

FACT SHEET

LIGHTING

“Keeping the lights on” is a significant cost for most businesses — anywhere from a quarter to a half of total electricity costs. Fortunately, energy and money-saving changes to your lighting are relatively simple and provide quick payback. Improvements in lighting technology mean that you don't need to compromise on lighting quality to be energy efficient.

To enable your business to take advantage of energy efficient lighting technologies, ComEd's *Smart Ideas for Your Business*SM program offers financial incentives to help you complete projects that will reduce your energy usage. “Prescriptive” incentives cover common, straightforward, “off-the shelf” equipment upgrades, such as replacing light fixtures. More complex, custom-tailored projects, such as daylighting, that are not on the prescriptive list may be covered by “custom” incentives.

REDUCING LIGHTING COSTS

Simply put, your energy costs are:

$$\text{Power consumption} \times \text{hours} \times \text{rate}$$

To reduce your lighting-related energy costs, you need to do one or both of the following:

- Reduce power consumption by using higher efficiency (fewer watts per lumen) lamps and/or ballasts
- Reduce the amount of time the lights are on

Reducing power consumption

Higher efficiency in overhead lighting is usually gained by replacing older lamps and ballasts with new fluorescent lamps and electronic ballasts. The most common route to reducing power consumption is replacing tubular fluorescent lamps with more efficient ones.

The omnipresent tubular fluorescent lamp is installed in a dedicated housing with a built-in ballast (magnetic or electronic). Older T12 (1 1/2-inch-diameter) lamps with magnetic ballasts are both common and inefficient. US Department of Energy (DOE) regulations essentially eliminate the manufacture of T12 magnetic ballasts after 2010. Electronic T12 ballasts are available, but generally it is more cost-effective to retrofit T12s with T8 (1-inch-diameter) lamps and electronic ballasts. The choice of T8 lamp (low wattage or high performance) and ballast (conventional, instant start or programmed start) depends on the specific application.

T5 lamps are also highly efficient, maintain their lumen output longer, and work well in enclosed fixtures and warm environments. Because they are manufactured to metric measurements, T5 lamps are an option only when the fixture is replaced.

Prescriptive incentives for lighting upgrades include:

- Installation of hardwired compact fluorescent fixtures (\$25-\$50 per fixture)
- Upgrading T12 lamps and ballasts to high-performance, low-wattage or specialty T8 lamps and ballasts (\$1-\$6 per lamp)



A new 208,000-sq.-ft. warehouse operating 24/5 (6,240 hours per year) had built-in energy savings measures: 160 skylights and 280 T5 fixtures. For additional energy savings, the owners installed occupancy sensors and daylight sensors on all 280 T5 fixtures.

The occupancy sensors reduced the hours of operation/year to 3,750, and the daylight sensors reduced hours of operation/year by another 3,000. Installing the sensors cost just under \$10,000 and saved 79,466 kWh per year. With a \$4,877 incentive from ComEd's *Smart Ideas for Your Business* program, the project paid for itself in seven months.

- Permanent lamp removal after upgrade of T12s to T8s or reconfiguration of existing T8s (\$6-\$16 per lamp)
- Installing new T8 or T5 fixtures (\$0.30 per watt reduced)
- Retrofitting existing mercury vapor, standard metal halide or high pressure sodium fixtures with high intensity discharge (HID) pulse-start metal halide or ceramic metal halide fixtures (\$5-\$40 per fixture)

Another option for reducing power consumption is to use LEDs in certain applications. Replacing incandescent exit signs, which must be on continuously, with LED exit signs is fast and inexpensive. Even a smaller building can see solid energy savings: A typical exit sign drops from 40 watts (incandescent) to 5 watts, saving 300 kWh per year per sign. Prescriptive incentives for replacing incandescent, neon and other low-efficiency exit signs, channel signs and “open” signs with LED signs range from \$6 to \$25 per sign to offset the somewhat higher upfront cost of LED signs.

Because the light from LEDs can be “aimed,” they are also being used in retail displays and outdoors in parking lots and garages.

LEDs offer several potential advantages over metal halide and high-pressure sodium lighting in outdoor installations:

- Having no glass or filaments, LED lights are less prone to breakage from vandalism or accidents.
- They light instantly without run-up time or restrike delay.
- Their small size means that even “large” LED fixtures producing thousands of lumens can be lower-profile than their HID counterparts.
- The directional light emission of LEDs reduces light trespass and “skyglow.”
- They are not affected by cold environments.
- They contain no mercury, lead or other known disposal hazards.

Retrofitting outdoor or parking garage HID fixtures with LED fixtures can qualify for incentives of \$15 to \$110 per fixture, depending on wattage.

LED installations that are not on the prescriptive list may qualify for custom incentives that range from \$.03 to \$.07 per kWh saved.

Testing by the DOE has shown wide variability in the performance of LED products, so it’s important to ensure that LED lights meet the program specifications.

Reducing hours of use

The obvious way to reduce the amount of time your lights are on is to turn them off — a task that is easily automated. An occupancy sensor turns the lights on when it detects motion: lights go off when no motion is detected. Occupancy sensors in storage areas, stairwells and other less occupied spaces can dramatically reduce lighting energy use.

Occupancy sensors can qualify for prescriptive incentives of \$.09 per watt controlled or approximately \$20–\$25 per sensor, depending on the type of sensor.

Time clocks or timers control light levels based on schedules and lighting-level strategies, and may be eligible for incentives. An energy management system (EMS) can reduce energy use by managing an entire building’s lighting and HVAC.

Photo sensors are the key to “daylighting” or “daylight harvesting” — using natural sunlight from windows and skylights to supplement the artificial light. Well-planned and properly commissioned photo sensor controls are essential for energy savings and for overcoming the hurdles of heat and glare. Daylighting controls may be eligible for incentives of \$0.09 per watt installed.



A small parochial school in the near west Chicago suburbs keeps the lights on 10-12 hours a day most days for school and parish events, so it was simple math for them to change out 100 T12 fluorescent fixtures for T8s and save about 18,000 kWh per year.

The school didn’t stop there. They also switched their exit signs, which operated 24/7, from incandescent to LED. Incentives reduced the cost of retrofitting the exits signs significantly. The savings add up to hundreds of dollars each year.

FOR MORE INFORMATION

We’ve only touched on a few ways to increase your lighting energy efficiency. A good source for more information is the U.S. Department of Energy’s Web site, especially the ENERGY STAR® Building Manual, available online at www.energystar.gov.



FIVE SMART IDEAS FOR YOUR BUSINESS

1. Boost your bottom line by cutting energy costs.
2. Safeguard the environment by reducing emissions.
3. Reduce maintenance demands and related downtime.
4. Distinguish your business as a leader in saving energy and protecting the environment.
5. Use cash incentives to reduce up-front costs and shorten payback periods.

CONTACT US

For more information about ComEd’s *Smart Ideas for Your Business* visit www.ComEd.com or call **888-806-2273**.

