ENERGY STAR® Lighting Update

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

• 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%.

Estimate Annual Utility Bill, Typical House

<table>
<thead>
<tr>
<th>Category</th>
<th>Estimated Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td>$601</td>
</tr>
<tr>
<td>Cooling</td>
<td>$275</td>
</tr>
<tr>
<td>Water Heating</td>
<td>$362</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>$259</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>$250</td>
</tr>
<tr>
<td>Clothes Washers</td>
<td>$30</td>
</tr>
<tr>
<td>Clothes Dryers</td>
<td>$96</td>
</tr>
<tr>
<td>Computer</td>
<td>$12</td>
</tr>
<tr>
<td>TV</td>
<td>$90</td>
</tr>
<tr>
<td>VCR</td>
<td>$8</td>
</tr>
<tr>
<td>Lights</td>
<td>$27</td>
</tr>
<tr>
<td>Other</td>
<td>$8</td>
</tr>
</tbody>
</table>

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.

Source: U.S. Energy Information Administration, Annual Energy Outlook 2013
Number of Certified Lighting Products

- 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

# of Certified Models

- R (n = 70)
- Candle (n = 99)
- Globe (n = 95)
- A (n = 218)
- BR (n = 135)
- PAR20 (n = 175)
- Non - Standard (n = 459)
- MR (n = 313)
- PAR30 (n = 455)
- PAR38 (n = 899)
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

- Omni: 85%
- Directional: 11%
- Decorative: 4%
- Nonstandard LED: <1%
LED Bulb Shipments

ENERGY STAR Certified LED Bulb Shipments by Type

- **Omnidirectional**
- **Directional**
- **Decorative**
- **Nonstandard**

Millions

- **2011**
- **2012**
Fixture Shipments

Luminaires Shipped by Type in 2012

- Solid State Lighting Indoor Fixtures: 47%
- Non-Solid State Lighting Indoor Fixtures: 39%
- Solid State Lighting Outdoor Fixtures: 10%
- Non-Solid State Lighting Outdoor Fixtures: 4%
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

<table>
<thead>
<tr>
<th>A-Type Lamps</th>
<th>LED Installed Base Units millions</th>
<th>Total Energy Consumption Source– tBtu (Site – TWh)</th>
<th>LED Energy Savings Source– tBtu (Site – TWh)</th>
<th>Potential LED Energy Savings Source– tBtu (Site – TWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>19.9</td>
<td>1,057 (101.8)</td>
<td>21.9 (2.1)</td>
<td>822 (79.1)</td>
</tr>
</tbody>
</table>

- 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
ENERGY STAR Lighting Specification Update
Lighting Specification Integration
Now Complete

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

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)

- Compact Fluorescent Lamps V4.3
- Integral LED Lamps V1.4
- Residential Light Fixtures V4.2
- Solid State Lighting Luminaires V1.3
Luminaires V1.2

• 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
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\textsuperscript{th} 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
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

EARTH DAY 2013

EARTH DAY 2014
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
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

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**Lifetime Savings**

ENERGY STAR® certified bulbs use 75% less energy than incandescent bulbs, last 10 to 25 times longer, and save you $40 to $135 in energy bills over their lifetime.

**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 usage)
- **Life:** 5.5 years (Based on 3 hrs/day)
- **Light Appearance:**
  - Warm
  - Cool
- **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.
New ENERGY STAR Resources

• ENERGY STAR Lighting Website: www.energystar.gov/lighting

• Additional partner resources available at www.energystar.gov/lightingresources
Check out our podcast!

“Illuminated,” our two-part podcast, is available at

[www.energystar.gov/podcasts](http://www.energystar.gov/podcasts)
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: Product Types

ENERGY STAR and Energy-Efficient Lighting Promotions by Product Type 2011-2013

(Annual totals listed in parentheses)

<table>
<thead>
<tr>
<th>Product Type</th>
<th>2011 (423)</th>
<th>2012 (598)</th>
<th>2013 (1208)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>17%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>LED Luminaires</td>
<td>9%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>LED Lamps</td>
<td>10%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>CFL Luminaires</td>
<td>13%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Specialty CFLs</td>
<td>17%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Spiral CFLs</td>
<td>34%</td>
<td>26%</td>
<td>24%</td>
</tr>
</tbody>
</table>
Utility Promotions: Incentive Type

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

- Mail-in Rebate - 69% (833)
- Buy-Down/Discount - 22% (259)
- Builder Incentive - 1.5% (18)
- Instant Rebate - 5% (59)
- Other* - 3% (34)

* Other includes programs not tracked at the state level.
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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