



# Residential Lighting Breakout Session

Overview of the CFL Market, Barriers, and Existing Resources

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# Residential Lighting Overview

- ▶ ENERGY STAR specs and education
  - CFLs (Call on April 17<sup>th</sup>)
  - Fluorescent Fixtures (Webinar on June 24<sup>th</sup>)
  - SSL Products (Call on June 11<sup>th</sup>)
- ▶ Lighting for Tomorrow competition
- ▶ Lighting Vision: 50% reduction in lighting energy use by 2020
- ▶ FTC Lamp Labeling

# CFL Market

- ▶ Residential sector has only 11% CFL saturation
- ▶ 30% of households still own no CFLs
- ▶ 64% of households that own CFLs have five or fewer

[http://www.energystar.gov/ia/products/downloads/CFL\\_Market\\_Profile.pdf](http://www.energystar.gov/ia/products/downloads/CFL_Market_Profile.pdf)

# Remaining Market Barriers

- ▶ High cost
- ▶ Disposal concerns
- ▶ Lack of availability for all applications
- ▶ **Perception of poor quality**

# Perception of Poor Quality

- ▶ Limitations of the technology
- ▶ Consumer expectations
  - Light quality
    - Color temperature, CRI
  - Performance
    - Run-up time, frequent switching, lifetime
  - Compatible applications
    - Dimming sockets, recessed cans
  - Safety/Disposal

# Existing Resources

## ▼ Technical Improvements

- ENERGY STAR CFL Criteria
- Other Specifications

## ▼ Better Consumer Education

- ENERGY STAR Choose A Light Guide
- FTC Lamp Labeling
- Efficiency program marketing

# ENERGY STAR CFL Criteria

- ▶ Version 4.0 - effective December 2, 2008 (grace period until July 1, 2009)
- ▶ Medium screw based and candelabra based products
- ▶ CCT: 2700K, 3000K, 3500K, 4100K, 5000K, or 6500K
- ▶ CRI: 80
- ▶ Run-up time
  - Bare lamps  $\leq$  1 minute
  - Covered lamps  $\leq$  3 minutes
- ▶ PF: greater than 0.5
- ▶ Mercury
  - Lamps less than 25 watts:  $\leq$  5 mg per lamp
  - Lamps 25 to 40 watts:  $\leq$  6 mg per lamp
- ▶ Independent ENERGY STAR CFL Third Party Testing and Verification Program

# ENERGY STAR CFL Criteria

▶ Committee call on April 17, 2009

▶ Topics of interest:

- **Lifetime / Early Failures**
- **Dimming**
- **Start Time**
- CCT
- CRI
- Flicker
- Mercury
- Efficacy
- High Heat Testing
- Including Other Technologies (Cold Cathode)
- Power Factor
- Outdoor locations

# Consumer Education

- ▶ How to choose the right bulb for a specific fixture type
- ▶ How much light is needed
- ▶ What color of light looks best
- ▶ How to dispose of the lamp

# ENERGY STAR Choose A Light Guide



## The ENERGY STAR Choose A Light Guide



## Create Your Mood!

ON	OFF	OFF	
Soft White WARMER	Bright White NEUTRAL	Daylight COOLER	Dimmer WARM

## Choose a Light

Every time you are using an ENERGY STAR qualified product you are saving energy, money, and greenhouse gas emissions.

ENERGY STAR is a joint program of the U.S. Department of Energy and the U.S. Environmental Protection Agency helping us all save money and protect the environment through energy efficient products and practices.

Spiral	A-Shape	Globe	Tubed	Candle	Indoor	Outdoor	3-Way	Dimmable



## To have the best experience possible, keep the following tips in mind:

- Read the packaging to see where each bulb should be used.
- Not all ENERGY STAR qualified CFLs are designed to work in every socket.

## How to Choose the right ENERGY STAR® Qualified Bulbs

	SPIRAL	COVERED A-SHAPE	GLOBE	TUBED	CANDLE	INDOOR REFLECTOR	OUTDOOR REFLECTOR
TABLE/FLOOR LAMPS							
PENDANT FIXTURES							
CEILING FIXTURES							
CEILING FANS							
WALL SCONCES							
RECESSED CANS							
TRACK LIGHTING							
OUTDOOR COVERED							
OUTDOOR FLOOD							

### AVOID EARLY BURNOUT:

- Only bulbs marked "dimmable" or "three-way" will work on dimmers or three-way switches.
- Most photocells and timers are not designed to work with CFLs.
- For recessed cans only choose bulbs marked "Indoor Reflector" or "For Indoor Use."



## How Much Light Do I Need?

Incandescent Bulbs (watts)	Minimum Light Output (lumens)	Common ENERGY STAR Qualified Light Bulbs (watts)
40	450	9 to 13
60	800	13 to 15
75	1,100	18 to 25
100	1,600	23 to 30
150	2,600	30 to 52


## Choosing the Right Color

<b>Warm White, Soft White</b> The standard color of incandescent bulbs.	<b>Cool White, Bright White</b> Good for kitchens and work spaces.	<b>Natural or Daylight</b> Good for reading.
2700K	3000K	3500K
		4100K
		5000K
		6500K

# FTC Lamp Labeling

## ABC LIGHT BULB

One Bulb
Medium Screw



Brightness

820

lumens

Color Temperature

Cool

Warm

↓

Energy Efficiency

14

lumens/watt

Life

1.4

Years  
(based on 3hr/day)

Front

### Lighting Facts

Per Bulb

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<b>Brightness</b>	<b>820 lumens</b>
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**Comparing Lumens?** (typical equivalence)

800 lumens = 60 watt incandescent bulb

1110 lumens = 75 watt incandescent bulb

1600 lumens = 100 watt incandescent bulb

<b>Yearly Energy Costs</b>	<b>\$7.10</b>
(based on 3hrs/day and 10.8 ¢/kWh)	
(your actual cost will depend on your rates and use)	
<b>Color Temperature</b>	<b>2700 K</b>
<b>Life in years</b>	<b>1.4 yrs</b>
(based on 3 hrs/day)	
<b>Life in hours</b>	<b>1,500 hrs</b>
<b>Voltage</b>	<b>120 volts</b>
<b>Energy Use</b>	<b>60 Watts</b>
<b>Energy Efficiency</b>	<b>14 lumens/ watt</b>
(luminous efficacy)	

Back



# Questions for Today

- ▶ How does your program ensure that consumers purchase a good quality CFL that will meet their needs?
- ▶ What other tools and resources could be developed to support your efforts?
  - Technical enhancements through a spec?
  - More robust consumer education?
  - Other?
- ▶ Of these, which is more effective and should be pursued first?

# All Things Lighting

- ▶ Canada mandatory product labeling for CFLs went into effect on June 1, 2009
- ▶ Maine first to adopt law requiring CFL recycling
- ▶ Other updates?

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