IES Public Policy and Lighting Regulations Update

Charlotte Section Spring Conference

March 8, 2011

Bob Horner, Public Policy Director, IES

Agenda

1. **Introduction**
   a. IES Public Policy job details
   b. Public Policy Activities and Strategy

2. **Definitions** related to public policy

3. **Lighting Products**: Federal Regulations and Legislation

4. **Buildings:** Current Legislation Affecting Building Energy Efficiency

A New IES Staff Position….

New IES position

- Started May 1, 2010
- Full time position – Home Office in Boston area
- Reports to Bill Hanley
- Work closely with Rita Harrold
- Spend one week+ per month in Washington, DC
- Contact information listed on IES Website under “Staff”

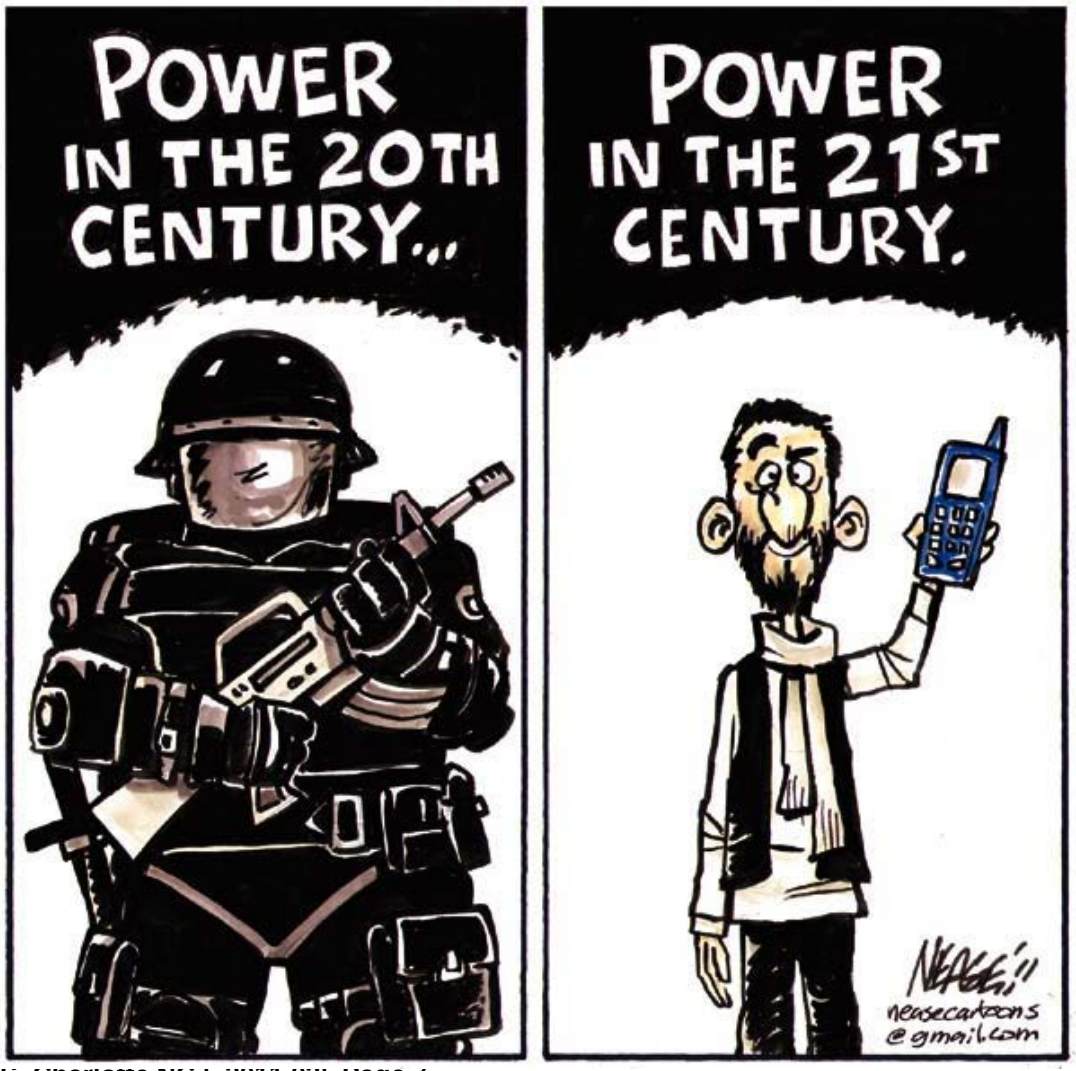
Job Description

1. Plan, develop and coordinate the North American public policy interests of the IES.
2. Work with the staff, the IES Board of Directors, and other appropriate individuals and committees to identify and establish priorities.
3. Develop a current situation analysis of North American energy policies and their impact upon the lighting industry.
4. Advise membership and leadership of the IES on policy initiatives and pending legislative and final regulatory actions at the federal and state levels through articles, reports, and oral briefings.
5. Represent the IES as appropriate at industry events and conferences and identify opportunities for collaboration with other organizations on issues of mutual interest.
6. Be cognizant of appropriate North American issues as well as, in general, international issues.

IES Public Policy Strategy

- “Position IES as an advocate for quality lighting among the public”
- “Position IES as an advocate for quality lighting among Governmental entities”
- Position IES as the “Lighting Authority” for all legislative and regulatory activity
- Establish active, working relationships with other industry organizations
- Focus on Buildings, not Products
- Advocate to (and educate) the federal government regarding new measures of energy efficiency that promote good lighting design and/or application

More Social Media Activity



What's Bob been doing?

- Monthly meetings in Washington, DC
- Reporting activities to the IES Board and membership
- Developing a strategic plan to address the issue of Lighting Quality
- Developing relationships with industry organizations and government departments
  - ASHRAE, AIA, USGBC, NIBS, IDA, ASE, NEMA, EFC, HPBCCC, BOMA, ACEEE
  - DOE, GSA, HUD, FTC
- Appointed Co-Chairman, Lighting Working Group, Zero Energy CBC
  - Effort to have "Zero Energy Buildings" for new construction by 2030 and for all existing buildings by 2050
- Elected to Executive Committee of the HPBCCC
- Joined Consultative Council of NIBS
- Writing a bi-monthly column for LD + A
- Developed a web page for Public Policy issues
- Giving presentations to IES Sections

Who does what?

Mainly two staff members working on “industry issues”

- ❑ Rita Harrold – Codes and Standards
  - ANSI/ASHRAE/IES Standard 90.1, Standard 90.2, Standard 100
  - ANSI/ASHRAE/IES/USGBC Standard 189.1 – *Standard for the Design of High Performance, Green Buildings Except Low-Rise Residential Buildings*
  - Liaison with the ICC (International Code Council) – IECC and IGCC. See www.iccsafe.org for more info.
  - Committee that produces the AEDGs
  - Steering Committee of the DOE CBEA
  - Lots of other things!

- ❑ Bob Horner – see job description

Basically, Rita works to develop the codes and standards; Bob handles how the codes and standards are included in legislation and regulations

Legislation …

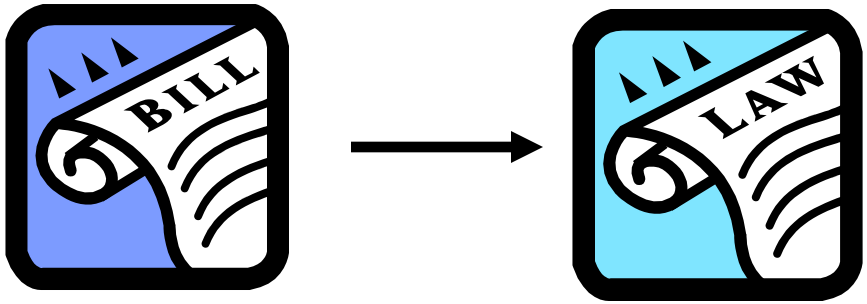
Regulation …

Rule Making …

Legislation

Legislation is law enacted by a legislative body, such as the U.S. Congress or a state legislature

Enabling legislation is legislation that gives appropriate officials, such as the U.S. Department of Energy (DOE) or a state energy or environmental department the authority to implement or enforce the law



Regulations

Regulations are rules or orders that have the force of law that originate from the executive branch (usually from an agency), and deal with the specifics of a program.

Congress, for example, may instruct US EPA to reduce automotive emissions by 5%, but the EPA must develop regulations to reach this goal.

For lighting, the US DOE is the primary federal agency that issues energy-related regulations.

Rulemaking

Rulemaking refers to the **process** that government agencies use to create, or enact, **regulations**

Some rulemakings are specified in law to occur at particular intervals and are ongoing; an example is the series of DOE rulemakings specified in EISA 2007 for general service incandescent lamps

There are several stages of notification for a federal rulemaking, all of which are published in the Federal Register (FR)

The **Final Rule** is – of course – the most important

– For lighting, the effective date of the final rule is usually 3 years after publication in the Federal Register

Appliance Standards

For nearly two decades, certain lamps and ballasts have been classified as “appliances” and are subject to energy efficiency regulations

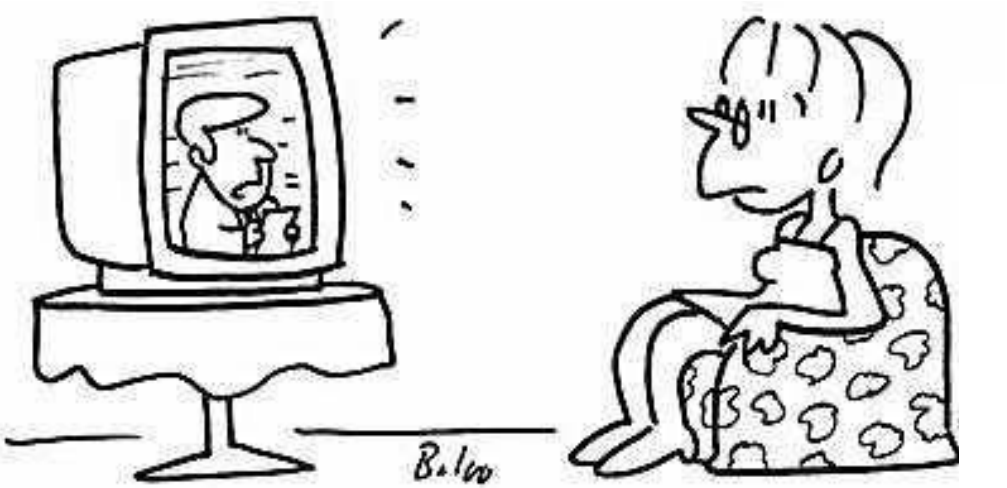
Typically minimum performance standards are set, using efficacy or efficiency measures

- LPW for lamps
- BEF or efficiency for ballasts

Products that don’t meet these standards cannot be manufactured or imported for use in the US by a certain date; product made prior to that date and already on the shelf or in the warehouse does not have to be cleared out

Occasionally a product is banned outright, but this is rare

Federal Regulations and Legislation



"The Federal Government today authorized a ten-year study of all its five-year studies."

Comprehensive Overview of Legislation and Regulations Affecting Lighting Products

GENERAL SERVICE INCANDESCENT LAMPS

General Service Incandescent Lamps

What law sets standards for GS incandescent lamps?

– The Energy Independence and Security Act (EISA) 2007

Which lamps <u>are</u> GS incandescent?

– Medium screw base line voltage incandescent and halogen lamps intended for general use, from 310 through 2600 lumens
  - Medium screw base A-shapes
  - Medium screw base G-shapes ≤ 5 inches and >40 watts
  - Medium screw base F, B, BA, S, and CA shapes >40 watts

What lamps <u>are not</u> GS incandescent?

– Reflector lamps

– Low voltage lamps

– Colored lamps and special use lamps (e.g., bug, blacklight, appliance, 3-way, rough and vibration service)

– Most décor lamps, however…
  - Intermediate base lamps will be 40 watts max, and Candelabra base lamps will be 60 watts max

The Rules

General Service Incandescent, SW, IF & Clear

Rated Lumen Ranges*	Approx. Wattage Today	New Max. Rated Wattage	New Min. Rated Lifetime	Effective Date in the US	Effective Date California
1490-2600	**100**	**72**	1,000 hours	**1/1/2012**	1/1/2011
1050-1489	**75**	**53**	1,000 hours	**1/1/2013**	1/1/2012
750-1049	**60**	**43**	1,000 hours	**1/1/2014**	1/1/2013
310-749	**40**	**29**	1,000 hours	**1/1/2014**	1/1/2013

Minimum of 80 CRI

Replacement options for standard incandescent include **halogen, CFL and LED**

Remember – the standards do not apply to CFL and LED – only to filament lamps

* **To find minimum LPW**, divide lowest lumens in the range by the max allowable wattage. e.g., 1490/72 = 20.7 LPW. Today's common 100W is about 17 LPW.

The Rules

General Service Incandescent, Modified Spectrum

Rated Lumen Ranges*	Approx. Wattage Today	New Max. Rated Wattage	New Min. Rated Lifetime	Effective Date in the US	Effective Date California
1118-1950	**100**	**72**	1,000 hours	**1/1/2012**	1/1/2011
788-1117	**75**	**53**	1,000 hours	**1/1/2013**	1/1/2012
563-787	**60**	**43**	1,000 hours	**1/1/2014**	1/1/2013
232-562	**40**	**29**	1,000 hours	**1/1/2014**	1/1/2013

Modified spectrum goes by different brand names

Minimum of 75 CRI

Replacement options include halogen, CFL, and LED

These standards are about 25% less strict than for standard spectrum lamps

REFLECTOR LAMPS

Incandescent Reflector Lamps (IRL)

What is an IRL?

- A medium screw base line voltage incandescent or halogen reflector lamp from 40W through 205W with a diameter >2.25 inches. Shapes **include PAR, BR, ER, R, K, and blown PAR.** Rough Service and colored lamps are not included.

Who regulates IRL in the US?

- The US Department of Energy (DOE) through the rulemaking process – the most recent rule was issued in 2009 and primarily covers PAR lamps

What law currently governs ER, BR, and R20 Lamps?

- The Energy Independence and Security Act (EISA) exempts certain types
- Non-exempt types must meet the old 1992 standards or they are not allowed

When are the new standards for PAR lamps effective?

- July 14, 2012

The Rules

New IRL Standards Effective July 14, 2012

Lamp Wattage	Lamp Type	Diameter	Voltage	LPW: Determined by Formulas
40W-205W	Standard Spectrum	> 2.5 inches **(PAR30, PAR38, BR30 & ER30, BR40 & ER40)**	≥ 125 **(130V)**	**6.8 X lamp watts$^{0.27}$**
			< 125 **(120V)**	**5.9 X lamp watts$^{0.27}$**
		>2.25 inches & ≤ 2.5 inches **(R20 & PAR20)**	≥ 125 **(130V)**	**5.7 X lamp watts$^{0.27}$**
			< 125 **(120V)**	**5.0 X lamp watts$^{0.27}$**
	Modified Spectrum	**Standards are approx. 17% less stringent than for Standard Spectrum Lamps.**		

Exemptions to IRL Standards:

Lamps that are 50W or less: ER30, BR30, BR40, and ER40
Lamps that are 65W exactly: BR30, BR40, and ER40
Lamps that are 45W or less: R20

Exemptions should remain intact until 2014. Exact date unknown at this time.

Example: 60W 120V PAR 38: new minimum is **17.8 LPW**. The 1992 min. was **11 LPW**; a standard halogen PAR is **14.2 LPW** and IR version is **18.5 LPW.**

Implications for Design
IRL Products

- All of today's standard PAR halogen lamps will be eliminated
- All130V PAR halogen lamps will be eliminated
- Only a few of today's halogen reflector lamps, e.g. PAR20, PAR30 and PAR38, can meet the standards in the new IRL Rule – mainly infrared (IR) capsule type.
- In order to meet the new standards, filament reflector lamps will need to use the newest technologies such as advanced IR coatings, optimized reflector coatings, and special gases
- These lamps are more expensive than standard types

Update: ER/BR/R20 Incandescent Lamps

- Current law (EISA 2007) exempts certain ER/BR/R20 incandescent lamps from regulation:
  - Lamps that are 50W or less: ER30, BR30, BR40, and ER40
  - Lamps that are 65W exactly: BR30, BR40, and ER40
  - Lamps that are 45W or less: R20
- DOE has *determined* that these lamps come under their regulatory authority
- **Two possible outcomes** of this rulemaking are:
  - Exempted lamps will be removed from the market altogether because they will be held to the same efficacy standards as those set for PAR halogen lamps, **or**
  - BR, ER, and R20 could still exist if the new standard is less strict than for PAR halogen & allows halogen capsules to be incorporated into these shapes
- No prediction as to which possible outcome will prevail
- Rulemaking should be completed in 2011, **effective mid to late 2014**

GENERAL SERVICE FLUORESCENT LAMPS

Implications for Design
T12 GSFL

T12 4-ft. & 2-ft U-lamps with medium bi-pin bases

- Majority of F40 and F34T12 lamps and all FB40 and FB34T12 U-lamps will be eliminated from the market. Use something else.
  - A very few very high lumen rare earth phosphor lamps will remain
  - CWX, DX, and special 5000K types will remain due to high CRI exemption

T12 8-ft. Slimline with single pin bases

- 75W F96T12 full wattage lamps will be eliminated from the market
- 60W F96T12/ES (except for the ≥ 80 CRI & some ≥ 70 CRI long life lamps) will be eliminated from the market. Use something else.
  - CWX, DX, and special 5000K types will remain due to high CRI exemption

T12 8-ft. 800mA HO with RDC bases

- 110W F96T12 HO full wattage lamps willl be eliminated from the market
- 95W F96T12/ES/HO will be eliminated from the market
  - Some enhanced coating types will remain
  - CWX, DX, and special 5000K types will remain due to high CRI exemption
  - Cold Temp versions will remain in the market due to an exemption

Implications for Design
T8 & T5 GSFL

T8 4-ft. & 2-ft. U-lamps with medium bi-pin bases

– All 4-ft. T8 basic ≥ 700 Series lamps @ 2800 lumens will be removed from the market. Use something else.
  - All other 4-ft. T8 remain
  - Some 700 Series2 ft. U-lamps remain; all 2-ft. 800 Serioes U-lamps remain

T8 8-ft. Slimline with single pin bases & T8 8-ft. HO with RDC bases

– All pass except a few 700 Series

T5 4-ft with miniature bi-pin bases

– All existing tri-phosphor T5 lamps remain

– Intent of T5 standard is to prevent lesser performing lamps from

– entering the US market

COMPACT FLUORESCENT LAMPS

A Little-known Fact…

The US government set minimum standards for bare and covered (no reflector) medium screw base self-ballasted CFLs manufactured for use in the US, effective January 1, 2006

- EPACT 2005 set these standards, selecting 5 criteria from older Energy Star criteria (V2.0)
  - Initial efficacy
  - Lumen maintenance at 1000 hours
  - Lumen maintenance at 40% of rated life
  - Rapid cycle stress
  - Lamp life
- Any manufacturer or importer putting CFLs into the US market that do not meet those standards is in violation of US law

BALLASTS

Update
DOE Fluorescent Ballast Rulemaking

New rules will replace those originally established by the DOE Rulemaking in 2000 and updated by the EPAct 2005 Legislation

- **Current metric is Ballast Efficacy Factor (BEF),** sometimes called ballast efficiency factor.

New standards will use **ballast efficiency (%)** and will cover

- Ballasts for T8 and T12 4-ft. and 2-ft. U-lamps with medium bi-pin bases
- Ballasts for T8 and T12 8-ft. lamps with single pin bases
- Ballasts for T8 and T12 8-ft. HO lamps with RDC bases

Implications for Design

Standards likely will eliminate moreT12 ballasts and all but the most efficient T8 electronic ballasts

Standards will be added for ballasts operating 4-ft. T5 standard and HO lamps with miniature bi-pin bases, to be in synch with recent rules regarding fluorescent lamps

Regarding previous exemptions …..

- Cold temp T12 HO and sign ballasts will no longer be exempt – separate standards will be set for these
- Residential ballasts for 4-foot rapid start lamps will no longer be exempt – separate standards will be set for these
- Dimming ballasts that dim down to 50% light output or lower will continue to be exempt from any regulation

Likely effective date is mid 2014

Update: Metal Halide Systems New Rulemaking in Progress

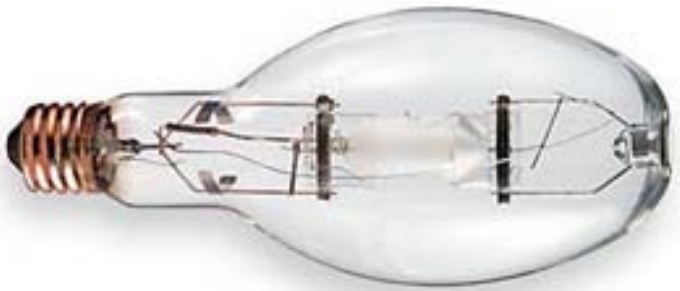
Metal Halide Luminaires

More rules will be issued in 2012, **effective 2015**, for ballasts in new metal halide luminaires

The new rules will expand beyond the current wattage range

- <150W are already pulse start and new standards may be set such that only electronic ballasts will meet them

It is possible that some current ballast efficiency requirements could be edged even higher (keep an eye on the 88% for pulse start MH)



HID LAMPS

Update: HID Lamps

- Minimum energy performance standards (MEPS) for HID lamps have not previously been set by the DOE
- Earlier in 2010, DOE *determined* such standards should be set, and so the rulemaking process has just begun
- One target of these rules will be probe start MH lamps, which is in synch with the trending of MH luminaire (ballast) requirements
- Final rule will likely be issued in 2013, **effective in 2016**
- If, for some reason, federal outdoor lighting provisions are not adopted by Congress before 2013, this rulemaking will also include a **ban** on mercury vapor lamp production for use in the US, effective 2016

What will likely happen in 2011 and beyond?

House and Senate Energy Bills or DOE Rulemakings

IRL:

New DOE rulemaking will be completed for exempted BR/ER lamps, making new standards effective 2014

MV Lamps:

Banned effective 2016 – either in an energy bill or in the HID lamp rulemaking

Double Ended Halogen Lamps:

High wattage (500W and higher) must have higher efficacy by 2016; part of new energy legislation

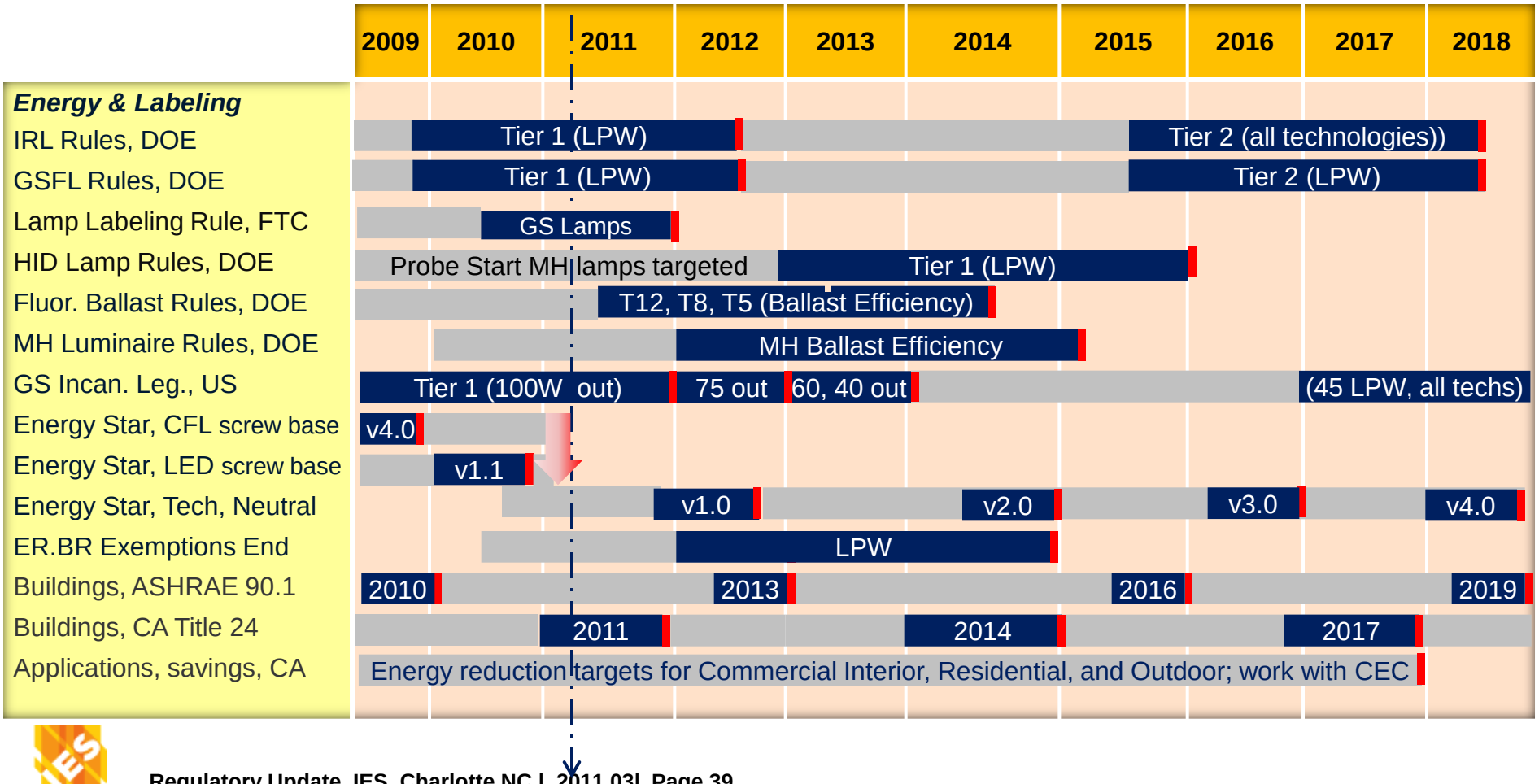
Commercial Buildings Tax Deduction

Possible increase to $3/sf

($1/sf for lighting); likely added to new energy legislation

Some Energy & Labeling Related Lighting Legislation, Regulations, and Specifications

Color Coding → Input into Rulemaking | Rule Issued, Adjust Products | Effective Date



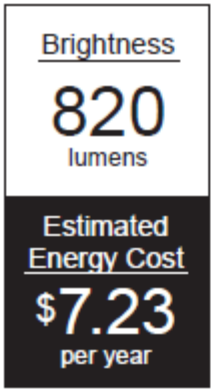
Consumer Lighting: FTC Labeling Rule

- EISA 2007 directed the Federal Trade Commission (FTC) to consider the effectiveness of current labeling of general service lamps and alternative labeling approaches
- At the core of this directive is the reality that we now have several technologies in the consumer lamp market -- and the WATT is no longer an appropriate surrogate for light output as it was in an all incandescent world
- Realizing that several technologies will exist side by side on consumer “light bulb” shelves, the FTC put together a comprehensive rule for labeling the following **medium screw base lamps**:
  - A-line incandescent (except the 100W lamp being phased out in 2012)
  - A-line halogen
  - Incandescent and halogen reflector lamps
  - CFL integrals and LED integrals
- Effective date of the labeling rule is officially **July 19, 2011; however, FTC just issued an opinion that this date should be extended to January 1, 2012, and that the 75A and the IRLs phased out by the recent rulemaking should also be exempt from new labeling.**

Consumer Lighting: FTC Labeling Rule

Key elements of new labeling:

- **Lumens** – not watts--are to be prominent
- Lumen rating must be printed on the lamp
- Lumen rating must be on front of package, along with estimated energy cost per year (at 11cents/kWh, 3 hours use per day)
- "Lighting Facts" label on back of package will additionally feature life (in years), light appearance (as a scale from warm to cool plus the kelvin temperature), and "energy" used (in watts)
- CFLs have a "contains mercury" wording requirement + website



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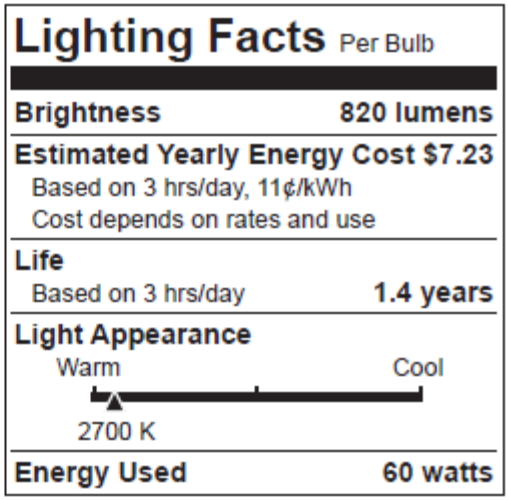


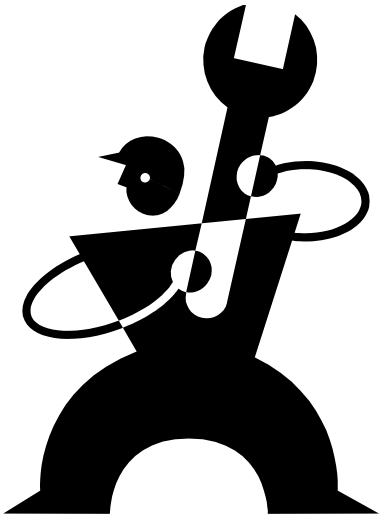
Back

And now…some recent Bills

Recent Legislative Activity

Federal Buildings Personnel Training Act of 2010

- Requires the General Services Administration (GSA) to develop and implement a government-wide program to train and certify personnel performing building operations and maintenance activities in federal buildings.
- Senate Bill S.3250 – passed July 20, 2010
  - Sponsored by Thomas Carper (D-DE)
- House Bill H.R.5112 – passed in December, 2010
  - Sponsored by Russ Carnahan (D – MO)
- Had bi-partisan support
- Curriculum to be developed by GSA within 18 months of passage
- Also applies to non-Federal personnel



Recent Legislative Activity

H.R. 91 - Better Use of Light Bulbs (BULB) Act

- Originally introduced in lame duck Congress of 2010
- Re-introduced on Jan. 5, 2011
- Sponsored by Joe Barton (R-TX); 28 co-sponsors
- Referred to the Energy and Commerce Committee
- Would repeal Title III, Section B of EISA 2007, which includes incandescent lamp standards, as well as standards for incandescent reflector lamps, metal halide systems, energy efficiency in public buildings, and the new lamp labeling rule.
- **S. 395 is the Senate version** introduced Feb. 17 by Michael Enzi (R-WY)
- There will be a hearing conducted on March 10 by the Senate Energy & Commerce Committee to hear the merits of the arguments for repeal

Recent Legislative Activity

H.R. 849 – Light Bulb Freedom of Choice Act of 2011

- Originally introduced two years ago, but no action
- Re-introduced on March 1, 2011
- Sponsored by Michele Bachmann (R-MN); 4 co-sponsors
- Referred to the Energy and Commerce Committee
- Seeks to repeal only the incandescent lamp efficacy increase required by EISA 2007
- Bill requires proof of $ savings, proof that CO_2 savings will be 20% by the year 2025, and proof that there are no harmful effects from alternative sources
- If the report is not favorable, the incandescent and IRL sections of EISA 2007 would be repealed

Recent Legislative Activity

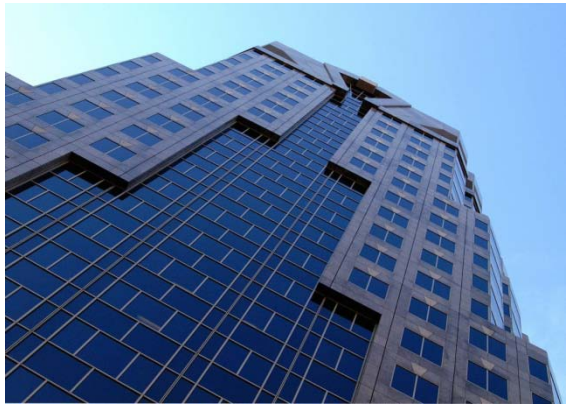
Building Star Energy Efficiency Act of 2010 (S.3079 and H.R.5476)

- "To assist in the creation of new jobs by providing financial incentives for owners of commercial buildings and multifamily residential buildings to retrofit their buildings with energy efficient building equipment…"
- Main Sponsor: Sen. Merkley (D-OR); 7 others
- Does not have bi-partisan support
- Really a jobs bill supported by energy efficiency measures
- Sitting in Committee – stalled due to cost - $6B
- Will probably not be considered until 2011
- Preference for *Home Star*

High Performance Buildings*

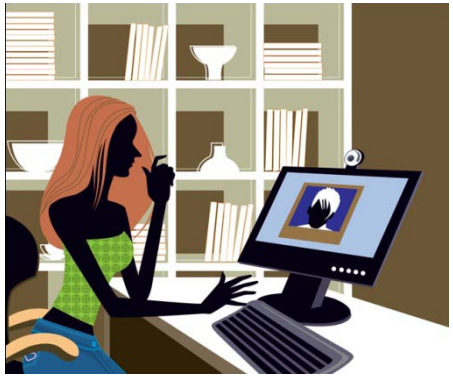
- High Performance Buildings Congressional Caucus (HPBCC). Co-chaired by Rep. Russ Carnahan (D-MO) and Rep. Judy Biggert (R-IL).
- HPBCC Coalition (HPBCCC) formed by private sector organizations to support the Congressional Caucus. ASHRAE took leading role and hosts numerous briefings on applicable topics.
  - 90 member organizations
- HPBCCC Executive Committee
  - ASHRAE, NEMA, USGBC, AIA, IES, et al. (13 total)
- Check it out: www.hpbccc.org

* "High Performance Building" means a building that integrates and optimizes, on a life cycle basis, all major high performance attributes including energy conservation, environment, safety, security, durability, accessibility, cost/benefit, productivity, sustainability, functionality, and operational considerations. – *Energy Independence and Security Act of 2007.*



Useful Websites

http://www.house.gov – U.S. House of Representatives
http://clerk.house.gov – Clerk of the House of Representatives
http://senate.gov – U.S. Senate
http://thomas.loc.gov – Library of Congress
http://www.nema.org – NEMA
http://www.govtrack.us – Track Bills and Congressional activity
http://bcap-ocean.org – Building Codes Assistance Project
http://www.usgbc.org – U.S. Green Building Council
http://ase.org – The Alliance to Save Energy
http://www.ashrae.org - ASHRAE
http://www.ies.org – Illuminating Engineering Society



Questions?