



Profiles in Lighting Upgrades

Did you know that lighting upgrades involving energy-efficient lamps, ballasts, controls, etc. routinely pay themselves back within two to three years and yield returns on investment in the 30-50% range?(1) And if these results didn't qualify lighting upgrades as extremely attractive investments all on their own, the availability of commercial tax deductions for eligible upgrades through the Federal government's 2005 Energy Policy Act provides an even more compelling reason to pursue an energy-efficient lighting upgrade in your facility today.

To help convey how easy and beneficial it is to undertake a lighting upgrade in your building(s), the following real-life examples highlight how facilities of all different types have successfully pursued the lighting upgrade opportunity nationwide to reap a range of benefits.

Commercial: Lincoln Plaza (Dallas, Texas)

The 1.1 million square-foot Lincoln Plaza high-rise in Dallas recently underwent an extensive lighting overhaul. Lighting fixtures within all of the tenant-lease building's 45 stories were upgraded with T-8 fluorescent lamps, electronic ballasts, and reflectors. In addition, incandescent lamps were replaced with compact fluorescent lamps and the building's 400+ exit signs were retrofitted with highly-efficient LED technology. As a result, Lincoln Plaza is saving over 4 million kilowatt-hours of energy each year, which has the equivalent impact on the environment as the planting of 1,300 acres of trees or the removal of 600 cars from U.S. roads. To the management team's delight, the project has reduced Lincoln Plaza's energy bills by over \$330,000 annually, resulting in a three-year payback for the entity and a nearly 35% return on investment.

Project Size:	1.1 million square feet
Project Scope:	Lighting upgrade involving the installation of 32,000 T-8 lamps, 16,000 energy-efficient electronic ballasts from Philips Advance, 4,000 compact fluorescents, and 400+ LED exit signs
Annual Energy Reduction:	Over 4 million kWh
Annual Energy Savings:	Over \$330,333
Payback Period:	3 years
Return on Investment:	Nearly 35%

Educational: University of Mary Washington (Fredericksburg, VA)

The vintage, 1,400-seat Dodd Auditorium at the historic University of Mary Washington in Fredericksburg, VA was the recent beneficiary of a lighting upgrade. Saddled with an inefficient dimmable incandescent lighting system in the auditorium which delivered extremely low light levels and created on-going maintenance issues, university officials hoped to increase energy efficiency, reduce maintenance requirements, and obtain greater dimming abilities while offering a lighting system that was more aesthetically-pleasing and flexible.

The solution came in the form of a cutting-edge dimmable lighting system involving 55-watt compact fluorescent lamps and electronic dimming ballasts. With a 20,000-hour lifespan and a high color rendering index, the lamps combine all of the long life and energy efficiency benefits of fluorescent technology with the pleasing appearance typically associated with incandescent lighting. The system reduced energy consumption and costs in the auditorium by up to 40%, and with the ability to dim from 100% down to 5%, the system enables university personnel to adjust light levels for all manner of events and activities.

Says UMW Senior Director of Conference Management Susan Knick of the recently-completed upgrade, “we are extremely happy with the auditorium’s new lighting system. It has elevated visibility within the space immeasurably, has made the auditorium space feel so much more cheery, and has helped draw attention to the many beautiful vintage elements in the room. We strongly encourage other institutions to consider this type of lighting system in their theaters based on its flexibility and appeal.”

Project Scope:	Lighting upgrade involving the conversion of outdated, inefficient dimming incandescent technology to a system involving 55-watt compact fluorescent lamps with electronic ballasts to improve light levels and reduce energy
Products Involved:	360 55-watt High Light Output compact fluorescent lamps from Philips Lighting driven by 180 electronic dimming ballasts from Philips Advance; the project also utilized 200 28-watt T5 lamps from Philips Lighting and accompanying ballasts from Philips Advance
Benefits of Installation:	<ul style="list-style-type: none">- Up to 40% cost reduction- Light level improvements (footcandles increased from 5-10 up to as much as 30, a nearly 200% improvement)- Dimmability down to 5%- 20,000 hour rated average life of new fluorescent lamps (vs. 1,000 hour rated average life of previous incandescents), reducing costs and maintenance concerns

Healthcare: Joseph Brant Memorial Hospital (Ontario, Canada)

Faced with continuously escalating electricity prices, the Building Services team at Ontario’s Joseph Brant Memorial Hospital undertook an extensive lighting upgrade to help reduce energy consumption and costs throughout the 380,000 square foot, 300-bed facility. The team selected Philips Lighting and Philips Advance’s high-efficiency 25-watt fluorescent lamp system driven by low-watt electronic ballasts to replace their existing fluorescent T12 and early-generation T8 lighting technology. Following the upgrade, light levels visibly improved and energy cost savings were significant, with Joseph Brant enjoying an up to 40% reduction in energy costs in those areas upgraded from T12 to T8 lighting and 20-30% savings in those areas upgraded from early-generation T8 technology. The team also achieved a less than two-year payback and an attractive 50%+ return on investment.

“We are delighted with the results of the upgrade so far,” concludes Joseph Brant Director of Engineering and Building Services Duncan McGill. “Overall, energy has become a bigger and bigger part of everyone’s operating cost structure and cost savings opportunities are an imperative. Our lighting upgrade has served the hospital well in the form of markedly improved costs, enhanced light levels, and a more standardized and easy-to-maintain lighting configuration for well into the future.”

Project Site	Patient rooms and interior space within 380,000 square foot, 300-bed facility in Ontario, Canada
Project Scope:	Upgrade of previous fluorescent T12 and early-generation T8 lighting technology with optimized high-efficiency 25-watt fluorescent lamp system involving 7,000 lamps from Philips Lighting driven by 3,500 low-watt electronic ballasts from Philips Advance
Benefits of Installation:	<ul style="list-style-type: none">- Up to 40% reduction in energy costs- Light level improvements- Maintenance reductions
Estimated Payback Period/ROI:	Under 2 years, for a 50+% return on investment

Industrial: Victory Packaging (Dallas, Texas)

Dallas, Texas-based Victory Packaging, a leading provider of high-quality packaging products and services, recently undertook a lighting upgrade to address the inefficient and costly lighting system in place throughout its 160,000 square-foot production and warehouse facility. Plagued with an outdated combination of 400-watt metal halide, high pressure sodium, mercury vapor, and T-12 fluorescent lamp and magnetic ballast technology, the system was inefficient, non-standardized, and delivered less than optimal light levels.

With support from a local energy service company, Victory Packaging's management team replaced their old lighting fixtures with an efficient new system involving fluorescent T5 High Output lamps driven by electronic ballasts. In addition to reducing energy consumption and costs by 30-40% and paying itself back in three years, the system is delivering up to 10 times the light levels of their previous system and helping to promote safety and security among the warehouse workforce while elevating productivity.

"We are absolutely delighted with the results of the upgrade," confirms Victory Packaging General Manager Jim Tallas. "T5 fluorescent lighting technology truly represented the ideal solution for this application, enabling our facility to benefit from significantly higher light levels, outstanding color quality, and reduced power consumption."

Project Size:	Lighting upgrade within 160,000 square-foot production and warehouse facility
Project Scope:	Conversion from an outdated combination of 400-watt metal halide, high pressure sodium, mercury vapor, and T-12 fluorescent lamp and magnetic ballast technology to a more energy-efficient system involving installation of nearly 500 54-watt T5 High Output lamps driven by 250 electronic ballasts from Philips Advance
Annual Energy Cost Savings:	30-40%
Payback Period:	3 years
Other Benefits Accrued:	- Ten-fold improvement in light levels - Improved lighting color quality

Retail: Hobby Lobby (Oklahoma City, Oklahoma)

Interested in increasing light levels and streamlining their warehousing, Oklahoma City, OK-based retail craft chain Hobby Lobby successfully upgraded the lighting within its over 300 stores, which suffered from outdated, inefficient lighting, low light levels, and non-standardized lighting systems that drove excessive product stocking requirements.

By converting each 50,000 square-foot store's 800-900 fixtures from 8-foot 40-watt T12 slimline fluorescent lamps driven by magnetic ballasts to a more efficient tandem fixture housing four T8 32-watt fluorescent lamps and electronic ballast technology, Hobby Lobby has enjoyed the combined benefits of increased lamp life, higher lumens per watt, and significant energy savings. Hobby Lobby Energy Manager, CEM, CEP Ray Chambers estimates that the lighting upgrades have resulted in at least a 10-20% reduction in lighting costs for Hobby Lobby stores and that each store upgrade has successfully achieved payback within 2 years (yielding an attractive return on investment in excess of 50%) through the proactive use of utility rebates and other financial incentives available.

"There is no question that Hobby Lobby's lighting upgrades were a sound investment," confirms Chambers. "Aside from the energy we've saved per fixture and the increase in light output and lighting quality we've realized, a 10% reduction in lighting costs is like putting 6% directly towards your bottom line. And the standardization in products throughout our stores and warehouses avoided the need for us to stock multiple lamp products, ultimately enabling us to optimize our warehousing."

Project Size:	170 50,000 square-foot retail stores and 400,000 square feet of warehouse space
Project Scope:	Conversion from 8-foot 40-watt T12 slimline fluorescent lamps driven by magnetic ballasts to a system involving 200,000 Philips Advance electronic ballasts and 400,000 T8 32 Watt lamps from Philips Lighting
Estimated Annual Energy Cost Savings:	Up to 20% reduction in lighting costs
Payback Period:	Approximately 2 years per store
Other Benefits Accrued:	- Significant improvement in lighting levels - Reduction in stocking requirements

Government: Altus Air Force Base (Oklahoma)

When asked to reduce its energy use by 35% by 2010 as part of a federal government requirement, Oklahoma-based Altus Air Force Base proved that it was not only committed to serving as a premier air mobility training location for the United States Air Force, but as a responsible community partner and Federal team member as well.

Altus' project involved the upgrade of old fluorescent T12 lamps, magnetic ballasts, and inefficient incandescent and HID lighting technology within 93 buildings to new, energy-efficient T8 and T5 fluorescent lamps driven by high efficiency electronic and dimming ballasts, as well as the conversion of 250 exit signs using highly-efficient light-emitting diode (LED) technology. As a result of the upgrade, lighting quality has improved dramatically, the base's energy consumption has been reduced by over 6 million kWh annually, and the base will recoup its investment in just four years, reflecting an attractive ROI of 25%.

Confirms Altus Air Force Base Energy Manager Warren Howard, "this lighting project has significantly reduced the amount of energy we consume while providing improved light levels in all areas of our facilities, particularly in the hangars. The energy savings will enable the base to make necessary capital improvements without impacting the operating budget, which is a win-win for the thousands we employ as well as the larger community.

Project Scope:	Lighting upgrade within 93 buildings on air force base to comply with federal government directive to reduce energy use by 35% by 2010
Products Involved:	Installation of over 25,000 T8 fluorescent lamps from Philips Lighting driven by 13,000 high-efficiency electronic and dimming ballasts from Philips Advance
Annual Energy Reduction:	Over 6 million kWh annually
Payback Period:	4 years
Return on Investment:	25%

Sources:

(1) Based on findings from the 1999 Commercial Buildings Energy Consumption Survey (CBECS), published by the U.S. Department of Energy and the Energy Information Administration, as well as the 2002 U.S. Lighting Market Characterization (Volume 1), published by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy

(2) The Energy Cost Savings Council's Analysis of 1,000 Electrical Product Upgrade Projects (1998)

These real-life case histories demonstrate that all types of entities can benefit from lighting upgrades. From commercial to educational, retail facilities to government buildings, upgrades involving energy-efficient lighting technology are improving lighting quality, simplifying purchasing and maintenance requirements, helping the environment, and routinely driving attractive 30-50% returns on investment and up to 20-25% reductions in total facility energy consumption and costs.⁽²⁾ These real-life examples around the country are just some of the thousands that have successfully pursued and subsequently enjoyed the comprehensive range of benefits that lighting upgrades have offered their facilities.

A wide network of utility professionals, qualified electrical distributors, and energy service companies as well as a variety of government agencies and trade associations are available to assist with upgrade projects. And with the additional 2006-2008+ availability of government-sponsored tax deductions on qualifying upgrades through the Federal 2005 Energy Policy Act as well as the enactment of other landmark energy-related legislation such as the 2007 Energy Independence and Security Act, there has never been a better time to reduce your energy costs, improve your facility's lighting quality and ambiance, elevate employee productivity, or benefit the environment. Don't wait to capitalize on the benefits that an energy-efficient lighting upgrade can offer your employees and facility!

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