

# CEE – Next Generation Lighting

## Trends affecting Light Sources

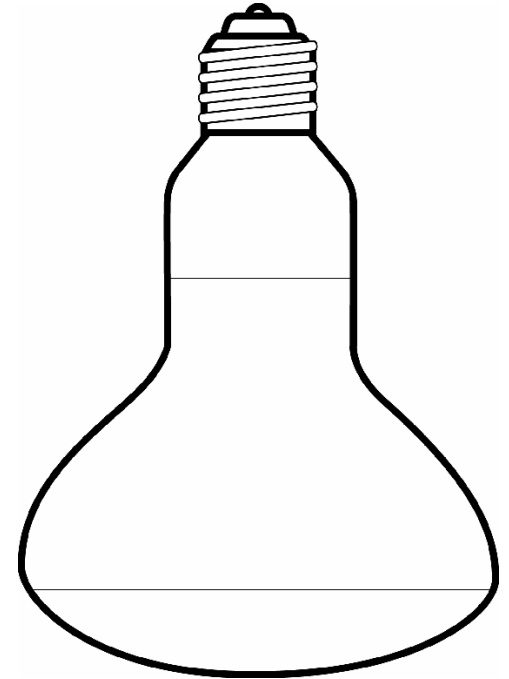
## Joe Howley & Lisa McLeer



imagination at work

# Energy Efficiency Legislation Residential Impact

- 1) Incandescent Lamps
- 2) Incandescent Reflector Lamps
- 3) T12 Fluorescent Lamps and Ballasts



# Incandescent A-line Regulations

## Incandescent Lamps

100W	➔	72W	1/1/2012
75W	➔	53W	1/1/2013
60W	➔	43W	1/1/2014
40W	➔	29W	1/1/2014



- Requirements for reduced wattage with similar lumen output and 1000 hours minimum life
- Decorative and Specialty Lamps generally exempted

# Energy Efficiency Legislation Residential Impact

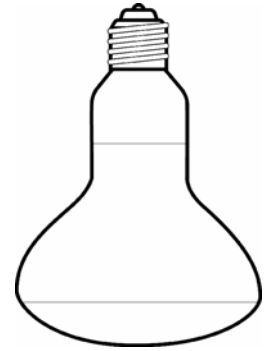
Between 2012 and 2014

40W, 60W, 75W, and 100W incandescent  
light bulbs to be replaced with:

- a) Halogen or Halogen-IR Light Bulbs
- b) Compact Fluorescent
- c) Possibly LED??



# Incandescent Reflector Lamp Regulations



The 2007 bill requires all R20, R30, R40, BR30, BR40, ER30, ER40, PAR20, PAR30, PAR38 and BPAR lamps to meet halogen efficiency levels except:

- Lamps rated at 50W or less that are BR30, BR40, ER30, or ER40
- Lamps rated at 65W that are BR30, BR40 or ER40
- R20 lamps rated at 45W or less
- Specialty products exempted including Colored, Rough/Vibration Service, Shatter Resistant, & Infrared

# **PROPOSED 2009 Federal Energy Bill**

**HR 2454 (Passed the House)**

**American Clean Energy and Security Act**

## **Reflector Lamp Language:**

- **Within 12 months after passage, DOE will develop standards for exempted Reflector lamps effective July 1<sup>st</sup>, 2013**
- **By January 1<sup>st</sup>, 2015, DOE will develop new standards for all reflector lamps effective 2018**

***Other Provisions in 2009 Bill under discussion***

# 2009 DOE Rulemaking

## Sets new Federal Efficiency Levels on:

- 4', 8', 8' HO and U-Bend Fluorescent Lamps
  - Includes T12, T8 and T5 lamps
- Halogen PAR38, PAR30 & PAR20 Lamps

## Provides Several Exemptions

Standards to be effective 3 years after publication in Federal Register.

- July 14, 2012

# 2012 Standard – Halogen PAR Lamps Effect of Standard

## PAR38 and PAR30

- All standard Halogen PAR lamps eliminated
- Halogen-IR lamps near standard limits
- Halogen-IR+ pass

## PAR20

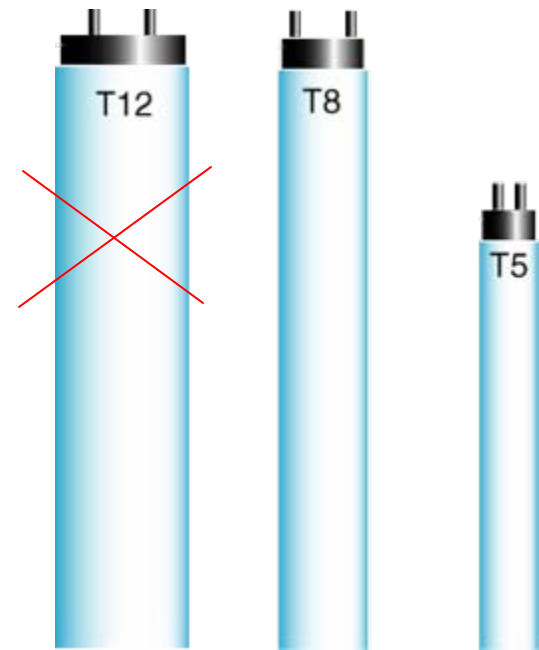
- All standard Halogen PAR 20 lamps eliminated
- Redesign required



# 2012 DOE Standard – Linear Fluorescent Effect of Standard on 4' and U-Bend

## 4' T12 and U-Bend T12 Lamps:

All standard 4' T12 lamps  
and U-bend T12 lamps are  
eliminated by the regulation  
in 2012.



# 2012 Standard – Linear Fluorescent Lamps

## Exemptions





- **Plant Growth**
- **Cold Temperature (F96T12/CW/HO/CT)**
- **Colored**
- **Impact-Resistant (Cov-R-Guard)**
- **Reflector or Aperture**
- **Reprographic**
- **Ultraviolet (Black Light & Germicidal)**
- **High CRI – 87 or greater**

# Energy Efficiency Legislation

## Commercial Impact

- 1) **Mercury Vapor Ballasts – All Fixtures**
  - **Eliminated Jan. 1, 2008**
  
- 2) **Metal Halide Ballasts in New Fixtures**
  - **Pulse Start or Electronic, Jan. 1<sup>st</sup>, 2009**
  
- 3) **T12 Fluorescent Lamps and Ballasts**
  - **Electromagnetic Ballasts eliminated June 30<sup>th</sup>, 2010**
  - **T12 Lamps eliminated July 14<sup>th</sup>, 2012.**
  
- 4) **Standards for Outdoor Lighting Fixtures**
  - **2009 Energy Bill – Under Discussion**

# Consumer Lighting Socket Penetration

		Today	2012	Trends	Comments
<b>General Purpose</b> 	Incandescent				-Current 2012 US Legislation
	Halogen				-Post Leg Inc alternative
	CFL				-Continued penetration
	LFL			-	-Shift to T8
	LED				-1 <sup>st</sup> true replacement lamp
<b>Decorative</b> 	Incandescent				- Non regulated socket (<60W)
	Halogen				- High retails prohibitive
	CFL				- Specialty growth / improved shapes
	LED				- Good technology fit
<b>Track &amp; Recessed</b> 	Incandescent				- Low Watt solutions only
	Halogen			-	- Pending PAR Legislation
	CFL				- Improved shape / performance
	LED				- Lumen / Performance gains
<b>Outdoor</b> 	Incandescent				- Shift to CFL and LEDs
	Halogen				- Shift to CFL and LEDs
	CFL				- Improved shape / performance
	LED				- Perfect fit for LEDs

# The Future can seem Pretty Intimidating

## Increasing Population

- From 6.5B to 9.1B by 2050

## Increasing Urbanization

- Third world countries growing

## Increasing Water Scarcity

- 3B+ people without water by 2025, currently 1 in 5 people do not have access to clean drinking water

## Increasing Consumption

- Oil demand up by 50% by 2030

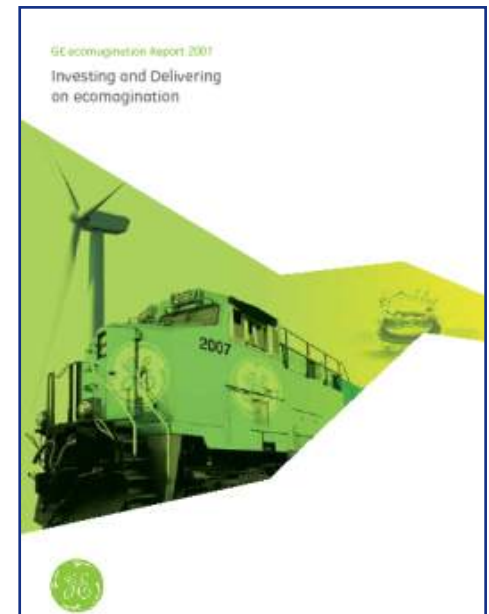
## Increasing Climate Volatility, Global Warming



# ecomagination<sup>SM</sup>

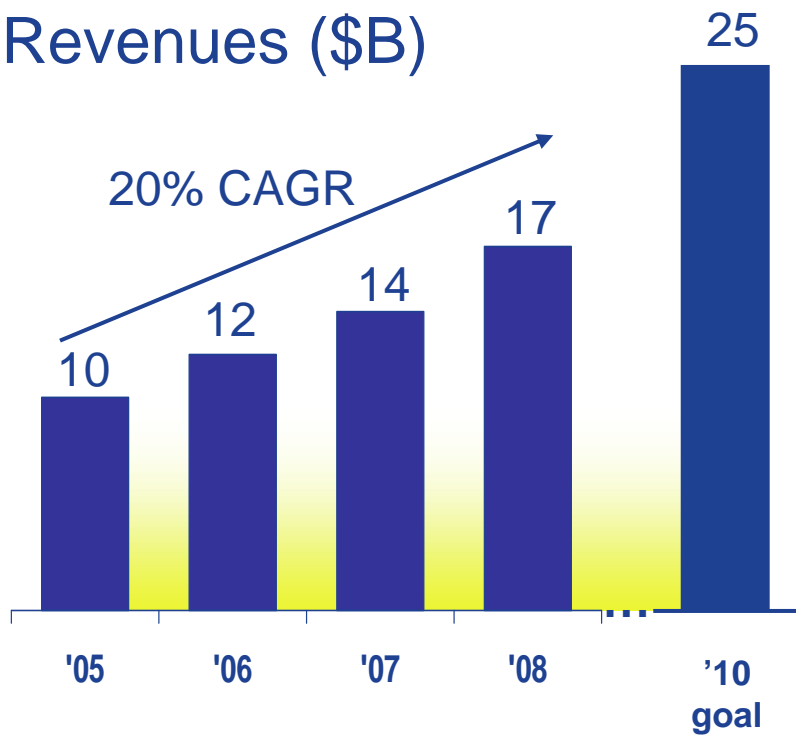
A business strategy driving innovation & growth of profitable environmental solutions

1. Grow revenues to **\$25B**
  2. Double R&D to **\$1.5B**
  3. Reduce **GHG 1% absolute**
  4. Reduce **water 20% absolute**
  5. Inform & Engage public...  
**Transparency & Leadership**
- by 2010
- by 2012
- ongoing



# Innovative technologies...now

Revenues (\$B)



- 80 certified products
- 15 Consumer & Industrial products
- 8 Lighting products

Products of ecomagination<sup>SM</sup> must significantly and measurably improve customers operational & environmental performance

## Energy Infrastructure: \$10.5B



## Technology Infrastructure: \$5.1B



## Consumer & Industrial: \$1.9B



# The ecomagination<sup>SM</sup> Homebuilder Program

GE Corporate initiative

Collaboration with Masco and the Environments for Living<sup>®</sup> program and GE lighting, appliances and security

Whole-home solution that benefits the environment by lowering overall household energy consumption:

- 20% less energy use
- 20% less indoor water use
- 20% fewer emissions

Over 20 developers/builders have committed to the program. A few of the markets are:

- Houston, Texas
- Myrtle Beach, South Carolina
- Santa Fe, New Mexico
- Richmond, Virginia
- Calgary, AB, Canada
- New Brunswick, Canada



# Consumers today

**The economy is driving consumers to make trade offs or buy less.**

**“Don’t eat it, don’t need it” – non edibles top the list of fastest unit declines.**

**All lighting categories have declined in the last 12 months.**

**The market is not transformed, as CFLs (in units) are still the minority of lighting purchases.**

**Legislation will drive change, but if the industry wants consumers to switch faster to energy efficient products, it will be critical to continue to bridge the retail gap between incandescent and CFL.**

**Manufacturers continue to develop energy efficient products that have incandescent-like features.**

**Consumer awareness and education will be needed more than ever, as their lighting choices continue to change.**

# “What’s Your Lighting Style?”



## Program Highlights

### In-store communication

- High impact promotional displays
- Shelf-edge signs, headers and banners

### National FSIs

### On-line Coupons

### GE.com Web Site

- Design Tool enhancements
- Introducing 2 New Lighting Styles
  - EcoChic / Peaceful
  - Open Arms / Welcoming

### National Media Plan

- Print
- Radio
- Media Tours and Plant-a-Bulb

### Social Media

- Online including Facebook and Twitter

