



Lighting the way to energy savings for you and your business

A Guide to the Energy Policy Act of 2005



EPAAct 2005 opens a window

Landmark policy sets standards and incentives for a more energy-efficient America...

On August 8th, 2005, President George W. Bush signed the 2005 Energy Policy Act (EPAAct 2005) into law. Over three years in the making, this milestone act addresses matters ranging from the generation, transmission, and distribution of our nation's energy to our country's energy consumption and the efficiency of certain end user products.

EPAAct 2005 is intended to reduce the nation's energy consumption, benefit the environment through the reduced emission of pollutants, reduce our dependence on foreign fuel sources, and improve our overall global competitiveness.

Among other provisions, EPAAct 2005 promotes enhancements to the capacity, efficiency, and reliability of the interstate electric transmission grid, and establishes new energy efficiency goals for Federal buildings. The act elevates new product efficiency standards, and of special interest to facility managers and owners, the act introduces new financial incentives that reward the use of energy-efficient lighting, HVAC/hot water, and building envelope systems.

EPAAct 2005 at a glance

- One-time tax deduction for the utilization of energy efficient systems
- Systems include lighting, HVAC/hot water, and building envelope
- Deduction cannot exceed the cost of upgrade, including all materials and labor
- Covers systems placed in service between January 1, 2006 and December 31, 2007
- For commercial buildings, tax deduction eligibility requires a 25% to 40% improvement over the ASHRAE 90.1-2001 standard
- For warehouses, tax deduction eligibility requires a 50% improvement over the ASHRAE 90.1-2001 standard
- Allows for single-system deduction of up to \$.60 per square foot
- Tax deductions are available for new construction and retrofit

ASHRAE standard puts new tax deductions within your reach.

EPAAct 2005 offers tax deductions for the use of products and systems that increase a building's energy efficiency by 25-40% compared to the ASHRAE 90.1-2001 standard. For warehouses, tax deduction eligibility results when increasing energy efficiency by 50%.

The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), is an industry association that has long been an advocate of energy monitoring and management. In 2001, the organization published ASHRAE 90.1-2001 to guide the measurement of the watts per square foot used by various systems in commercial buildings. EPAAct 2005 has adopted this set of numerical guidelines as the official reference standard for measuring the energy efficiency in your building, for determining your eligibility to receive a tax deduction, and for determining the amount of that deduction.



of opportunity.

How to qualify for your tax deduction.

Your potential tax deduction depends on how much more efficient your system or systems are, compared to ASHRAE 90.1-2001. You will need to determine whether a whole or partial deduction method is best; and whichever method you use, the amount of your tax deduction cannot exceed the cost of your upgrade, including all materials and labor.

But consider this: For a building with 100,000 square feet of applicable energy-efficient improvements, a whole method deduction will allow up to \$1.80 per square foot, or a \$180,000 deduction.

You may be entitled to a one-time, whole building tax deduction of up to \$1.80 per square foot for the use of multiple, energy efficiency upgrades that encompass your lighting, HVAC, hot water, and building envelope.

However, you do not need to achieve maximum watts per square foot improvements to be eligible for a tax deduction. You can earn a partial tax deduction for varying degrees of system energy efficiency, ranging from 25% to 40% over ASHRAE Standard 90.1-2001. For example, a 25% improvement over ASHRAE 90.1-2001 lighting standards would merit a \$.30 per square foot deduction, a 40% improvement would merit a \$.60 per square foot deduction.

Forces weighing on the building upgrade decision...

ROI Uncertainty
Acceptance of Outdated Systems
Nominal Cost Per Kilowatt Hour
Lower Legislative Pressures
Low Tenant Expectations

EPAct 2005 Tax Deductions
Higher Efficiency Technologies
Rising Cost Per Kilowatt Hour
Energy Compliance Laws
High Tenant Expectations
Sustainability/LEED



Tax deductions and heftier-than-ever returns on system investments are creating an environment for building upgrades.

Now is the time to act.

With rising energy costs, new energy efficient systems in your facility will pay you back many times over in the years ahead. And now, with the potential for tax deductions, you may be able to offset your initial system investment.

Chief among these systems is your lighting. One of just three systems for which you can receive a tax deduction using the partial method, your lighting is most likely the first place to look for hidden cash opportunities...the quickest and easiest way to get major returns on your facility investment.

Lead with Lighting.

Upgrading your lighting can pay big dividends.

A seemingly inconspicuous and often overlooked system, lighting actually accounts for as much as 40% of a typical commercial building's energy cost and can be a primary source for significant cost savings. Relatively easy to undertake, energy-efficient lighting upgrades routinely reduce energy consumption and costs by an attractive 25-50%. They often pay themselves back within three years or less, and typically exceed average corporate capital hurdle rates, making them one of the most attractive investments around. Lighting improves your facility's environment, tenant satisfaction, safety, productivity, sustainability, property values, and bottom line profitability. Nevertheless, a majority of the nation's five million commercial, industrial, and institutional buildings still have yet to take full advantage of the tremendous financial, environmental, and aesthetic benefits offered by lighting upgrades. Is your facility one of them?

EPA 2005 offers even more reason to pursue a lighting upgrade today.

As if lighting upgrades weren't extremely attractive investments all on their own, the Energy Policy Act of 2005 offers an even more compelling reason to pursue an energy-efficiency lighting upgrade in your facility today. If you've been hesitating to authorize a lighting upgrade, consider the fact that EPA 2005 can contribute up to \$.60 per square foot in tax deductions, enhancing the ROI on your upgrade. Couple that with energy savings of up to 40% per fixture compared to legacy lighting systems, and new lighting upgrades can pay for themselves in under eighteen months - and less than a year with some dimming and control systems.

Example: T12 to T8 Lighting Upgrade

3-Year Potential Energy Savings: \$119,880

Existing System:

Three hundred offices, each approximately 220 square feet; each office with four 4-lamp fixtures (four 4-lamp ballasts) with magnetic ballasts and 40W T12 Lamps (172 watts).

New System:

Three hundred offices, each approximately 220 square feet; each office with four 4-lamp fixtures (one 4-lamp ballast) with Optanium Instant Start electronic ballasts with F32 T8 Lamps (106 watts).

Energy Saved:

66 watts per fixture; a potential annual savings per fixture of \$33.30, and a total potential annual savings of \$39,960.

Note: This example based on 5500 annual burn hours and electricity rate of \$0.10 per kWh.

Energy savings are based on improved lighting power densities.

For lighting upgrades, watts per square foot calculations are called "lighting power densities." Energy savings, or improved watts per square foot, are calculated based on the type of space being upgraded.

Under the ASHRAE 90.1-2001 standard, lighting power densities can be calculated using either the "Building Area" or "Space-by-Space" method. The space-by-space method generally allows for higher watts/sq. ft. which can make it easier to improve upon ASHRAE standards than when the building area method is used. The space-by-space method is a more complex method to use due to the extended number of calculations involved. The box to the right provides specific examples of lighting power densities that would be used when calculating a tax deduction using the two available methods.

Type of Space	Building Area Method	Space-by-Space Method
Office Area	1.3 W/sf	1.5 W/sf
Manufacturing Facility	2.2 W/sf	3.0 W/sf
Hospital/Healthcare	1.6 W/sf	2.8 W/sf
School/University	1.5 W/sf	1.6 W/sf

Ample light levels are a requirement of EAct 2005.

Bearing in mind the needs for tenant comfort, safety and productivity, the Energy Policy Act of 2005 requires that any lighting upgrade must meet or exceed IES recommended light levels to be eligible for a tax deduction.

This means that if watts per square foot go down for a given space, careful attention must be made to the lumens per square foot (or light level). Generally, the solution is to specify the most energy-efficient lighting systems possible. This decision begins with careful ballast and lamp selection which provides the desired light level.

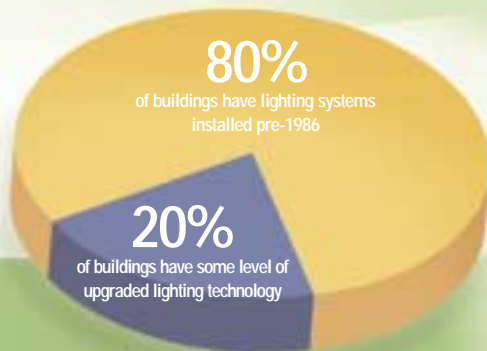
Tax deduction eligibility is easier, thanks to today's ballast-driven lighting options.

Your eligibility for a tax deduction is not a measure of how much you improve over your current lighting power density (watts per square foot). Instead, your deduction is based on how efficient your lighting is compared to a standard that is several years old. Since 2001, many new technologies related to the lighting decision have entered the marketplace, which has fostered development of higher efficiency lamps, controls, and fixtures. The preponderance of new ballast-enabled lighting solutions makes tax deduction eligibility easier for many facilities.

Implementing higher efficiency lighting and seizing tax deductions create opportunities to deploy capital to core business operations...

It is estimated that 90% of all domestic commercial buildings were built before 1986, long before the time when today's energy efficient products were available. Of these, only 20% have received lighting upgrades since they were built. These older lighting systems can consume up to 50% of the total energy expenditures in these buildings.

(Source: Lighting Controls Association, 2002)



In a recent survey sponsored by Advance, 274 of 357 (76.8%) property owners and facility management professionals indicated that upgrading the lighting system was the fastest and easiest method to improve the energy efficiency of a building.

Lighting represents up to 40% of your electricity bill.

Commercial Electrical Use by Technology



Source: DOE/EIA

Fact: Most buildings use outdated and inefficient lighting systems.

Lighting provides the highest return on investment, resulting in the fastest payback.

Single-Technology Projects	Average Project Payback Period (years)	Average Project ROI (%)
Lighting	2.2	45%
Controls	2.3	43%
Motors & Drives	2.4	42%
HVAC	3.6	28%
Building Automation	5.9	17%

Source: ECSC

Capitalize now on your lighting

The right lighting decision begins with the right ballast decision.

Electronic ballasts support an unrestricted range of lamp and lighting control options, and therefore are a key consideration in any lighting decision. Depending on the level of energy efficiency your building has attained to date, a variety of lighting solutions can help you achieve specified performance over the ASHRAE 90.1-2001 standard. This includes a broad range of high-efficiency fluorescent and HID lamps; high-efficiency fixed light output electronic, dimming, and electronic HID ballasts; and daylight sensing technologies - along with a variety of other lighting control products and high-efficiency lighting fixtures.

Essential to the operation and regulation of all fluorescent and HID lighting systems, the ballast remains at the heart of a powerful and energy-efficient lighting system. Today's broad range of ballasts offer such benefits as:

- Dimming and control capabilities to support customized end user needs and environmental sustainability objectives (LEED)
- Better, whiter light through pulse-start metal halide technology
- Safety and security features to ensure customer satisfaction in a wide variety of environments
- Enhanced compatibility with a wide array of lamp, control, and lighting system configurations

Talk to the experts about your next step.

You're not alone, help is there to get you on the road to increasing your energy efficiency, boosting your bottom line, and benefiting from government-sponsored tax deductions along the way. An accredited lighting professional, such as a skilled utility representative, local electrical contractor, electrical distributor, lighting maintenance company, or energy service company (ESCO) can help to determine the magnitude of the lighting upgrade opportunity in your facility. And you can also turn to providers of efficient lighting solutions like Advance, to support your initial search and opportunity assessment.



upgrade...



Visit www.energybillinfo.com

Lighting upgrades have never been easier to undertake and, with the added availability of tax benefits on qualifying installations, there has never been a better time to capitalize on the opportunity. Visit energybillinfo.com to learn more about the lighting system implications of the Energy Policy Act of 2005, your lighting upgrades opportunity, and a full range of ballast options offered by Advance.

Your one-stop resource for lighting upgrade support

Advance is the industry leader in the design, development, and manufacture of fluorescent and high intensity discharge (HID) ballasts for commercial, industrial and institutional lighting. The company maintains an application-based philosophy, researching and developing ballast technologies that support unrestricted lamp, fixture, and control innovation.



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