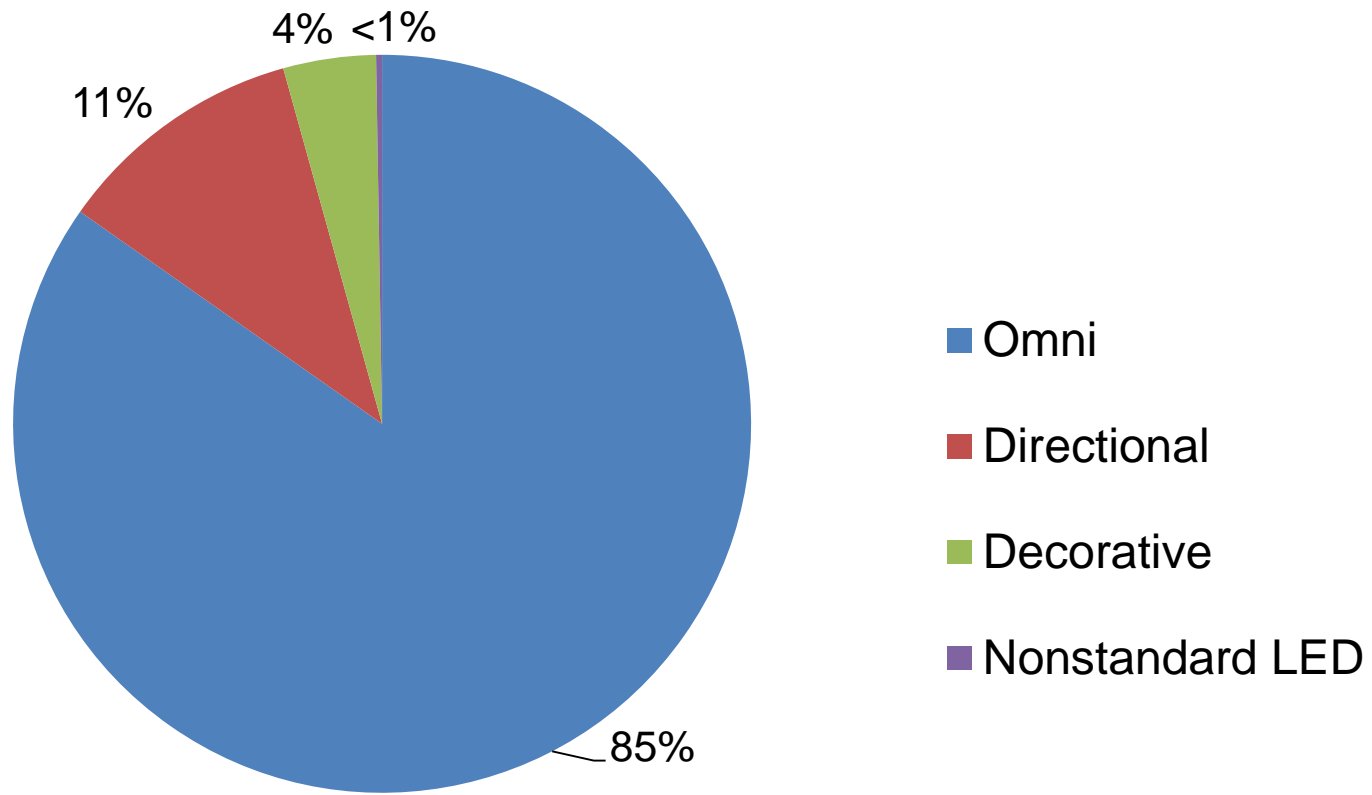


- ENERGY STAR certified models
- 16% of light bulbs shipped in 2012
  - more than 300 million units
    - 77% of CFLs were ENERGY STAR certified
    - 70% of LED bulbs were ENERGY STAR certified
      - 15% increase from 2011
- 15% of indoor fixtures
  - 5% increase from 2011
  - 7% of outdoor fixtures – 9% drop from 2011

# Light Bulb Shipment Breakdown



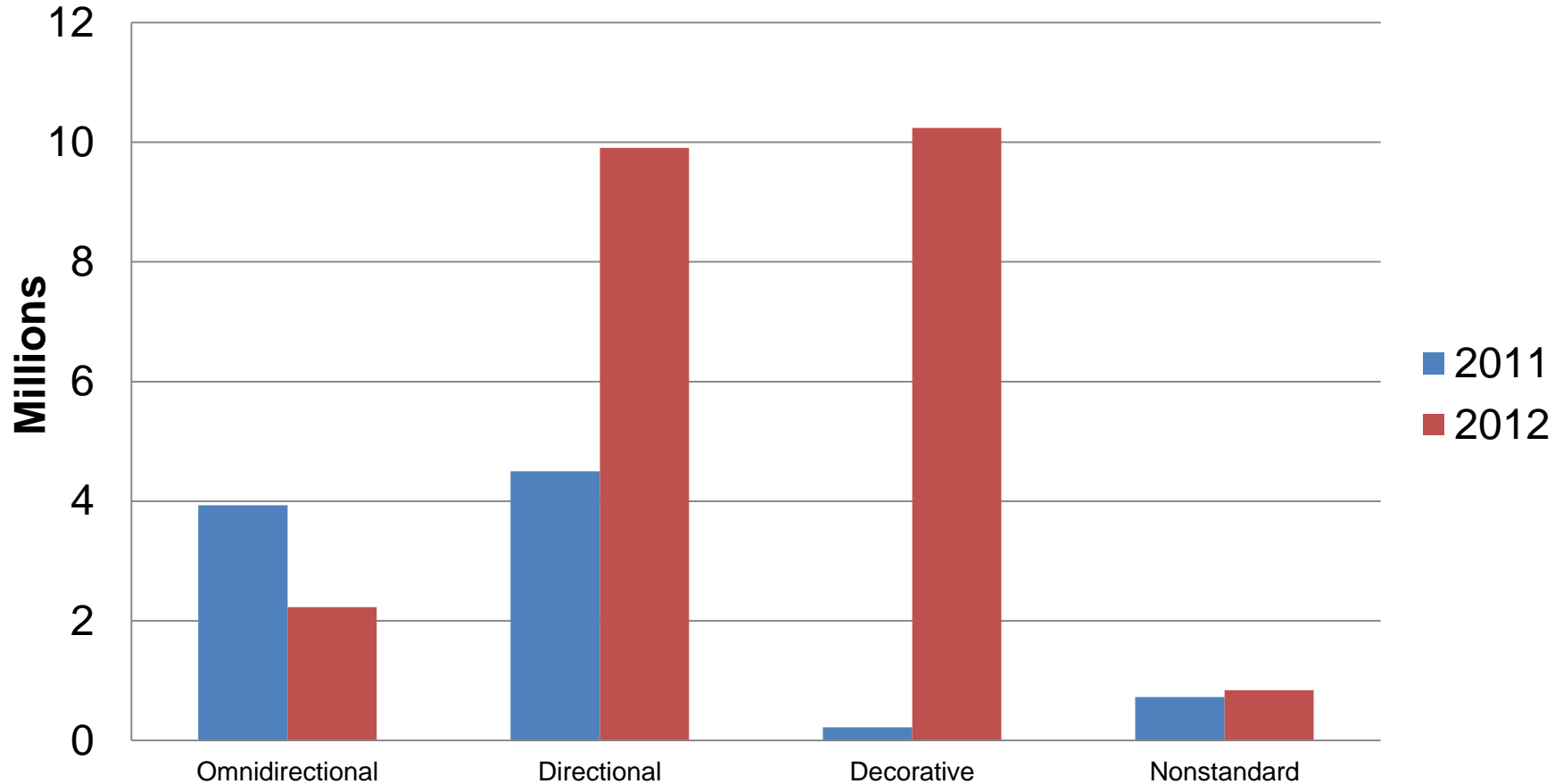
## Lamps Shipped by Type in 2012



# LED Bulb Shipments



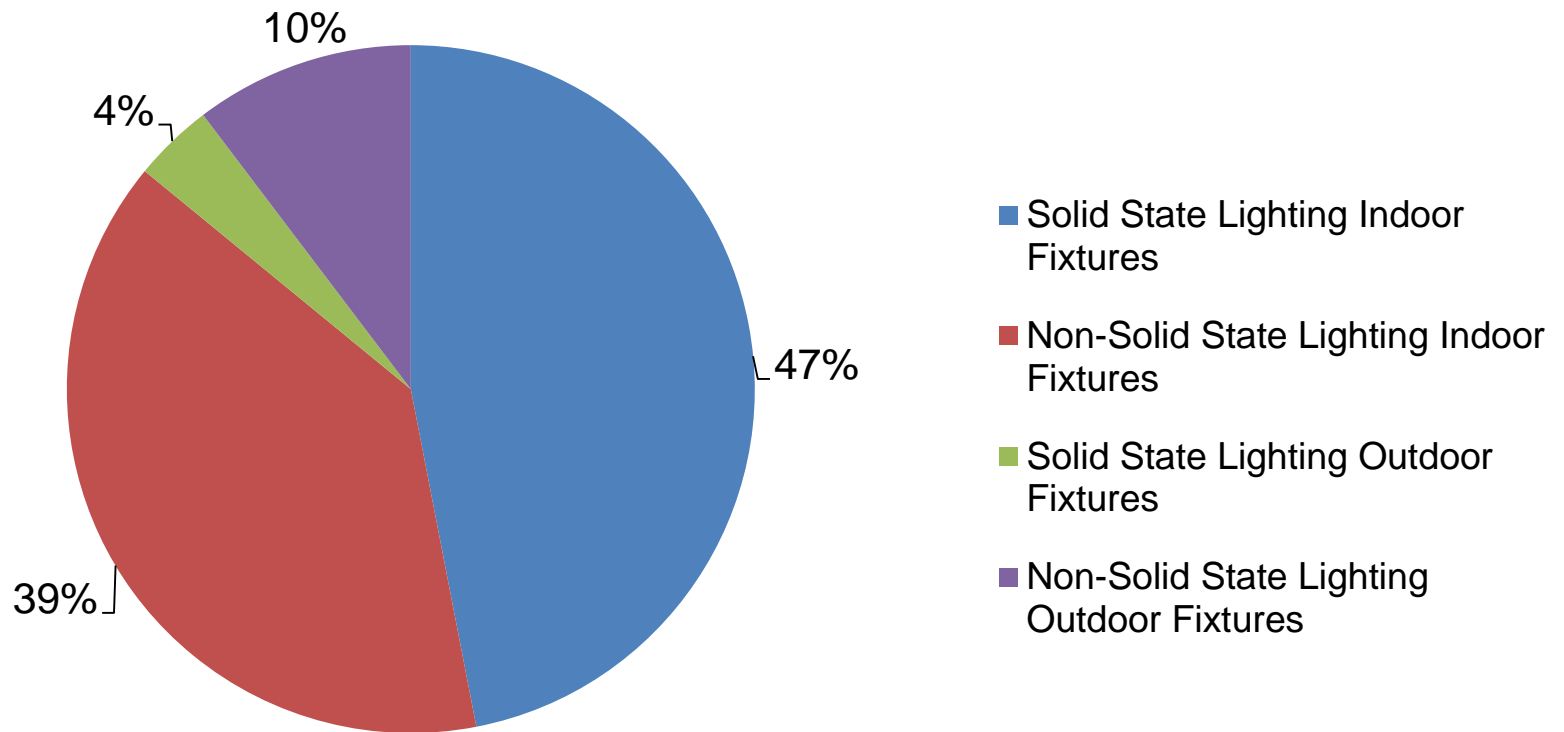
## ENERGY STAR Certified LED Bulb Shipments by Type



# Fixture Shipments




## Luminaires Shipped by Type in 2012



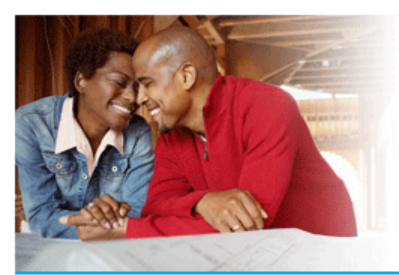
# A-Type Lamps (2012 Summary)

- 3.3 billion A-type lamps installed in the U.S.
  - 97% installed in residences
  - Nearly 20 million LED A-type lamps are installed in the U.S., this is <1% of the total A-type lamp installed base

**Table 2.1 – Energy Consumption and Savings Potential of LED A-Type Lamps**

| <br><b>A-Type Lamps</b> | <b>LED Installed Base Units</b><br>millions | <b>Total Energy Consumption</b><br>Source– tBtu<br>(Site – TWh) | <b>LED Energy Savings</b><br>Source– tBtu<br>(Site – TWh) | <b>Potential LED Energy Savings</b><br>Source– tBtu<br>(Site – TWh) |
|--|---|---|---|---|
| 2012   | 19.9  | 1,057<br>(101.8)  | 21.9<br>(2.1)   | 822<br>(79.1)   |

- 248 million directional lamps installed in the U.S.
  - >80% installed in residences
  - 11.4 million LED directional lamps are installed in the U.S. (4.6% of the total directional lamp installed base)



# What's New from ENERGY STAR

# New Product Finder



- Additional information for models can be displayed
- Allows consumers to filter based on product type, features, and technology
- Compare product feature for up to four items

The screenshot displays the Energy Star Certified Light Bulbs Product Finder interface. At the top, there are navigation tabs for 'ENERGY STAR', 'products', 'at home', 'new homes', and 'building'. Below this, the breadcrumb path reads 'Home » Products » Product Finder Home » ENERGY STAR Certified Light Bulbs'. The main heading is 'ENERGY STAR Certified Light Bulbs'. A 'Compare' button is visible, indicating 'up to 4 items' can be compared. On the left, there are filter sections for 'Bulb Type', 'Technology', and 'Special Features'. The 'Bulb Type' section includes options like 'General Purpose (4940)', 'Reflector (Flood/Spot) (2454)', 'Globe (348)', 'Decorative (202)', and 'Other (489)'. The 'Technology' section includes 'CFL (5988)' and 'LED (2445)'. The 'Special Features' section includes 'Dimmable (2336)' and '3-Way (108)'. The main content area shows '1 - 20 of 59 Records Found' and a list of products. The first product is 'Arani - AR\_LEDBGU10-6W-D-WW', with details: 'Bulb Type: Other (Non-standard)', 'Technology: LED'. Other products listed include 'BULBRITE - LED6MR16GU/30K/D', 'BULBRITE - LED6MR16GU/WW/D', and 'Bazz - GU10LES4'. A table at the bottom provides a detailed view of the products, with columns for 'Special Features', 'Markets', and 'ENERGY STAR Model'. The table lists 14 items with various features like 'Dimmable', 'Table Use', and '3-Way'. A 'Filter' panel on the right allows filtering by 'Technology' (LED, CFL) and 'Appearance/Correlated Color Temperature (K)' (3,000, 2,700).

ENERGY STAR products at home new homes building

Home » Products » Product Finder Home » ENERGY STAR Certified Light Bulbs

## ENERGY STAR Certified Light Bulbs

Compare up to 4 items

1 - 20 of 59 Records Found

**Bulb Type**

- General Purpose (4940)
- Reflector (Flood/Spot) (2454)
- Globe (348)
- Decorative (202)
- Other (489)

**Technology**

- CFL (5988)
- LED (2445)

**Special Features**

- Dimmable (2336)
- 3-Way (108)

**Arani - AR\_LEDBGU10-6W-D-WW**

Bulb Type: Other (Non-standard)  
Technology: LED

**BULBRITE - LED6MR16GU/30K/D**

Bulb Type: Other (Non-standard)  
Technology: LED

**BULBRITE - LED6MR16GU/WW/D**

Bulb Type: Other (Non-standard)  
Technology: LED

**Bazz - GU10LES4**

Bulb Type: Other (Non-standard)

| Item | Special Features | Markets               | ENERGY STAR Model  |
|------|------------------|-----------------------|--------------------|
| 1    | Dimmable         | United States         | ES_1121374_LED-08w |
| 2    | Dimmable         | United States         | ES_1121374_LED-08w |
| 3    | Dimmable         | United States         | ES_1121374_LED-12w |
| 4    | Dimmable         | United States         | ES_1121374_LED-BR3 |
| 5    | Dimmable         | United States         | ES_1121374_LED-PAR |
| 6    | Dimmable         | United States         | ES_1121374_LED-PAR |
| 7    | Dimmable         | United States         | ES_1121374_LED-PAR |
| 8    | Table Use        | United States, Canada | ES_1004092_3405065 |
| 9    |                  | United States         |                    |
| 10   | 3-Way            | United States         |                    |
| 11   |                  | United States         |                    |
| 12   |                  | United States         |                    |
| 13   |                  | United States         |                    |
| 14   |                  | United States         |                    |



# ENERGY STAR Lighting Specification Update



# Lighting Specification Integration Now Complete



Compact Fluorescent Lamps V4.3

Integral LED Lamps V1.4

## ENERGY STAR Lamps

- final released August 28, 2013
- effective September 30, 2014
- [www.energystar.gov/lamps](http://www.energystar.gov/lamps)

Residential Light Fixtures V4.2

Solid State Lighting Luminaires V1.3

## ENERGY STAR Luminaires

- finalized February 16, 2011
- effective April 1, 2012
- V1.2 Finalized/effective Dec 2012
- [www.energystar.gov/luminaires](http://www.energystar.gov/luminaires)

# Luminaires V1.2

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- Effective December 12, 2012
  - Clarified items that are causing confusion, e.g. inseparable SSL requirements
  - Reduced the minimum light output levels of specific decorative luminaire types, e.g. wall sconces
  - Removed of 70 LPW requirement slated to go into effect in September 2013
  - More at [www.energystar.gov/luminaires](http://www.energystar.gov/luminaires)

# ENERGY STAR Lamps V1.0



- V1.0 Final issued August 28, 2013
- 13-month transition period
- Effective September 2014
- CFL 4.3 and LED Lamps 1.4 open until May 30<sup>th</sup> 2014
- Partners are encouraged to start certifying products to the new specification



# Lamps V1.0 Specification Snapshot

- Lamps V1.0 specification achieves the following:
  - Balanced new criteria for high quality replacement lamps
  - Broader scope for LED color temperatures
  - Raises the bar for CFL performance to address barriers
    - 10,000 hour minimum lifetime
    - 60 second reduction in run-up time
    - Unprecedented limits for mercury (half the amount in CFL 4.0)
  - Reduces testing burden while maintaining performance integrity
  - Establishes the first set of testing and baseline requirements for dimmable lamps.
  - Solidifies link between intended use and test environment
  - No longer covers “non-standard” LED lamps

# What happens next?



- EPA will follow development of new industry standards and relevant trends e.g. “intelligent” lamps
- Continued work and stakeholder engagement in areas that may allow for further streamlining of the certification process
- Further examination of requirements for LED A lamps
- Monitoring of implementation for certain aspects of the specification to evaluate whether intent of specification is being met including:
  - Form factors of LED lamps submitted through decorative category
  - Availability of lamps intended for use in recessed or enclosed fixtures
  - Selection of dimmers used for testing



# Verification testing update

- Luminaires included in CB-administered verification testing as of April 1, 2012
- LED lamps included in CB-administered verification testing as of June 1, 2013
- On September 1, 2014, when the Lamps V1.0 specification takes effect, CFLs will transition to CB-administered verification testing
- Directive for Luminaires that do not ship with lamps
  - Draft directive to reduce duplicate light source testing



# CFL Verification Testing



- Of the OEMs with products tested, pass rates ranged 15-90%, indicating that quality control and consistent performance is achievable
  - Overall pass rate of 55%
  - Covered CFLs had the lowest pass rate at 14%
- Private labelers can play an important role in addressing quality control issues by inquiring about their OEM's testing record and plans for improvement



# Enhanced Oversight



- EPA is taking targeted actions to help drive improved quality control in the production of ENERGY STAR CFLs, including

- Sending individual notices to OEMs providing a recap of their testing performance in the CFL Testing Program
- Increased oversight of products associated with OEMs with high failure rates
- Heightened quality assurance requirements for labelers using products from those sources
- Increased verification testing of products from OEMs with low compliance rates or that significantly under tested to date



Learn more at [www.energystar.gov/integrity](http://www.energystar.gov/integrity)





# New from Marketing

# The Strength of ENERGY STAR Certification



- ENERGY STAR third-party **certification and verification testing** help confirm **delivery on performance**
- The ENERGY STAR Luminaires and Lamps specifications were designed to set the bar for recognizing lighting products that deliver on their claims and meet basic levels for performance and quality:
  - Minimum warranty requirement
    - 2 years for lamps with lifetime less than 15,000 hours
    - 3 years for lamps with lifetime greater than 15,000 hours and all luminaires
  - 6 different requirements for color to ensure quality upfront & over time for LED products
  - Light distribution and minimum light output requirements
  - Size and shape requirements
  - Long term high heat testing & rapid cycling
  - Compliance with more than 20 established industry standards and test methods

# ENERGY STAR LED Bulb Challenge



- Drive to sell **20 million ENERGY STAR certified LED bulbs**



# Objectives



- **Increase the visibility of ENERGY STAR certified LED** light bulbs in-store and online through stocking, labeling, educational messaging and special promotion
- **Raise consumer awareness** about the benefits of ENERGY STAR certified lighting solutions
  - Quality
  - Financial savings
  - Environmental benefits
  - Long life
- **Position ENERGY STAR** as a trusted resource for information and helping to drive greater consistency in messaging

# Progress Update



- As of October 31, 2013, 5,534,602 bulbs have been sold. Each year, the ENERGY STAR LED bulbs sold will:



Save 296,959,070 kWh



Reduce 457,316,968 pounds of greenhouse gas emissions



Save \$32,665,498 in energy costs



Prevent greenhouse gases equivalent to the emissions from 43,216 cars

# New ENERGY STAR Resources



- **Lighting Made Easy** graphic: compact graphic that highlights key value of ENERGY STAR bulbs for consumers
- **Lighting Made Easy** fact sheet: designed to help consumers navigate the light bulb purchase decision and identify the ENERGY STAR certified option that meets their needs
- **ENERGY STAR LED Bulb Challenge Toolkit**: provides an overview of the challenge and resources that can be used to promote ENERGY STAR certified lighting

LEARN MORE AT

The screenshot shows a webpage titled "ENERGY STAR® LED Challenge: Sell 20 Million Certified Bulbs". It includes an introduction, a "Get Involved" section, and a list of opportunities for energy efficiency program sponsors. A small thumbnail of the "Lighting Made Easy" fact sheet is visible in the bottom right corner of the screenshot.

**ENERGY STAR® LED Challenge: Sell 20 Million Certified Bulbs**

Nearly 70% of sockets in the U.S. still contain an inefficient light bulb. LED bulbs show great potential as a newer technology to fill those sockets, providing consumers with high quality, efficient lighting that works well in a variety of applications. Making consumers aware of the benefits of choosing an ENERGY STAR certified LED bulb will not only help accelerate change, it will ensure a more positive consumer experience and lead to efficient purchasing habits that are sustained over time.

The Environmental Protection Agency (EPA) is challenging U.S. retailers, with the help of manufacturers and energy efficiency program sponsors, to sell 20 million ENERGY STAR certified LED light bulbs by Earth Day 2014.


**Get Involved**

EPA encourages ENERGY STAR partners to take every opportunity to educate consumers about ENERGY STAR certified LEDs and support the ENERGY STAR LED challenge to raise consumer awareness about the benefits of choosing ENERGY STAR certified LED bulbs. The Agency is working with leading manufacturers and retailers to provide optimum selection of ENERGY STAR LED bulbs and to promote them in-store and online.

EPA plans to bring attention to the challenge and the benefits of purchasing an ENERGY STAR certified LED bulb by publically tracking progress. Through the ENERGY STAR website and social media, EPA will provide periodic updates, based on sales data from participating retailers. In addition the Agency plans to profile partner activity in support of the challenge.

The challenge offers numerous opportunities for energy efficiency program sponsors:

- Include ENERGY STAR lighting messaging in consumer outreach efforts, including consumer events, retail in-store activities and any other consumer outreach activities.
- Work with your retail and manufacturing partners to support their efforts in increasing the visibility of ENERGY STAR certified LED bulbs in-store and online through stocking, labeling, educational messaging and special promotions. In particular, if your programs include promotions at retail of ENERGY STAR certified LED bulbs, include our messaging in your in-store signing and other promotional materials.
- Leverage challenge-related educational materials provided by EPA for your use:
  - **Lighting Made Easy** fact sheet: This fact sheet is designed to help consumers navigate the increasingly complex light bulb purchase decision and to more easily identify the energy-efficient option that meets their needs. The fact sheet is also co-brandable.



# New ENERGY STAR Resources



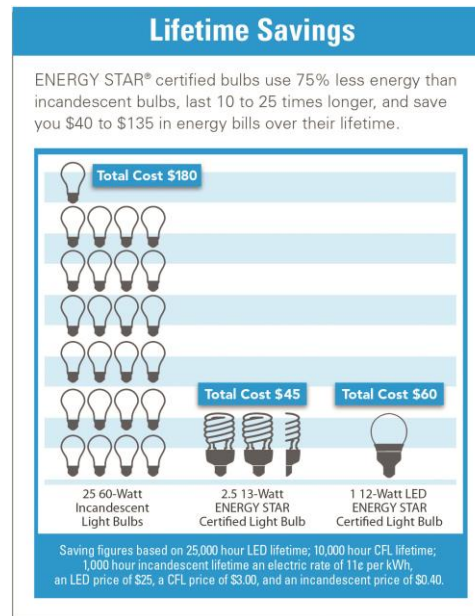
- **Lifetime Savings**

graphic: building block for custom designed materials or webpages

- Depicts dramatic savings offered by ENERGY STAR certified light bulbs

- **Lighting Facts Label**

graphic: helps customers understand the information conveyed in the FTC label



## Lighting Facts Label

All common light bulb packaging now carries a Lighting Facts label, required by the FTC, showing important lighting information. Bulbs that are ENERGY STAR® certified, will display the ENERGY STAR in the Lighting Facts label. **Other details listed include:**

- **Brightness:** Lumens measure the amount of light produced. Watts measure the amount of energy consumed. ENERGY STAR certified bulbs provide more lumens for fewer watts.
- **Estimated Yearly Energy Cost:** ENERGY STAR certified bulbs use less energy so cost less to operate than standard incandescent bulbs.
- **Life:** ENERGY STAR certified bulbs last 10 to 25 times longer than standard incandescent bulbs.
- **Light Appearance:** Warm is more yellow. Cool is more blue.
- **Energy Used:** ENERGY STAR certified bulbs always use fewer watts than standard bulbs.

### Lighting Facts Per Bulb

**Brightness** 870 lumens

**Estimated Yearly Energy Cost** \$1.57

Based on 3 hrs/day, 11¢/kWh  
Cost depends on rates and use

**Life** 5.5 years

Based on 3 hrs/day

**Light Appearance**

Warm ————— Cool

2700 K

**Energy Used** 13 watts

On the front of lighting packaging you'll also find a label that quickly shows bulb brightness in lumens alongside the bulb's estimated yearly energy cost. Your savings from ENERGY STAR certified bulbs can add up fast when you consider all the bulbs in your home.

|                          |  |
|--------------------------|--|
| Brightness<br>870 lumens | Estimated Energy Cost<br>\$1.57 per year |
|--------------------------|--|

# New ENERGY STAR Resources



- ENERGY STAR Lighting Website: [www.energystar.gov/lighting](http://www.energystar.gov/lighting)
- Additional partner resources available at [www.energystar.gov/lightingresources](http://www.energystar.gov/lightingresources)

The screenshot displays the ENERGY STAR Lighting website interface. At the top, there are navigation tabs for 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. A search bar and social media icons are also present.

The main content area features a 'Lighting' section with a 'ENERGY STAR LED Bulb Challenge' progress bar showing 2.4 million out of 20 million. Below this, there are statistics: 'Nearly 70% of light bulb sockets in the U.S. still contain inefficient light bulbs. EPA is challenging Americans to switch out the inefficient bulbs with 20 million ENERGY STAR certified LED light bulbs by Earth Day 2015.' It also lists benefits: 'Reduce emissions equivalent to those from 18,500 vehicles, every year', 'Reduce 200 million pounds of greenhouse gas emissions annually', and 'Save \$14.3 million in energy costs every year'.

There is a 'Get the Facts' section with an image of hands holding light bulbs and text: 'One small switch: Switching from traditional lighting to ENERGY STAR certified lighting is a smart move. With energy savings of 75% or more you can save about \$4 per bulb or about \$14 a house annually on your energy bill. The new light bulb standards only require bulbs to be 35% more efficient than leaves a lot of savings on the table.'

A 'How to Choose: The ABCs of Efficient Lighting' section includes a table with columns for 'Appearance', 'Brightness', and 'Cost'. Below the table, it provides guidance on choosing light fixtures and replacing bulbs.

On the right side, there are sections for 'Resources' (listing links like 'Get the Facts on the new light bulb legislation', 'Purchase checklist', etc.), 'Related Products' (Decorative Light Fixtures, Fans, Ceiling, etc.), and 'Related Sites' (Lumen.org, DOE Energy Savers).

At the bottom right, there is a 'Light Bulb Finder Mobile App' download link and a '20th Anniversary Retrospective' link.



# Check out our podcast!



“Illuminated,” our two-part podcast, is available at [www.energystar.gov/podcasts](http://www.energystar.gov/podcasts)



Taylor Jantz-Sell  
ENERGY STAR



Naomi Miller  
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Noah Horowitz  
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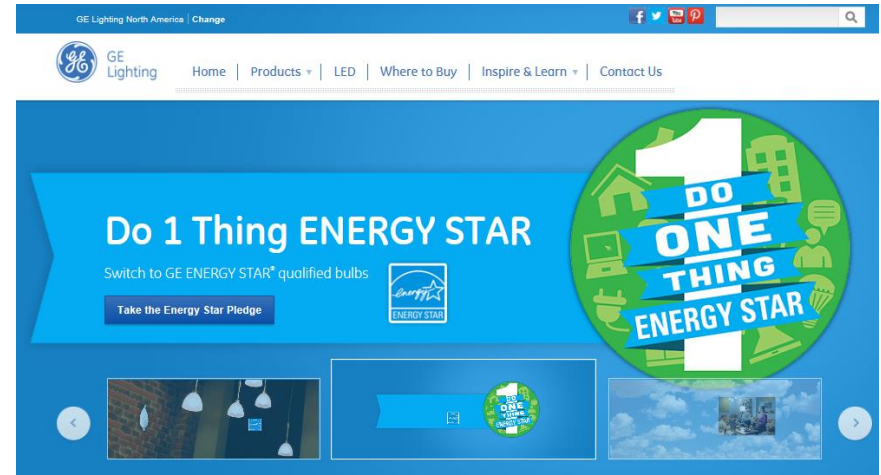


Mark Voykovic  
The Home Depot

# Partner Activity Examples



- Do One Thing ENERGY STAR banner with call to action to purchase ENERGY STAR certified light bulbs



- ENERGY STAR promotion at Atlanta Hawks' season opener, with coupon for ENERGY STAR certified LED bulb and Do One Thing ENERGY STAR t-shirts

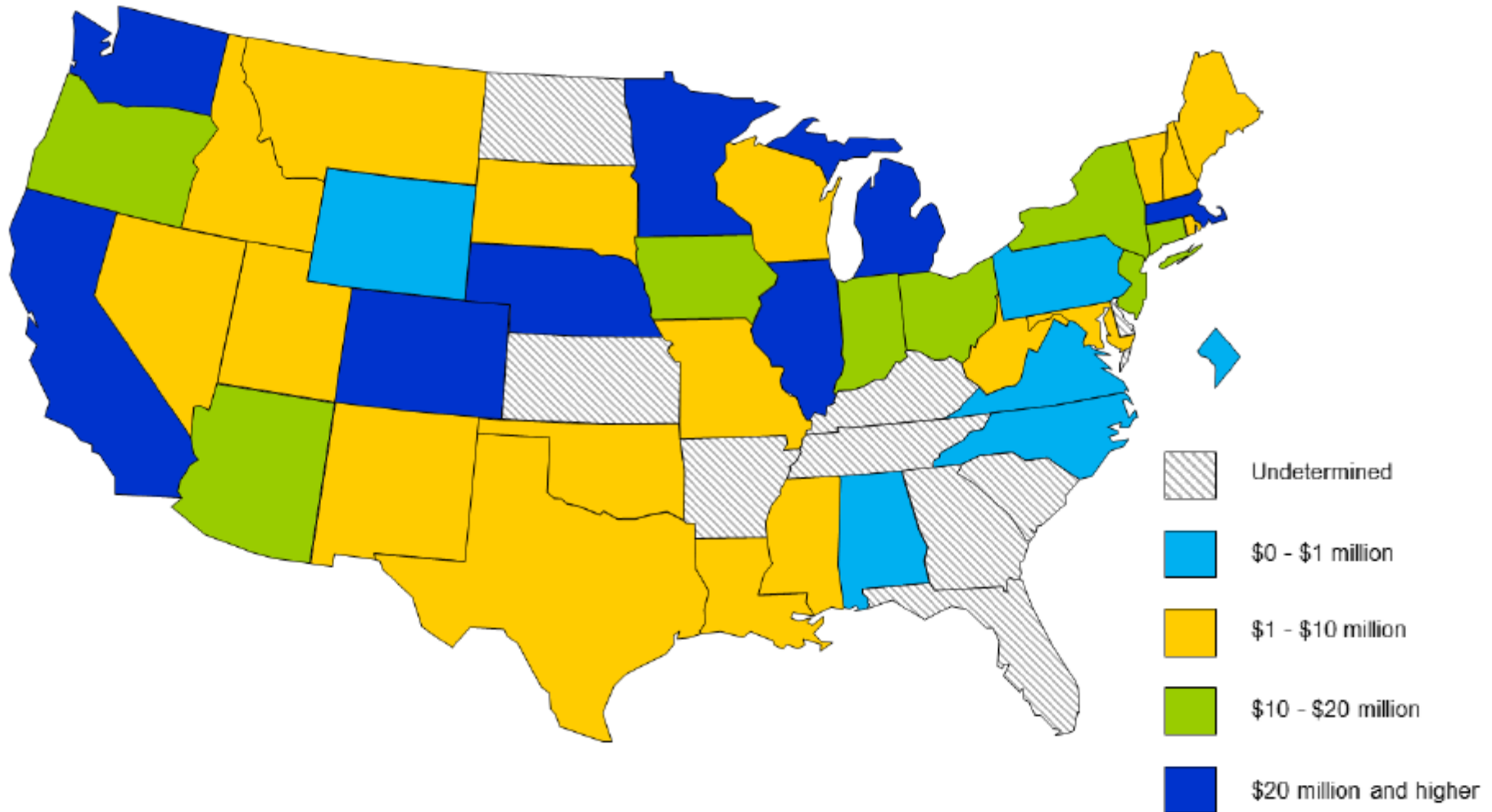




# Energy Efficiency Programs For Lighting

**\$470 million**

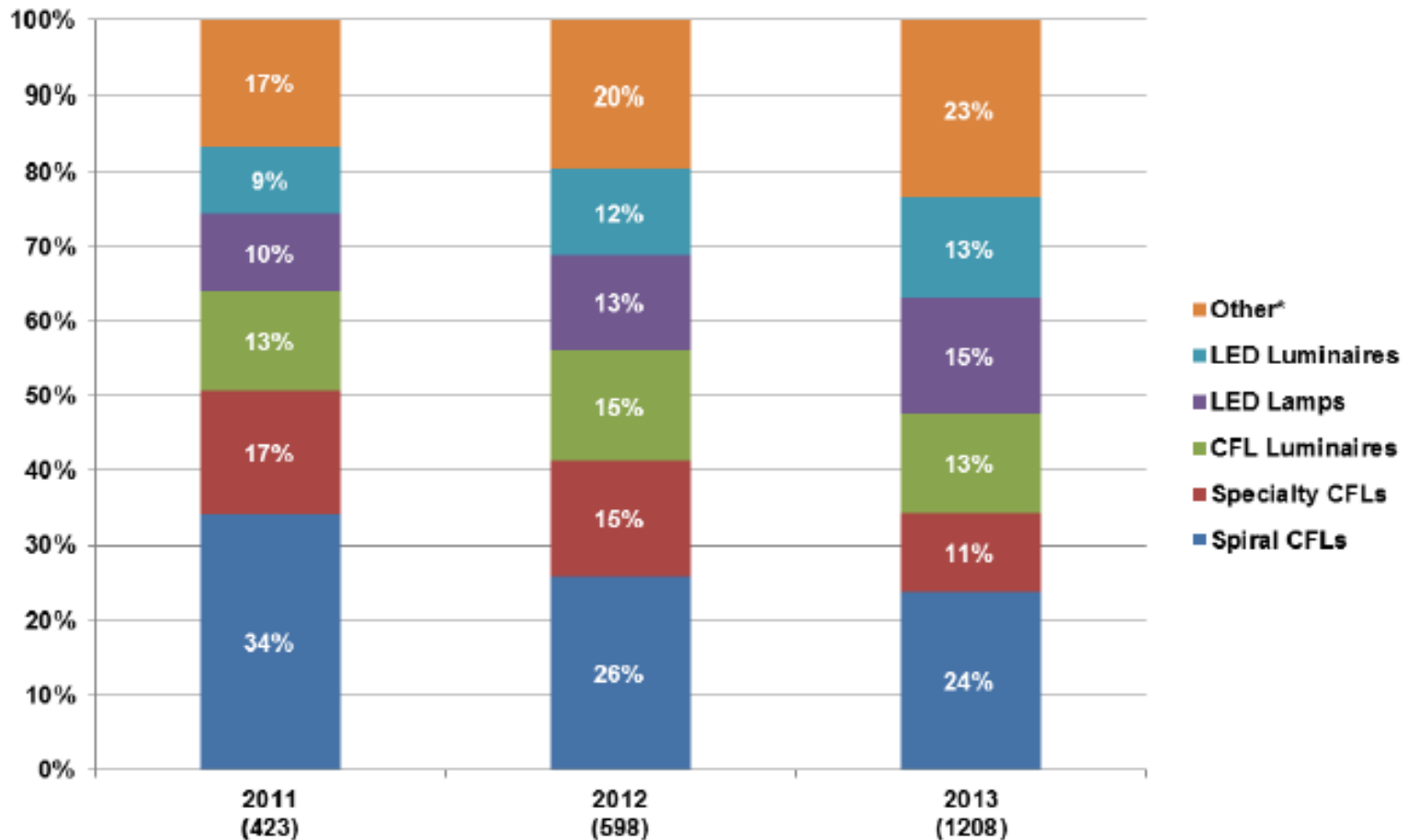
# Utility Promotions



# Utility Promotions: Product Types



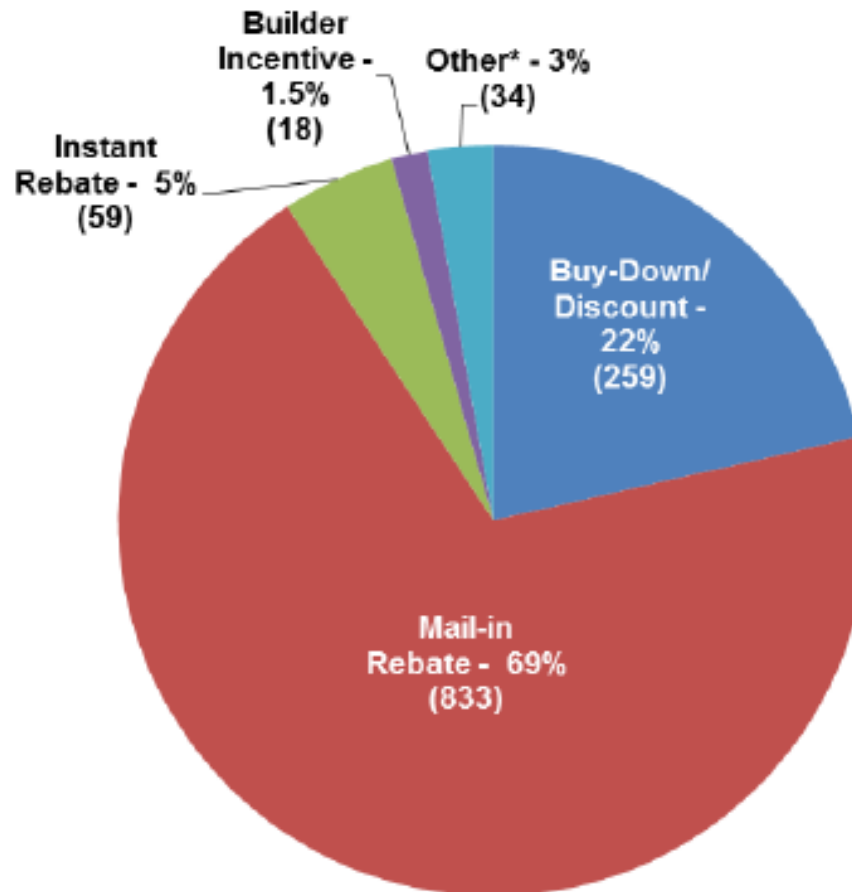
**ENERGY STAR and Energy-Efficient Lighting Promotions by Product Type 2011-2013**  
*(Annual totals listed in parentheses)*



# Utility Promotions: Incentive Type



2013 ENERGY STAR and Energy-Efficient Lighting Promotions by Incentive Type  
(Totals listed in parentheses)



# What's Next



- Advanced Lighting Certification Webinar @ 2:30pm
- Send us your ENERGY STAR LED promotions!
- Ensure a smooth transition with new Lamps specification and monitor implementation
- Monitor development of new industry standards & relevant trends e.g. LM-84, TM-28, “intelligent” lamps etc
- Lighting Road Mapping Session with NEMA: January 30, 2014 NEMA HQ
  - Build on more than 15 years of partnership and promotion of energy efficient lighting
  - Develop strategies for keeping all stakeholders engaged throughout the year
  - Discuss stakeholder and program goals for the next 3-5 years

# Thank You!

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[www.energystar.gov/lightingresources](http://www.energystar.gov/lightingresources)