Halco LIGHTING TECHNOLOGIES
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Effects of Legislation on Lighting

2009 DOE IRL & GSFL Lamp Rule Making

- Becomes effective **July 14, 2012**, and covers many of the lamp families addressed by EPACT 1992.
- Among reflectors, the lamps that are covered are: PAR20, PAR30, PAR38, R20, BR30, ER30, BR38, BR40 and ER40 in wattages between 40 and 205 for IRL.
- GSFL covered are T8-T12 8-ft. Slimline and HO, and 4-ft. Rapid Start; 2-ft. U-Bend and 4-ft. T5 Rapid Start.
- **Note:** Previously GSFLs were exempt at 82 CRI for high color rendering. The DOE changed this to 87 CRI in April 2011, which was earlier than originally expected.

- Exemptions for non-general lighting applications which/are:
  - Promote plant growth
  - For cold temperature applications
  - Colored fluorescent lamps
  - Impact-resistant fluorescent lamps
  - Reflectorized or aperture lamps
  - Used in reprographic equipment
  - Produce radiation in the ultra-violet range
  - Have a CRI of 87 or greater

Impact on Incandescent & Halogen Reflector Lamp (IRL) Products

- Most all of today's standard PAR halogen lamps will be eliminated
- Only a few halogen reflector lamps (e.g., PAR20, PAR30, PAR38) can meet the Final Rule standards
- Likely that all 130V PAR Halogen lamps will be eliminated, because of increased efficiency standard above 125V
- The existing lamps that meet the new standards are more expensive than standard Halogen lamps on the market today (gas mixtures and IR capsules largely contribute to increased cost)
- Continuing exemption under EISA 2007 for the R20 (45W or less); BR30, ER30, BR40, and ER40 (50W or less); BR30, BR40, and ER40 that are exactly 65W; no exemptions for PAR lamps 40W and over were made.

Impact on General Service Fluorescent Lamp (GSFL) Products

Covered product definitions include 4- and 8-foot linear and 2-foot U-Bend lamps. Regulated wattages are displayed in the table below by lamp, starting type and output. Following is a more detailed discussion of the efficiency regulations as they relate to GSFL.

Covered General Service Fluorescent Lamps by Minimum Wattage

	T12/T10		T8		T12/T8 U-Bend	T5
	Instant Start (Slimline)	Rapid Start	Instant Start (Slimline)	Rapid Start	Rapid Start	Rapid Start
Standard rated wattage and above	52W	25W	52W	25W	25W	26W
High Output rated wattage and above	52W	All HO, RDC base lamps	52W	All HO, RDC base lamps	N/A	49W

Lamp type	Correlated Color Temperature	Minimum Average Lamp Efficacy (lm/W)
4-foot Medium Bi-pin (F40T12, F34T12, F40T10, F32T8, F28T8, F25T8ES)	≤4500K	
	>4500K and ≤7000K	88
2-foot U-Shaped (FB40T12, FB34T12, FB32T8, FB31T8, FB28T8)	≤4500K	84
	>4500K and ≤7000K	81
8-foot Slimline (F96T12, F96T8)	≤4500K	97
	>4500K and ≤7000K	93
8-foot High Output (F96T12HO, F96T8HO)	≤4500K	92
	>4500K and ≤7000K	88
4-foot Miniature Bi-pin Standard Output (F28T5)	≤4500K	86
	>4500K and ≤7000K	81
4-foot Miniature Bi-pin High Output (F54T5HO, F49T5HO)	≤4500K	76
	>4500K and ≤7000K	72

Impact on General Service Fluorescent Lamp (GSFL) Products (continued) T12 4-ft. & 2-ft. U-Bends with medium bi-pin bases

- Majority of F40 and F34T12 lamps and all FB40 and FB34T12 U-Bends will fail

- T12 8-ft. Slimline
  - All 75W F96T12 lamps fail
  - All 60W F96T12/ES fail except for Ultra50
  - High CRI lamps exempt
- T12 8-ft. 800mA HO with Recessed DC bases
  - All 110W F96T12 HO lamps fail; requires enhanced coatings & 10,120 lumens to pass
  - All 95W F96T12/ES/HO fail; requires enhanced coatings & 8,740 lumens to pass
- T8 4-ft. & 2-ft. U-Bends with medium bi-pin bases
  - T8 700 Series lamps fail; 800 and 900 series pass
  - All 2-ft. 800 Series U-Bends pass
- T8 8-ft. Slimline
  - T8 700 Series lamps fail; requires 5,723 lumens at 59W to pass
- T5 4-ft. with miniature bi-pin bases
  - All pass; intent of T5 standard is to keep lesser performing halophosphor-based lamps out of U.S. market

2007 Energy Independence and Security Act

EISA 2007 provides for federal minimum efficiency standards that affect A-line lamps and incandescent reflector lamps. Other provisions within the law include regulations for ballasts used in Metal Halide Fixtures.

A-Line Lamps

- The incandescent A-Line regulations primarily affect the common 40W, 60W, 75W, and 100W incandescent lamps. Effects of the legislation are not limited only to A-Shape lamps. It also covers Globes, Chandelier and PS lamps. EISA 2007 requires an increase in efficiency by approximately 30% starting in 2012 by requiring a reduction in lamp wattage while maintaining lumen levels; most specialty and decorative lighting are not regulated and will continue to be sold. Since most incandescent lamps are not able to achieve the outlined standards, most will be phased out on the dates the law goes into effect.
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Today's Wattage	Maximum Rated Wattage	Lumen Range*	Min Efficacy Required (lm/w)	Minimum Life	Effective Date**
100W	72W	1490-2600	20.69	1000 Hrs	1/1/2012
75W	53W	1050-1489	19.81	1000 Hrs	1/1/2013
60W	43W	750-1049	17.44	1000 Hrs	1/1/2014
40W	29W	310-749	10.68	1000 Hrs	1/1/2014

* Reduced by 25% for Modified Spectrum Lamps

** CA has the option to adopt standards one year earlier. All other states preempted.

- CA adopted the more stringent efficacy standards January 1, 2011, one year ahead of 2012 implementation.

Incandescent Reflector Lamps

- All R20, R30, R40, PAR20, PAR30, PAR38, BR40, ER30, ER40 and BPAR must meet Halogen efficiency levels except:
  - Lamps rated at 50 watts or less that are ER30, BR30, BR40 or ER40 lamps
  - Lamps rated at 65 watts that are BR30, BR40 or ER40 LAMPS
  - R20 incandescent reflector lamps rated 45 watts or less

Metal Halide Fixtures

- EISA 2007 standards essentially eliminate the use of magnetic ballasted probe start systems in new fixtures. The groups affected are Metal Halide lamp fixtures designed to be operated with lamps rated greater than or equal to 150 watts but less than or equal to 500 watts. These fixtures shall contain a pulse start metal halide ballast with a minimum ballast efficiency of 88 percent, magnetic probe-start ballast with a minimum efficiency of 94 percent, a non-pulse start electronic ballast with a minimum ballast efficiency of 92% for wattages greater than 250 watts; or a minimum ballast efficiency of 90% for wattages less than or equal to 250 watts. Exceptions are provided for:
  - Regulated-lag ballasts
  - Electromagnetic ballast operating at 480V
- Exemptions effective **January 1, 2009**:
  - Fixtures with regulated lag ballasts;
  - Fixtures that use electronic ballast that operate at 480 volts;
  - Fixtures that:
    - Are only rated for 150 watt lamps and
    - Are rated for use in wet locations and
    - Contain a ballast that is rated to operate at ambient air temperatures of 50°C.

FTC Lighting Facts Label

- Product labeling will depict product performance and energy usage information using required package and on-lamp disclosures. The stated objective is to move consumers away from selecting lamps based solely on wattage and encourage behavior wherein product selection is based on performance and annual energy usage cost.
- Provides consumers with point-of-sale product performance and energy usage information in a format not that dissimilar to the Nutrition Facts label in terms of design and layout.
- This Lighting Facts label will supplant the previous disclosures required by DOE. The FTC, which oversees the Lighting Facts label for most lamps, recently decided to require the new label on general service lamps between 40 and 60 watts. This decision excludes current lamps in the range of 100 and 75 watts that do not pass DOE efficacy standards.

Mercury Rising

- In recent years many states have taken an active role in regulating the mercury that is sold within their borders. Since fluorescent lamps contain mercury they are almost always affected by such legislation. Oftentimes the state holds the manufacturer accountable for the mercury contained in its products, below are examples of actions states have taken over the last few years.

Vermont Mercury Law – 2011

- The law, as written, requires the introduction of collection plans for both residential and commercial mercury-containing lamps prior to **October 1, 2011**, or face fines and the possibility of being banned from selling mercury-containing products in the state; comments are currently under review by the Vermont State Legislature

Washington Mercury Law – 2010

- Will require manufacturers of mercury-containing lamps to both fund and participate in a recycling and collection program by **January 1, 2013**, or face fines and the possibility of being banned from selling mercury-containing products in the state

Maine Mercury Law – 2009

- Passed the first extended producer responsibility legislation in the U.S. for manufacturers of mercury containing lamps; must have a plan by **January 1, 2010**, for collection, transport & recycling of household mercury lamps or suffer fines and be banned from selling any mercury-containing lamps in the state

California AB1109 – 2007

- Set limits on toxic content of "general purpose lights," including mercury, effective **January 1, 2010**

Massachusetts Mercury Law – 2006

- Held lamp manufacturers liable for the state recycling rate for mercury-containing lamps and for educating the public about mercury; 30% recycling rate required for **2008**, ratcheting up to 70% by **2011**

New York Mercury Law – 2005

- Banned landfilling of mercury-containing lamps; like a few other states, also required reporting of mercury products to NEWMOA in order to sell in the state