

## Energy Independence and Security Act – 2007 (EISA 2007) Lighting Summary

On December 19, 2007, President George W. Bush signed H.R. 6, the Energy Independence and Security Act of 2007, into law (Public Law 110-140).

### Tax Incentives

Just prior to the final passage of H.R. 6 in December, the energy tax incentive package was removed from the bill. The tax package contained provisions to extend the Energy Policy Act 2005 tax incentive for Energy Efficient Commercial Buildings Deduction past the current expiration date of December 31, 2008. Congress is expected to take up energy tax issues in 2008.

### Metal Halide Luminaires

#### Section 324- Metal Halide Lamp Fixtures.

This section sets a new federal standard setting efficiency standards on the types of ballasts for metal halide lamp fixtures.

Metal Halide lamp fixtures manufactured on or after 1/1/09 must include a ballast meeting the ballast efficiency described below. In addition, the ballast and luminaire carton must include a circle "E" label as prescribed by the Federal Trade Commission.



Ballast Type	Wattage	Ballast Efficiency
Magnetic Probe-Start	150 – 500 watts	94%
Pulse-Start	150 – 500 watts	88%
Non-Pulse-Start Electronic	150 – 250 watts	90%
Non-Pulse-Start Electronic	251 – 500 watts	92%

Exceptions: The standards do not apply to fixtures with:

- o Regulated lag ballasts
- o Fixtures that use electronic ballasts that operate at 480 volts
- o Fixtures that meet all the following criteria:
  - Rated only for 150 watt lamps;
  - And rated for use in wet locations as specified by the National Electrical Code 2002, Section 410.4(A)
  - And contain a ballast that is rated to operate at ambient air temperature above 50° C as specified by UL 1029-2001

The Department of Energy is authorized to revise the requirements for Metal Halide Lamp Fixtures effective in 2015 and again in 2022.

### Mercury Vapor Lamp Ballasts – Technical correction to EAct 2005

The Energy Policy Act of 2005 included a provision that no new ballasts for mercury vapor lamps be imported or manufactured for use in the U.S., effective January 1, 2008. Standard mercury vapor systems were the target, but specialty lamps were inadvertently swept into the definition. Two technical corrections are included in EISA 2007 relating to mercury vapor:

- Mercury vapor lamps are now defined as having screw bases, thereby exempting ballasts for special uniquely based lamps that are used in such applications as UV curing and chip manufacturing.
- If a standard screw-based mercury vapor lamp is used in a specialty application, the ballast for that lamp must now be labeled "Not for general illumination" and must specify on the label the specialty applications for which the ballast is designed.

### Fluorescent Lamps – Technical correction to EAct 2005

The National Energy Policy Act of 1992 exempts fluorescent lamps with a CRI of "82" or higher from LPW standards. EISA 2007 changes the exempted CRI from "82" to "87."

## General Service Lamps

### Section 321 – Efficient Light Bulbs

This provision set, for the first time, efficiency standard for “general service” light bulbs that will essentially phase-out the most common incandescent light bulbs by 2012-2014. The regulation is not a product “ban”, but a performance requirement for wattage, lumen output and life.



A general service incandescent lamp (light bulb) is defined as a standard incandescent or halogen type lamp that:

- Is intended for general service applications,
- Has a medium screw bases,
- Has a lumen range of 310-2600 (40 - 100W in today's wattages), and
- Is capable of operating at least partially in the range of 110-130 volts.

#### Expected replacements

- Advanced incandescent with special coatings, including halogen bulbs
- Compact Fluorescent Lamps (CFLs)
- Light-Emitting Diodes (LEDs)

#### Exempted lamps

Rough service, vibration service, 3-way lamps, 150 watt, shatter resistant. DOE is authorized to monitor sales of these exempted lamps between 2010 and 2025 and impose regulations if appropriate.

Current Wattage	Rated Lumen Ranges	Maximum Rated Wattage	Minimum Rated Lifetime	Color Rendering Index	Effective Date (Manufactured on or after)
100	1490 – 2600	72	1,000 hours	80	1/1/2012
75	1050 – 1489	53	1,000 hours	80	1/1/2013
60	750 – 1049	43	1,000 hours	80	1/1/2014
40	310 – 749	29	1,000 hours	80	1/1/2014

Modified Spectrum lamps lumen ranges are 25 percent lower and have the same maximum wattages as listed above. Modified spectrum lamps must have a minimum CRI of 75.

## Incandescent Reflector Lamps

### Section 322- Incandescent Reflector Lamp Efficiency Standards.

This section expands the types of incandescent reflector lamps covered by efficiency standards prescribed in the Energy Policy Act of 1992. Lamps covered include BR, ER, and BPAR lamps rated. The minimum efficacy standards established in 1992 now apply to this larger group of reflector lamps. The effective date is 6/1/2008 (pending approval of technical corrections).



#### Exceptions:

- BR30, BR40 and ER40 lamps rated at 65 watts
- ER30, BR30, BR40 and ER40 lamps rated at ≤ 50 watts
- R20 lamps rated at ≤45 watts

Nominal Lamp Wattage	Minimum Average Lamp Efficacy (lumens per watt)
40 – 50	10.5
51 – 66	11.0
67 – 85	12.5
86 – 115	14.0
116 – 155	14.5
156 – 205	15.0

**A complete summary of all provisions in the EISA 2007 is available from the National Electrical Manufacturers Association at:**

<http://www.nema.org/gov/energy/upload/NEMA-Summary-and-Analysis-of-the-Energy-Independence-and-Security-Act-of-2007.pdf>

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Lighting



## **Energy Independence and Security Act – 2007 (EISA 2007) Buildings and R&D Summary**

### **Lighting Requirements for Public Buildings**

#### *Section 323- Public Building Energy Efficiency and Renewable Energy Systems.*

This section directs the General Services Administration (GSA) to set minimum energy efficiency and renewable energy performance requirements for leased space, to estimate energy efficiency potential and make energy efficiency and renewable energy an evaluation factor for leases. In addition, each public building constructed, altered, or acquired by GSA is to be equipped with energy efficient lighting fixtures and bulbs to the maximum extent feasible. Energy efficient lighting products include Energy Star and Federal Energy Management Program (FEMP)-designated products, including LED lighting. GSA shall develop guidelines for the use of energy efficient lighting technologies.

### **Commercial Buildings**

#### *Section 421—Commercial High-Performance Green Buildings.*

This section establishes an Office of Commercial High-Performance Green Buildings in the DOE Energy Efficiency and Renewable Energy division and an industry Green Building Partnership Consortium.

#### *Section 422—Zero-Net-Energy Commercial Buildings Initiative.*

This section authorizes a Zero-Net-Energy Commercial Buildings Initiative to be run by the DOE Office of Commercial High-Performance Green Buildings and an industry consortium with the goal of developing and disseminating technologies, practices, and policies for net-zero-energy commercial buildings for all new commercial buildings by 2030, half of commercial building stock by 2040, and all commercial buildings by 2050.

### **High-Performance Federal Buildings**

#### *Section 431- Energy Reduction Goals for Federal Buildings.*

This section accelerates targets for energy use reductions in federal buildings to 3 percent per year for FY08-FY15, ending in a 30 percent reduction in energy intensity by 2015, consistent with Executive Order 13423.

#### *Section 436- High-Performance Green Federal Buildings.*

This section establishes an Office of Federal-High Performance Green Buildings within GSA. The Federal Director is directed to conduct analysis, guidance, and training on life-cycle costing for green buildings, identify green building incentives through recognition awards and retention of savings, and other duties.

### **Research and Development**

#### *Section 605- Daylighting Systems and Direct Solar Light Pipe Technology.*

This section authorizes \$3.5 million each year for FY08-FY12 for DOE to establish a program of R&D to provide assistance in the demonstration and commercial application of direct solar renewable energy sources to provide alternatives to traditional power generation for lighting and illumination, including light pipe technology, and to promote greater energy conservation and improved efficiency.

#### *Section 655- Bright Tomorrow Lighting Prizes.*

This section directs DOE to establish Bright Tomorrow Lighting Prizes for development of solid-state lighting that meets specified criteria: \$10 million is authorized for a 60-watt incandescent replacement LED product; \$5 million for a 38-PAR halogen replacement LED product; and \$5 million for a 21st Century Lamp. This section calls for federal government purchase of the products of the successful prize winners.

***A complete summary of all provisions in the EISA 2007 is available from the National Electrical Manufacturers Association at:***

<http://www.nema.org/gov/energy/upload/NEMA-Summary-and-Analysis-of-the-Energy-Independence-and-Security-Act-of-2007.pdf>