

# LIGHTING PRODUCTS

# PERSPECTIVES

MagneTek

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## Higher Energy Costs Increase Demand for More Efficient Lighting Solutions

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The recent energy shortage and associated high costs in California have renewed interest in energy conservation in both new and existing buildings across the country. There are several reasons to believe that this is not an isolated, one time West Coast event:

- Peak period demand for electricity continues to grow. Credit this to several years of robust economy and the spread of new generations of electronic appliances, most notably personal computers and printers.
- Because of environmental and regulatory considerations, additional generation capacity has not come on line to meet this increased demand. No new construction of nuclear plants has been commissioned in over a decade. A large percentage of the newer generating plants are fueled by clean burning however increasingly costly natural gas.
- Deregulation of the energy sector has not delivered on their promise of more competition and lower prices. High barriers to entry, well meaning but ill planned government intervention, and consumer indifference are contributing factors.
- Higher average temperatures in the summer mean the highest energy demand is yet to come.

Lighting efficiency improvement is the easiest to implement and most cost effective strategy for reducing electrical usage in

commercial buildings. Lighting typically consumes from 15 to 40% of the annual energy used by buildings. Outdated lighting systems also increase temperature levels, exerting additional strain on air conditioning systems. Replacing existing lighting systems with more efficient systems is more practical and less disruptive than replacing or upgrading HVAC systems.

While lighting related energy savings will vary, these guidelines from American Electric Power might be helpful:

- General fluorescent lighting systems have lighting loads of 1.5 to 2.5 watts per square foot.
- Fluorescent lighting systems with combination task and ambient lighting have loads of 1.2 to 4.0 watts per square foot.
- A High Intensity Discharge (HID) lighting system has a load of 1.0 to 2.0 watts per square foot.
- As a rule of thumb, every 2.5 to 3.0 KWH of lighting load requires an additional kW of cooling. Theoretically, every 1 kW reduction in lighting can result in a 1.1 to 1.3 KWH decrease in total energy.

Specific places to look for lighting related energy savings include:

- The use of pulse start metal halide ballasts can create additional energy savings over HID ballasts where appropriate.
- Conversion of traditional T12 linear fluorescents to more efficient T8's will not only save energy, they will also enhance and improve lighting color and working environment.
- Retrofit with low power electronic ballasts to reduce light levels in applications such as hallways and corridors where maximum light is not required.
- Use occupancy sensors, along with program rapid start ballasts to extend lamp life.
- Install photocells or dimmers connected to dimming ballasts in areas with significant daylight contribution.
- Replace mercury vapor lights in factories or warehouses with metal halide lighting, which increases efficiency by up to 25%.
- Replace standard incandescent lights with direct replacement compact fluorescents. They use 4-5 times less electricity and can last 10 times as long, which decreases maintenance costs. Lower wattage fluorescents also generate less heat, lowering cooling costs.
- Replace magnetic ballasts with electronic ballasts which provide the same amount of light while consuming 20 to 40% less power.

