

## INDUSTRY NEWS

# Energy-Efficient Lighting Can Save Significant \$\$\$ And Be Environmentally Friendly

By Phil Rose

We encourage customers to look at both sides of the environmentally-friendly issue. One is renewable energy sources like power from solar panels and wind turbines. The other side is energy-efficiency, which is much easier to develop.

Reducing energy usage is much more cost-effective and just as friendly to the environment. New technology offers major inducements for firms to take a hard look at lighting expenses, especially now with government incentives and utility credits available.

## FLUORESCENT LAMPS

Improved energy-efficiency can reduce electrical consumption and save significant \$\$\$. If your warehouse, parking structure or plant is lighted with metal halide lamps, you could pocket tremendous savings with high bay fluorescents or induction lamps.

Fluorescent lamps provide the same amount of lighting as metal halides at about half the energy cost. While lamp life is similar for both, metal halide light output decreases steadily to about 40% of its original light after 20,000 hours of use while fluorescents are still at 85%.



*The well-designed lighting system in JohnsonDiversey's LEED certified 550,000 sq. ft. distribution center is expected to reduce energy usage by 60% and save up to \$90,000 per year. The warehouse is lighted by high-output T5 high-bay fluorescents with occupancy sensors and lighting controls.*

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## INDUCTION LIGHTING

For much lower maintenance cost in an application like a large warehouse, induction lighting is very efficient. Lamp life increases from 20,000 hours up to 100,000 hours and energy use is reduced from 15% to 40%. Induction lighting output also remains constant, with lamps providing 95% of original output near the end of their life span.

Major savings are also available in applications like parking garages where lights are on 24/7. While the average metal halide lamp will last 2-1/2 years, an induction lamp will last 12-15 years, giving owners substantial reductions in both energy and maintenance costs.

Municipalities are now looking at induction lamps for street lighting. When they replace metal halide lamps lasting only 8,000 to 10,000 hours with a 100,000 hour induction lamp, maintenance cycles go from 1-1/2 years, or even more often, to as infrequently as 15 years!

Induction lighting is especially economical in applications where light fixtures are not readily accessible or the facility has a huge number of lights with massive, costly, time-consuming maintenance. Because the need for maintenance is so drastically reduced, labor and material costs also decrease proportionately.

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**LED LIGHTING**

Another competing technology for street lights and parking applications, is light-emitting diode (LED) lighting. LED systems cost more than metal halide, fluorescent or induction fixtures but compared to other lamps, they require fewer fixtures, less wattage, use less energy, have longer lives, waste little light and offer greater directional control.

They're extremely efficient because their controlled optics focus the light, eliminating much of the light "drift" – light pollution – from disturbing nearby neighborhoods. Because they operate on less energy, from 5 to 15 watts, they perform at lower temperatures even after being on for a long period of time.

LED lamps and drivers have 100,000 hour lives and offer more than 50% energy savings and an 80% reduction in maintenance costs than other lamps.

**SOLAR AND WIND POWER**

More businesses are looking at solar power systems as prices decrease. Substantial tax credits and rebates also improve the bottom line for solar investments. GE Medical



*Dierks Waukesha Foods achieved substantial lighting savings by having Roman Electric replace older high pressure sodium and metal halide lamps with energy-efficient high bay fluorescents. With the new lamps, occupancy sensors that only turn lights on when someone enters the aisle, Focus On Energy rebates and federal tax deductions, the food distribution company is saving at least \$5,000 per month.*

is putting hundreds of kilowatts of solar panels on their roof. Johnson Controls installed a 320 kilowatt system in their front yard. MATC is planning a 1,200 kilowatt solar system on land it owns. Installed



*Johnson Controls lights its parking garage with extremely efficient LED lamps requiring fewer fixtures, less wattage and less energy, and offering longer life, little wasted light and greater directional control.*

solar panel systems cost around \$8,000 per kilowatt. The federal government provides a 30% tax credit, Focus On Energy will rebate about 25% and WE Energies will pay \$900 per installed kilowatt. Total incentives pay 60-75% of the installation cost.

Paybacks still range from 10 to 20 years but that assumes energy costs will remain the same, which is highly unlikely. Though not what businesses would call a good return on investment, solar offers those concerned about the environment the opportunity to make an immediate impact and can reduce their dependence on utility coal-fired plants.

If electrical rates increase, the utility will be buying back energy you don't use at higher rates which could give you a 5-10 year payback on your solar power investment.

We installed one of the first solar systems in the area in 2003 at the Schlitz Audubon Nature Center. Their new

"green" building included a 10 kilowatt solar photovoltaic system which converts sunlight directly into electricity.

We're also researching wind power, especially commercial-sized wind generators. We think there will be a strong interest because there may be a faster payback than solar systems.

