



Methodist Health Care System

A Case Study: \$300,000 reduction in Energy Costs Through Lighting Upgrade



According to Department of Energy statistics, American businesses spend some \$30-40 billion annually on lighting alone. Through the use of more energy-efficient lamps, ballasts, fixtures, lighting controls, and other lighting technologies, it is estimated that the nation's commercial, industrial, and institutional buildings could realistically reduce their energy costs by some 30-50%, significantly improve lighting quality and facility ambiance, and reduce carbon dioxide emissions into the environment by over 100 million tons each year.

Ironically, although lighting upgrades routinely pay themselves back in under three years and drive attractive returns on investment in the 30-50% range, the vast majority of commercial buildings in the nation are still rife with opportunities to upgrade outmoded lighting systems to achieve the significant financial, aesthetic, and environmental benefits described. Such was the case when energy service company Lighting Management Consultants performed an audit of the Methodist Health Care System's Smith and Scurlock Towers in Houston, Texas. Following an extensive upgrade of existing lighting products with more energy-efficient alternatives, however, John Tolleson, Manager of Plant Operations and Facilities Construction for Methodist Health Care System's Smith and Scurlock Towers, witnessed a vast improvement in the facility's lighting conditions while saving over \$307,000 a year in energy and maintenance costs.

As part of the upgrade, all of the Methodist Health Care facility's nearly 20,000 lighting fixtures were upgraded, with some 38,000 older T12 fluorescent lamps driven by 24,000 magnetic ballasts replaced with 34,000 energy-efficient T8 32W fluorescent lamps

driven by just 14,000 energy efficient electronic Philips Advance ballasts. In addition, the upgrade involved the replacement of 3,500 incandescent bulbs with highly-efficient compact fluorescent lamps. Studies have shown that compact fluorescent lamps last at least 10 times longer than incandescent lamps, and that, for each incandescent that is replaced by a fluorescent bulb, approximately \$67—more than four times the cost of the bulb—is saved on the electric bill over the life of the bulb.

In addition to the upgrades made to the general lighting infrastructure, nearly 700 incandescently-lit exit signs were replaced with highly-efficient light emitting diode (LED) technology. LEDs can last up to 25 years compared to the one-year or shorter life expectancy of many incandescent bulbs in the commercial setting. LEDs only use 2W per sign versus 40W from the usual two 20W bulbs in an incandescent sign, for an energy savings of 95%. Methodist Health Care System's Smith and Scurlock Towers will realize maintenance savings of over \$10,000 each year as a result of the LED sign upgrade alone.

"By replacing outdated lighting technology with new energy-efficient and economical electronic ballasts and T8 lamps," said Shannon Carnes, project manager for Lighting Management Consultants, the Houston-based energy service company which managed the upgrade at the Methodist health facility, "we were able to make the facility more energy-efficient while incorporating field designs to better standardize the entire lighting system."

Overall, by upgrading the lighting system within the campus buildings, Methodist Health Care System's Smith and Scurlock Towers realized significant energy

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savings and improved lighting quality while enhancing the environment. The estimated payback for the project is 2.75 years, with a 36% return on investment. In addition, Methodist's lighting upgrade reduced the facility's annual energy consumption by 5.5 million kilowatt-hours, which has the same effect on the environment as the planting of over 1,600 acres of trees or the removal of nearly 800 cars from U.S. roads. "With the upgrade, we realized improved light output and enhanced color rendering, all with an incredible reduction in the amount of energy used," Methodist's Tolleson confirmed.

A leader in the ballast industry for over 60 years, Philips Lighting Electronics N.A., based in Rosemont, Illinois, offers a full line of Philips Advance branded ballasts and drivers for fluorescent, HID, and LED light sources to the market's broad range of lighting fixture manufacturers and electrical distributors. For more information on Philips Lighting Electronics' complete product line and range of Smart Solutions™, visit our website at www.philips.com/advance or call us at (800) 322-2086

Project Overview	
End User:	Methodist Health Care System's Smith and Scurlock Towers (Houston, Texas)
Project Scope and size:	A lighting upgrade within 1 million square feet of hospital space to drive energy cost reductions and standardize facility lighting systems
Products involved:	The project involved the installation of 14,376 Philips Advance electronic ballasts, 33,834 T8 fluorescent lamps, 3,429 compact fluorescent lamps, and 692 LEDs for exit signs
Lighting Designer & Contractor:	Lighting Management Consultants (Houston, TX)
Annual Energy Reduction:	5.5 million kwh
Annual Energy Savings:	\$307,547
Payback Period:	2.75 years
Return on Investment:	36%



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Philips Lighting Electronics N.A.
10275 W. Higgins Road
Rosemont IL 60018
Tel: 800-322-2086 Fax: 888-423-1882
Customer Support/Technical Service: 800-372-3331
OEM Support: 866-915-5886
www.philips.com/advance