



**Energy Savings
Strategies and Technologies
General Lighting and Energy Information Statistics**

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Energy Savings Strategies and Technologies

iDim uses many cutting edge technologies and strategies to not only facilitate and improve your lighting interests/needs but also implements a wide variety of energy saving techniques to not only improve your (R)eturn (O)n (I)nvestment time but increase your residual savings thereafter, incorporating but not limited to:

- Light Harvesting
- Occupancy Sensing
- Solar Powered Solutions
- Energy Conserving Luminaries
- Digitally Addressable Dimming Ballasts/Socket
- Tuning
- Controls/Wireless

Numerous strategies must be combined to deliver a high-performance building substantial energy savings, but none is more powerful than a thoughtfully specified and commissioned lighting control system

Digitally addressable dimming ballasts. This technology is fully controllable, and scalable for applications ranging from small, standalone spaces to multiple rooms and areas, to whole floors, entire buildings or even expansive campuses. It allows light fixtures to directly network with time clocks and occupancy sensors, as well as daylight sensors, wall controls, handheld remote lighting controls, and building management systems.

Tuning. Lighting energy use can be reduced by 20 percent or more through tuning, which sets the appropriate light level for each space. Existing buildings are usually significantly over-illuminated. Light levels are set for the worst-case scenario, which is typically much higher than desired. For this reason, a facility manager can "tune" a new lighting system that is controllable via dimming ballasts to the right light level for each space. For instance, some areas may require 40 foot-candles or light on the work surface while others need only 20. This strategy can save a significant amount of energy while making occupants more comfortable and productive.

Daylight harvesting. This option automatically dims electric lights when enough daylight is present and typically can save an additional 10 to 16 percent in lighting electricity costs in buildings with many windows or skylights.

Wireless controls. Wireless options save on the costs of installing new line-voltage wiring, as well as reducing the impact on the building occupants. ROI can be achieved on many projects within one year. Products include occupancy sensors, line-voltage controls, photocells for daylight harvesting and relay control systems for scheduling.

Taking advantage of wireless controls for renovations can reduce cost as much as 50 percent compared to wired systems

Outdoor lighting, which includes parking garage lighting, is one of the most overlooked areas during a lighting upgrade, experts say. It's a significant missed opportunity, because it can provide energy savings and operating cost reductions.

Many people don't believe exterior lights are as important to the budget as those on the inside but they also forget that outside lighting is on at least 12 hours a day, as long as inside lighting. Exterior lighting makes a building secure. It makes people secure.

Occupancy sensing. These sensors automatically turn off lighting when occupants leave a space. The average savings tally up to about 35 percent. Occupancy sensors are best suited for private offices, conference rooms, restrooms and classroom spaces. Besides traditional uses, occupancy sensors also can be integrated into stairwell luminaries for additional savings

General Lighting and Energy Information and Statistics

Lighting, on the average, can account for a third of a building's energy use and potentially more if the facility has exceptionally outdated, inefficient lighting. Making even a few changes to an outdated lighting system, whether it is through lamp or fixture replacement, adding controls or adjusting lighting color and intensity, can bring numerous benefits. In fact, more widespread lighting upgrades in the United States could avoid some \$50 billion of needless energy expense each year, according to DOE estimates.

Because energy-efficient lighting typically generates less waste heat, a lighting retrofit project can potentially reduce your cooling costs as an added benefit.

With 75 percent of all commercial buildings using outdated technology, the potential for energy efficiency and cost savings with lighting upgrades can be significant. Upgrades typically can save between 40 and 60 percent on energy costs, leading to a fast ROI just by switching to the technologies available today. In fact, if we switched all the lighting in the world's non-residential buildings to energy-efficient solutions, we would save approximately \$80 billion on electricity costs and avoid emitting 330 million tons of carbon dioxide into the atmosphere. That's equivalent to the output of 312 power plants."

It's clear that facility managers can make a difference locally and globally by making lighting upgrades in their buildings — some of which are simple, yet still often overlooked. The common denominator is that all yield energy and cost savings, boosting efficiency and improving the bottom line — crucial concerns for any facility manager.

Operating costs, which include electricity costs and maintenance costs, are a major expense for any facility, and facility managers are responsible for managing these costs. Converting from less-energy-efficient, old-technology lighting systems to new, more efficient technologies is a proven way to cut operating costs.

Lighting upgrades can provide substantial energy savings while improving the overall lighting quality for a building's space by delivering higher lighting levels, more evenly distributed light and improved color rendering. Better light, studies show, can improve occupant productivity. It's a win-win opportunity for facility managers and occupants.

The lighting industry is continuously improving and developing new products geared toward reducing energy use while meeting the illumination requirements for a given space.

Lighting Energy Usage per Industry

Hospitality	Industry	Government
<p>Lighting typically accounts for about 20% of a restaurant's energy costs and 62% of hotels' and motels' energy costs. Maintaining the right atmosphere is critical to specific types of restaurants. For example, full-service and casual dining restaurants often increase ambience in the dining rooms and bar areas by dimming the lighting.</p> <ul style="list-style-type: none"> - Incandescent and halogen bulbs in restaurant dining areas, hotel lobbies, conference rooms and hallways can be retrofitted LED replacements, reducing the watts used without sacrificing lighting levels or quality. The payback is often less than 6 months, and installation can be performed in-house, saving money on labor costs. - Many restaurants are replacing old T12 fluorescent lighting with more efficient T8 and T5 technology in their food preparation areas, thereby reducing energy and maintenance costs. - Retrofitting high-intensity discharge lighting in outdoor areas and parking lots with LED lighting can reduce related energy consumption and maintenance costs by 50% or more. 	<p>Lighting accounts for nearly 24% of electric use for many industrial facilities. Although fulfilling orders and managing clients is your top priority, improving your energy performance with a lighting retrofit can not only improve the quality of lighting throughout your facility but also boost your bottom line.</p> <ul style="list-style-type: none"> - Increase your employees' productivity and improve plant safety by enhancing lighting quality. Retrofitting lighting in manufacturing and warehousing areas with high-performance linear fluorescent or LED high-bay fixtures can improve light quality and reduce energy consumption. - Install lighting controls, daylight dimming and occupancy sensors to decrease the lighting load on sunny days and during downtimes in office areas and warehouse spaces. 	<p>Lighting typically accounts for about 40% of a government facility's energy costs and is critical to employees' safety and productivity. Incentives are available to retrofit or replace lighting throughout your facility with energy-efficient options that not only offer immediate energy savings but also improve overall lighting, enhancing employee comfort and productivity.</p> <ul style="list-style-type: none"> - Improve the quality of lighting and reduce the number of lamps that are needed by retrofitting inefficient office fixtures with new advanced volumetric fluorescent fixtures. - Use occupancy sensors to keep lights off when not in use. - Improve the quality of lighting and reduce the number of lamps that are needed by retrofitting inefficient office fixtures with new advanced volumetric fluorescent fixtures that can cut energy consumption by up to 50%. - New advanced volumetric fixtures are one of the most sensible lighting upgrade options for government agencies. These fixtures reduce the number of lamps needed per fixture, thus optimizing the fixture layout in office spaces.

Lighting Energy Usage per Industry (Continued)

Education	Health Care	Non-Profit
<p>Lighting typically accounts for 37% of an educational facility's energy use. Proper lighting is essential in classrooms, libraries, dormitories and anywhere students congregate or study. Incentives are available to retrofit or replace lighting throughout your school with energy-efficient options that not only offer immediate energy savings but also improve the overall quality of the learning environment. And, because energy-efficient lighting typically produces less waste heat, a lighting retrofit project can potentially reduce your cooling costs as an added benefit.</p> <ul style="list-style-type: none"> - Install occupancy sensors in classrooms, offices, restrooms and storage areas to reduce lighting-related energy usage by up to 60%. - Retrofit classroom, office and hallway light fixtures with more efficient T5 or T8 fluorescent fixtures, which can lower lighting-related energy use by up to 50%. - Replacing outdated prismatic-lensed fixtures with new advanced volumetric fixtures is one of the most popular energy efficiency improvements undertaken by educational facilities. These highly efficient fixtures reduce the number of lamps needed per fixture, not only saving energy but also optimizing the fixture layout for your space. 	<p>Lighting typically accounts for more than 40% of a healthcare facility's energy costs. Incentives are available to retrofit or replace lighting throughout your facility with energy-efficient options that offer immediate energy savings and improve overall lighting quality.</p> <ul style="list-style-type: none"> - Facilities that use T12 fluorescent lamps can replace them with high-performance TB lamps and electronic ballasts to reduce lighting energy consumption by up to 35% and see payback in 1 to 3 years. Adding occupancy sensors or other lighting controls can potentially double the savings. - Upgrading to more efficient lighting in common areas and patient rooms for general lighting often reduces the number of lamps needed per fixture, optimizing the fixture layout in the space and controlling glare better than existing fixtures such as deep-cell parabolics. With this simple upgrade, hospitals and other healthcare facilities can save up to 50% in energy use. And, with incentives, the payback is often less than 2 years. - Retrofitting high-intensity discharge lighting in outdoor areas and parking lots with LED lighting can reduce related energy consumption and maintenance costs by 50% or more, and bring the return on investment to less than 2 years. 	<p>Lighting systems account for approximately 20% of electric use for many nonprofit organizations. Incentives are available to retrofit or replace older, inefficient lighting throughout your facility with options that not only offer immediate energy savings, but also improve overall lighting quality.</p> <ul style="list-style-type: none"> - Install occupancy sensors to reduce your lighting-related energy consumption in unoccupied spaces - For smaller nonprofits, incentives available can cover up to 80% of the cost of energy-efficient lighting upgrades and installation of occupancy sensors. Many of these small offices are still using inefficient T12 lighting fixtures and may be able to replace those with high-efficiency T8 or T5 alternatives, resulting in payback in less than 1 year. - For larger nonprofits, retrofitting existing lighting fixtures with energy-efficient, advanced fluorescent alternatives reduces the number of lamps per fixture. - Installing occupancy sensors in restrooms, private offices and storage areas is another excellent way to save energy. Occupancy sensors reduce energy use by turning lights off in spaces when they are unoccupied.