

The Energy Policy Act of 2005 and the Lighting Industry:

-Tax deductions encourage adoption of efficient technologies while product efficacy is raised through regulation

By The Lighting Controls Association and OSRAM SYLVANIA

On August 8, President Bush signed the Energy Policy Act of 2005 (EPAAct 2005), which had passed both the Senate and House of Representatives the previous week after years of wrangling between Democrats and Republicans. Estimated to cost about \$14.5 billion over 10 years, EPAAct 2005 is the biggest overhaul of national energy policy since 1992. EPAAct 1992 required the phased elimination of several popular types of fluorescent and incandescent lamps, and began the deregulation process of the \$300 billion electric power industry. EPAAct 2005 is considered to be less ambitious on energy's demand side than its supply side, but does include a number of energy conservation provisions supported by the National Electrical Manufacturers Association (NEMA), several of which are of great interest to the lighting community.

EPAAct 2005 contains a significant provision that includes a tax deduction of up to \$1.80 per square foot for building owners to encourage investment in energy-efficient building systems. This provision, estimated by Congress to cost \$243 million and anticipated to stimulate widespread investment, is supported by NEMA and various industry, efficiency advocacy, and environmental organizations.

The Tax Deduction

Under current law, the cost of energy-saving investments must be capitalized and depreciated over time. EPAAct 2005, Section 1331, states: "There shall be allowed as a deduction an amount equal to the cost of energy efficient commercial building property placed in service during the taxable year."

"The Energy Policy Act of 2005 contains a variety of tax credits and deductions for business and consumers," says Kyle Pitsor, Vice President Government Relations for NEMA. "The NEMA-backed commercial building tax deduction is designed to encourage investment in energy-efficient commercial buildings. This provision is the first time a special deduction is available for expenses incurred for energy-efficient commercial building property. Lighting products and systems are ideally positioned for deployment using the deduction provision."

Specifically, EPAAct 2005's Energy Efficient Commercial Buildings Deduction provides one of three possible tax deductions.

Energy-efficient commercial property: EPAAct 2005 provides a tax deduction of up to \$1.80/sq.ft. for investment in energy-efficient commercial building property as part of new construction or renovation (within the scope of the ASHRAE/IES 90.1 Standard). The amount of the deduction is the lesser of: 1) \$1.80/sq.ft. or 2) the costs incurred or paid for the energy-efficient property.

"Energy-efficient property" is defined by EPAAct 2005 to be commercial building property that is certified to reduce total annual energy and power costs to at least 50% less than a building satisfying the 90.1-2001 Standard. Qualifying systems include 1) interior lighting systems, 2) heating, cooling, ventilation and hot water systems, and 3) building envelope.

In addition, the property must 1) be otherwise depreciable property, 2) located in the United States, 3) paid to be constructed by the taxpayer seeking the deduction.



Individual systems: EAct 2005 instructs the Secretary of the Treasury, in consultation with the Secretary of Energy, to develop an energy-savings target for each type of system covered (interior lighting, HVAC/hot water, building envelope). Meeting any of the three targets will be another route building owners can take to demonstrate qualification for the deduction.

If a property does not qualify for the \$1.80 tax deduction, but one of the qualifying systems meets its designated energy-savings target, then the property will be eligible for a partial tax deduction. Therefore, if a commercial building property does not meet the requirement, but the interior lighting system meets its own energy-savings target, then a partial tax deduction may be allowed. This deduction/system is the lesser of: 1) \$0.60/sq.ft. or 2) the costs incurred or paid for the energy-efficient system. Costs are defined as any that would normally be part of the capital costs involved in implementing the energy-efficient system and may include labor, materials and engineering design charges.

Interim rules for lighting systems: EAct 2005 establishes interim rules for lighting systems effective until the Secretary of the Treasury issues the final regulations defining the energy-savings target for lighting systems.

The Interim Rules for Lighting Systems define the lighting system energy-savings target to be a lighting power density that is 25-40% lower than the minimum requirements in Table 9.3.1.1 -Building Area Method or Table 9.3.1.2 – Space-by-Space Method (not including additional interior lighting power allowances) of Standard 90.1-2001. For warehouses, the lighting power density must be 50% lower than the minimum requirements of Standard 90.1-2001.

For lighting systems in buildings other than warehouses, the amount of the tax deduction is the lesser of: 1) \$0.30-\$0.60/sq.ft. or 2) the costs incurred or paid for the energy-efficient lighting systems. For reductions in lighting power density between 25% and 40% the following table indicates the amount of the maximum eligible deduction. Lighting power density reductions of less than 25% are ineligible for any tax deduction.

% of LPD reduction beyond ASHRAE/IES 90.1 2001	<25%	25%	26%	27%	28%	29%	30%	31%	32%	33%	34%	35%	36%	37%	38%	39%	40%	>40%
Amount of Eligible Tax Deduction /sq.ft.	\$0.00	\$0.30	\$0.32	\$0.34	\$0.36	\$0.38	\$0.40	\$0.42	\$0.44	\$0.46	\$0.48	\$0.50	\$0.52	\$0.54	\$0.56	\$0.58	\$0.60	\$0.60

Example: Suppose the redesign of an interior lighting system in an office building achieves a lighting power density that is 38% lower than the minimum requirements of Standard 90.1-2001. What is the potential tax deduction?

The maximum possible tax deduction is: \$0.56/sq.ft. (not to exceed the cost of the redesign)

Besides demonstrating a reduction in lighting power density than Standard 90.1-2001, all controls provisions in the Standard must be met, bi-level switching, automatic light shut-off (>5000sq.ft) and tandem ballast wiring must be installed for most buildings, and the application must meet the minimum requirements for calculated light levels as set forth in the 9th Edition of the IESNA *Lighting Handbook*.

How to claim credit: The Treasury Secretary will be issue implementing rules that lay out the certification program based on qualified software programs. A number of such programs are in use today. The tax deduction is allowable in the year in which the energy-efficient property is placed in service. The Treasury Department will be issuing appropriate modifications to its forms to implement the provision. Lighting and building management professionals are encouraged to seek the consultation of a tax expert.

Who can claim the deduction: The tax deduction for private buildings goes to the owner or the person or entity that paid to have the building constructed or renovated. In the case of Public Property; Subtitle C, Section 1331, Subsection 17D, Part 4 of the Act states: “ALLOCATION OF DEDUCTION FOR PUBLIC PROPERTY.—In the case of energy efficient commercial building property installed on or in property owned by a Federal, State, or local government or a political subdivision thereof, the Secretary shall promulgate a regulation to allow the allocation of the deduction to the person primarily responsible for designing the property in lieu of the owner of such property. Such person shall be treated as the taxpayer for purposes of this section.” Such persons or firms seeking this deduction are encouraged to consult a tax expert.

Window of opportunity: EPAct 2005’s Energy Efficient Commercial Buildings Deduction applies with respect to property placed in service between January 1, 2006 and December 31, 2007, inclusive. The original window was four years, but this was compressed to two years after intense Congressional negotiations to reduce the overall cost of the tax package. Congress may extend the window by an act of legislation, which NEMA is planning to advocate by demonstrating the success of the deduction in stimulating energy savings in cooperation with its members and others.

Benefits: NEMA estimates that the energy capacity savings for lighting alone is about 312MW of electricity for the two-year provision, which will result in a reduction of about 10 million metric tons of carbon emissions. NEMA further estimates that the provision will generate about \$500 million in additional sales of lighting systems and products alone.

“The provision offers opportunities to design, install, service and maintain energy-efficient lighting, HVAC and building envelope systems,” says Pitsor. “In addition, the building owner may be able to take credit in complying with the provision using daylighting, improved fan efficiency, multiple- or variable-speed compressors, on-site generation, and wiring with lower energy losses, to name a few technologies. There are market opportunities along the entire value chain.”

Other pertinent aspects of EPAct 2005:

Federal Energy Efficiency Goals: EPAct2005 sets out requirements for Federal buildings targeted to raise energy efficiency and reduce energy consumption. These requirements present further opportunity for the proliferation of energy efficient technologies in Federal facilities.

Existing Federal Buildings: All existing Federal buildings have been given energy management reduction targets based on their gross per square foot energy consumption levels of 2003 (baseline) of 2% per year commencing in 2006 and culminating in 2015 when a 20% reduction over 2003 levels is to be achieved. In addition, sub-metering is to be installed in all Federal buildings by October 1st, 2012 with at minimum, hourly energy use reporting capability for energy use tracking by Federal facility managers.



New Federal Buildings: New construction Federal building performance standards call for new buildings to comply with the 2004 IECC (International Energy Conservation Code) for residential buildings and to exceed ASHRAE/IES Standard 90.1 -2004 by 30% for commercial buildings. Additionally, sustainable design principles must be employed in the siting, design and construction of all new and replacement buildings.

Federal procurement: All energy efficient product procured by Federal agencies shall be required to be either an Energy Star product or “FEMP designated product” (FEMP = Federal Energy Management Program of the Department of Energy). FEMP designated products are those products which are in the highest 25% of equivalent products for energy efficiency. GSA and Defense Department catalogs must clearly indicate Energy Star and FEMP qualified products.

State Energy Efficiency Goals: For individual States to receive assistance under EAct2005, the State is required to have a conservation plan in place that targets a 25% improvement in efficiency of use of energy by 2012 over 1990 levels. Residential rebate programs are to use Energy Star Products aimed to replace older products. New commercial construction must exceed the latest IECC or State adopted code by at least 30%. Renovations of existing buildings must demonstrate a 30% reduction of energy use over level prior to renovation.

Efficacy Standards for Products: EAct2005 sets clear targets for efficacy for a number of lighting products and other appliances.

Ballast Efficacy Standards: Minimum ballast efficacy standards for ballasts capable of operating full and reduced wattage T12 lamps have been set in EAct2005. The levels set deadlines for the cessation of production of inefficient ballasts and the gradual phase out of replacement units. EAct2005 addresses ballasts for reduced wattage T12 lamps not originally covered in the original 2000 Federal Ballast Efficacy Regulations. The table below provides the essential timetable.

Action	2005 BEF Standards for Full-Wattage T12 Lamps	2009 BEF Standards for Energy-Saving T12 Lamps
Ballast manufacturers can no longer make ballasts that do not pass the new requirements for use in new fixtures.	April 1, 2005	July 1, 2009
Ballast manufacturers cannot sell ballasts that do not pass the new requirements to U.S. fixture manufacturers.	July 1, 2005	October 1, 2009
Fixture manufacturers cannot sell fixtures that include ballasts that do not pass the new requirements.	April 1, 2006	July 1, 2010
Ballast manufacturers cannot manufacture replacement ballasts that do not pass the new requirements.	July 1, 2010	July 1, 2010

Medium Base Compact Fluorescent Lamps: Medium base CFLs manufactured on or after January 1st, 2006 must meet Energy Star performance requirements prescribed on August 9, 2001. Specific criteria cover the following performance aspects:

- a) Minimum initial efficacy
- b) Lumen maintenance at 1000 hours
- c) Lumen maintenance at 40% rated life
- d) Rapid cycle stress test
- e) Lamp life
- f) CRI, power factor, operating frequency, start time

Mercury Vapor Lamp Ballasts: No mercury vapor lamp ballasts shall be manufactured or imported in to the US effective January 1st, 2008. Clarification as to whether this extends to ballasts incorporated as part of a luminaire will be sought from the Secretary as part of the final rulemaking. Inclusion would essentially eliminate the installation of new mercury vapor fixtures and force the eventual retrofit of existing fixtures as their ballasts expire.

Exit Signs: Illuminated exit signs manufactured after January 1st, 2006 must meet Energy Star Version 2.0 performance requirements.

Torchieres: Torchieres manufactured as of January 1st, 2006 must not consume more than 190 Watts and not be capable of operating with a lamp greater than 190 Watts.

Traffic Signals: As of January 1st, 2006 all new manufactured traffic signals must meet or exceed Energy Star performance requirements for Traffic Signal Version 1.1

Ceiling Fan Light Kits: Effective January 1st, 2007 all ceiling fan light kits must be:

- a) packaged with lamps
- b) medium screw based socket fixtures must use either compact fluorescent meeting Energy Star Version 3.0 performance requirements or another light source of equal or greater lumen per watt efficacy than compact fluorescent
- c) Pin based socket fixtures must meet Energy Star Residential Light Fixture Version 4.0 performance requirements

Candelabra and other based fixture kits will have requirements issued by January 1st, 2007, or in the absence of such requirements, be limited to 190 Watts per fixture and be packaged with lamps.

For more information: OSRAM SYLVANIA is holding Online Webinars during September 2005 for more information visit mySYLVANIA at www.mySYLVANIA.com or contact your local SYLVANIA commercial engineer or sales representative.